SHIFTING INVOLVEMENT: CASE STUDIES OF PARTICIPATORY DESIGN IN GRAPHIC DESIGN

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ABSTRACT

Participatory design includes end-users in the design process with the aim of harnessing their contextual knowledge and creative ideas. The participatory design literature considers the capacity of end-user participation to enhance design outcomes in workplace design, information technology, human-computer interaction, product design, architecture and urban planning. There is little evidence of its use in graphic design, despite participatory design emerging as a field of practice and research in the early 1970s. This leaves graphic designers with a lack of knowledge about how to include end-users in the design process in an era of end-user engagement.

This study trialled participatory design processes in two graphic design real-world projects. In one, childcare workers and designers developed information strategies to promote low-chemical cleaning. The other saw designers and health educators design asthma information materials. Case study method was used, allowing for rich description and interpretation of the complex factors involved in design. A main claim of participatory design is that it remedies design’s conventional exclusion of people from decisions that concern them. This assumes that the identities and role of end-user and designer participants remains discrete and stable throughout the design process. This study into the use of participatory design in graphic design found a more complex situation. End-users were changed by participation, preferring to design for others rather than themselves. No other study in participatory design reports this tendency, identifying the research as an original contribution to the field in contesting the role of end-user participants as representatives of a specific end-user group.
ACKNOWLEDGEMENTS

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Above all, I wish to thank Julian, Emma and Tom Darling for their patience and understanding while I have been writing this thesis.

Je dédie cette thèse dans la mémoire de mon père, Denis Taffe.
DECLARATION

This thesis contains no material which has been accepted for award of any other degree or diploma, except where reference is made in the text of the thesis. To the best of my knowledge, this thesis contains no material previously published or written by another person except where due reference is made in the text of thesis and where the work is based on joint research or publications, discloses the relative contributions of the respective workers or authors.

Name: Simone Taffe

Signed:

Dated:
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<tr>
<td>ABC</td>
<td>Australian Broadcasting Commission</td>
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<tr>
<td>ACM</td>
<td>Association for Computing Machinery</td>
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<tr>
<td>ACT</td>
<td>Australian Capital Territory</td>
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<tr>
<td>AIGA</td>
<td>American Institute of Graphic Arts</td>
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<tr>
<td>BHP</td>
<td>Broken Hill Proprietary Limited</td>
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<td>CACM</td>
<td>Communications of the ACM</td>
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<tr>
<td>NordiCHI</td>
<td>Conference on Human-Computer Interaction</td>
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<tr>
<td>CRC</td>
<td>Cooperative Research Centres</td>
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<tr>
<td>CSCW</td>
<td>Computer Supported Cooperative Work</td>
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<td>CSCWD</td>
<td>Computer Supported Cooperative Work in Design</td>
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<tr>
<td>CPSR</td>
<td>Computer Professionals for Social Responsibility</td>
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<tr>
<td>CUU</td>
<td>Conference on Universal Usability</td>
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<tr>
<td>ETHICS</td>
<td>Effective Technical and Human Implementation of Computer Based Systems</td>
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<tr>
<td>IASDR</td>
<td>International Association of Societies of Design Research</td>
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<tr>
<td>IEE</td>
<td>Institute of Electrical Engineers</td>
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<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
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<td>ISSN</td>
<td>International Standard Serial Number</td>
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<tr>
<td>MIS</td>
<td>Management Information System</td>
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<tr>
<td>MIT</td>
<td>Massachusetts Institute of Technology</td>
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<td>MUST</td>
<td>Theories and Methods of Initial Analysis and Design Activities</td>
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<td>PICTIVE</td>
<td>Plastic Interface for Collaborative Technology Initiative through Video Exploration</td>
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<td>PD</td>
<td>Participatory Design</td>
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<td>PDC</td>
<td>Participatory Design Conference</td>
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<td>RMIT</td>
<td>Royal Melbourne Institute of Technology</td>
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<td>SASI Clean</td>
<td>Safe and Sustainable Indoor Cleaning Project</td>
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<tr>
<td>SIGCHI</td>
<td>Special Interest Group on Computer–Human Interaction</td>
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INTRODUCTION

This study sought to understand the influence of participatory design (PD) on participants in the graphic design process using qualitative methods through two case studies. PD introduces the idea of end-user designing, marking a distinct development in the philosophy and practice of user-centred design (UCD). PD originated in Scandinavia in the early 1970s with researchers such as Ehn, Kensing, Simonsen, Bodker, Kuhn and Muller seeking worker involvement in the design and implementation of computer systems. Early PD aimed to include end-users in the design process to capture their ideas and contextual knowledge, stressing the right for end-users to influence the design of things that affect them. Since these early days, the arguments for PD have formed a cyclical set of debates. Each time interest in PD arises in the design literature, writers espouse its benefits and ideals in general terms. However, although the literature reiterates first principles, rarely does it analyse actual cases or provide evidence for the value of specific design methods in particular design fields.

Early writing on PD centred on the needs and experiences of end-users, with PD seeking to afford end-users ownership of the design process and project outcomes. Designers assumed the role of assistants to end-users, typically workers, in their need to gain control of their work place and work practices. However, since the early 1990s, greater consideration of the designers’ role, the nature of design tools and activities and the influence of participation on designed outcomes have overshadowed the focus on end-users. This thesis, by contrast, investigates how PD influences participants in relation to graphic design. I was inspired to investigate this aspect of PD because of graphic design’s apparent resistance to PD and strong, continuing privileging of the

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unique creativity and intuition of the graphic designer. The PD literature speculates on and demonstrates the advantages of PD in the creation of appropriate outcomes for end-users in fields including workplace design, information and communications technology, human-computer interaction, product design, architecture and urban planning. However, there is little published evidence of the graphic design field’s interest in PD or its application in graphic design, suggesting a distance between graphic designers and those they design for.

A growing body of graphic design literature, both scholarly and industry-focused, questions how graphic designers determine the form of designed communications, challenging the appropriateness of the intuitive, designer-driven message. As a thought leader in graphic design, Frascara urges graphic designers to become aware of and then consider the needs and preferences of end-users. Writers including Drucker and McVarish, Forlizzi and Lebbon, Frascara and Nini indicate that further research into end-user engagement in graphic design is required, but the idea of end-users participating in the design process has not gained traction in graphic design. The few documented cases suggest there is potential for end-user collaboration to enhance outcomes in graphic design, but there is a significant lack of published knowledge on the nature and implementation of end-user participation in graphic design.

Graphic design is an area ripe for broad exploration in this sense, with questions about the relevance of PD exploration in alternative design fields to graphic design practice. My research began with a view to investigating the general efficacy of PD in the graphic design process. My research question was refined into an exploration of the influence of PD on end-user and


designer participants in graphic design. Subsidiary questions to this main research question include whether 1) graphic designers maintain the role of design experts in the process or adopt a more facilitatory role, 2) whether end-users and designers behave as insiders or outsiders in the design process, 3) the nature of decision-making in PD activities, 4) whether the design of activities, processes and tools for design is a satisfying substitute for control over design outcomes for graphic designers, 5) whether end-users can learn and apply design methods and language in the space of a design project and 6) when designers and end-users come together in the graphic design process, where do ideas come from, who leads the process and which activities spark interest. This is a wide set of themes, but investigating an area where so little is known makes it likely that the research process will search for broad issues and effects.

Case study was chosen as the method to investigate the application of PD in graphic design. For Yin, case study method is ideal when there is a set of open-ended questions before research begins.6 Dorst argues that case studies can validate the efficacy of the application of PD outside technology development and that there is an urgent need for more research on this topic.7 Flyvberg warns that a discipline without ‘a large number of thoroughly executed case studies is a discipline without systematic production of exemplars and a discipline without exemplars is an ineffective one’.8 Frascara argues for more case studies in graphic design, especially those in which design is fully documented, monitored and evaluated.9 My research directly relates to Frascara’s call for more case studies by reporting on the application of PD in two graphic design projects using case study method.

The first case involves the design of promotional materials for low-chemical cleaning in childcare, focusing on the influence of PD on end-user participants in graphic design. The second case centres on the audit of information materials on asthma risk and management and the preparation of a set of

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design proposals. It focuses on the influence of PD on designer participants in graphic design. Both cases began by exploring how PD influences both end-user and designer participants, however each case focuses on one set of participants.

A significant theme in both cases is whether participants, both end-users and designers, are changed by participation, since the general claim that PD delivers enhanced design outcomes implies that something significant happens to those who take part in the process. Findings from the two cases lead me to argue that end-user participation in graphic design is complex, with end-user participants not reflecting the behaviour of end-users as existing published knowledge on PD in other design fields suggests. I show end-users preferring to design for different end-user groups—parents and temporary childcare workers in the low-chemical cleaning project and asthma sufferers and their carers in the case of the health educators—rather than themselves, thereby adopting a standard designer role of proposing designs for others based on prediction.

No other study in the PD literature reports this tendency. This present study is significant in contesting an established body of thought on the role of end-user participants in graphic design. I present this study as a contribution to knowledge of how PD influences participants in graphic design as the first study recording the influence of PD on end-user participants.

**How the Thesis Relates to Existing Knowledge of Design**

The following diagrams typify the nature of end-user and designer interaction in graphic design, UCD and PD respectively. The source material in the diagrams was illustrated by the Swinburne Design Centre students under my design direction and is original material. Figure 1 represents the standard graphic design process in which clients brief designers and designers respond intuitively to project briefs in the absence of any contact with end-users. Figure 1 represents the role of an imagined end-user in this process and the delivery of a designed artefact on behalf of this absent end-user.
Figure 1. The standard design process in graphic design.
Figure 2 represents how the field of UCD understands the relationship between end-users and designers across the phases of end-user research, designing and prototype testing. In the research phase, designers or others gather end-user information through observation, survey or focus groups. Design happens in isolation from end-users. Prototype testing with representative end-users allows designers to refine their designs for production. Although UCD seeks to fulfil end-user needs and preferences, the interaction between designers and end-users is limited and the roles of designer and end-user are distinct and reflect design convention.

Figure 2. End-user and designer interaction in UCD.
The PD literature argues for the involvement of end-users throughout the design process.\(^\text{10}\) Figure 3 represents the three phases of the PD process and the current relationship between participants as described in the literature. Participants co-determine a design strategy in the exploring ideas phase. PD is different from UCD in that design aims to be a shared process. The addition of arrows at both ends of the lines running between end-user and designer represents this relationship. I represent the design strategy and the design review phases of PD, as outlined in the PD literature, as a time for all participants to contribute their knowledge and skills to jointly create a design artefact that belongs to the end-user.

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The paucity of studies investigating the application of PD processes in graphic design means that how end-user and designer participants interact and behave in relation to PD principles is unknown. This study will be of interest to graphic designers wanting to know whether the extra time and expense of including PD in the design process are worth the effort. It describes activities that are successful in engaging participants and how they influence end-user and designer behaviour.

**Industry Experience Relevant to the Research**

In addition to reviewing all relevant literature, my understanding of issues in this research builds on twenty years of practical experience in the graphic design industry. I have worked as a graphic designer and design manager on branding and information design projects for major corporate and public clients. This experience includes seven years as design manager for the City of Melbourne, overseeing the council’s communication and branding programs. I have been involved in the design development of major branding projects for the Melbourne design consultancy Flett Henderson Arnold (now Futurebrand), including the Sydney Olympics, Telstra, BHP Billiton, the Australia and New Zealand Banking Group (ANZ) and the National Australia Bank (NAB). The research draws on my professional knowledge of the methods and processes used in graphic design, a highly relevant body of practice knowledge.

Through involvement in large branding and information design projects, particularly those with internal branding manifestations, I have seen the failure of projects adopting a top-down approach and the success of projects that consult broadly with people affected by design. I witnessed designers and clients working on projects that encountered implementation problems or were never realised because of poor understanding of the needs and perspectives of end-users and other stakeholders. For example, for fifteen years, the City of Melbourne sought to redesign its corporate identity using a top-down approach, the project failing to be endorsed by council and management. In 1992, project approval finally came, in part because of the inclusion of council staff in the design process. This made me appreciate the
importance of end-user and stakeholder views for the acceptability of design projects, these ideally being sought from the earliest stages of design.

I have experienced the public outcry at the perceived waste of money spent on the creative time of graphic designers in high public profile branding projects by organisations such as BHP Billiton. A City of Melbourne brand that I was involved in developing likewise attracted negative media coverage that focused on why the public should pay high fees for work seemingly forged in a flash of inspiration. To defend their field in each case, leading Australian graphic designers reported on the blood, sweat and tears involved in arriving at elegant design propositions, explaining that graphic design was one percent intuition and ninety-nine percent hard work. In both cases, what held my attention was an acknowledgment that the success of the design outcome depended on a design process that included public consultation and the views of end-users and other stakeholders.

My industry experience is relevant to the feasibility of the research, a primary goal being to develop tools to enhance the participative relationship and to identify relevant knowledge to be disseminated to the graphic design field. The case studies report on my actions as an experienced design manager. In addition to producing new knowledge, my professional development as a designer and design educator is a motivation for my research.

**Structure of the Thesis**

After this introduction, the thesis has seven main chapters and a conclusion. The first three chapters frame the research by discussing key issues in graphic design, user-centred design and participatory design. Chapter Four presents the method for the cases. Chapters Five, Six and Seven analyse and discuss the case issues.

Chapter One, ‘Graphic Design in a Vacuum’, explores graphic design’s historical neglect of end-user perspectives. The chapter focuses on graphic designers’ alternating self-perceptions as intuitive communication experts or as artists who create inspired design. It argues that these attitudes when
combined with graphic design’s strong links with business objectives make end-user input appear irrelevant to graphic design.

Chapter Two, ‘The State of User-Centred Graphic Design’, examines the development of UCD since the late 1960s. It reviews debates about standardised design in contrast to individualised design, highlighting this as a potential problem for graphic design, which remains client and designer-driven. The chapter reviews debates about end-user research methods and their significance to graphic design as an introduction to PD as a specific approach to UCD in Chapter Three.

Chapter Three, ‘Participatory Design’s Relevance to Graphic Design’, explores the development of PD, outlining the politics of end-user participation and the role for designers in PD as facilitators for design outcomes. Chapter Three examines PD tools and methods in other design fields for their relevance to graphic design. It considers PD case studies relevant to graphic design, identifying what has been previously attempted and discovered.

Chapter Four, ‘Research Method’, argues for the appropriateness of case study method in the investigation of PD in graphic design. It discusses the choice of a two-case study approach and the techniques used to ensure rigour in the data collection and analysis procedures.

Chapter Five, ‘The SASI Clean Case Study’, reports the Safe and Sustainable Indoor Cleaning Project (henceforth the SASI Clean study). The chapter first describes the PD workshop procedures. It then builds a picture of how PD affected the childcare workers who were involved in the study as end-user participants in graphic design.

Chapter Six, ‘The Asthma Foundation Case Study’, reports the Asthma Foundation of Victoria case (henceforth the Asthma Foundation study). This chapter provides a single case analysis of the data, discussing how PD challenges the traditional role of the designer.
Chapter Seven, ‘The Influence of Participatory Design Across the Cases’, provides a cross-case analysis of the SASI Clean and the Asthma Foundation studies, exploring PD activities across both cases to further establish how PD influences both end-user and designer participants.

The conclusion of the thesis establishes principles for PD in graphic design, noting the limitations of the research and recommends areas for further research.
CHAPTER 1
GRAPHIC DESIGN IN A VA C U M

Every year, graphic designers produce an array of designed communications that seek to inform, influence attitudes and encourage action. Graphic design commentators argue that graphic designers have a special talent for creating effective, memorable designs that cut through the glut of print and electronic information.11 Frascara urges graphic designers to be more effective in bringing end-users into the design process to achieve design propositions that are ‘understandable, usable, interesting and if possible pleasing’.12 However, graphic designers can stand accused of designing in a vacuum, making little effort to understand the needs, preferences and desires of those they design for, a need compellingly advocated for in the UCD literature.

This chapter discusses the dominance of designers and clients in the graphic design process to the exclusion of the end-users of graphic design. Three main motives account for this state of affairs. Graphic designers perceive themselves as artists, understanding their work to be driven by an innate creativity with the result that they regard any input into the creative process by non-designers—whether clients or end-users—as ruining design outcomes. At other times, modernism characterised graphic designers as expert communicators and problem solvers with an integral understanding of the communication task. Graphic design has strong historical links with business, leading to an emphasis on clients’ commercial objectives rather than end-user needs and preferences. Today, however, the far-reaching re-evaluation and democratisation of creativity suggests that collaboration with end-users is a force graphic design cannot ignore.

In discussing entrenched attitudes about the nature of graphic design enterprise and the role of the graphic designer, Chapter One establishes the

need for trialling user-centred and participatory approaches in graphic design. The graphic design occupation does not have a history of academic writing. As such, I have included references from the scholarship of graphic design practice, which takes a journalistic tone in the main, but nevertheless reveals the ideological basis from which a majority of graphic designers practice.

**The Historical Basis of Graphic Design in Visual Art**

Graphic design emerged in the early twentieth century from the blending of commercial art activities that serviced early consumer capitalism and aesthetic and philosophical principles of the modernist movement in the visual arts. Writers such as Drucker and McVarish, Frascara and Meggs indicate that modern art both celebrated and contested modernity, placing graphic designers in the complicated position of viewing themselves as modern artists while being commissioned to produce commercial work.\(^\text{13}\) Graphic designers trained in fine art for the lack of dedicated courses in graphic design or saw themselves as artists who took on commercial work to support themselves. The challenges facing contemporary graphic design are a result of graphic design’s historical roots in visual art with its goals of creativity, freedom of expression and originality.

Visual artists do not create art in a state of complete isolation from commercial interests, artworks being commodities commissioned by a patron, but art training conflicted with graphic design’s aim to sell a product or idea in the service of a client. Drucker and McVarish argue that during the twentieth century graphic design as art gave way to an interest in commercial priorities where, ‘Mass-produced graphic media became objects of consumption in their own right and the line between commercial art and fine art defined the status of graphic design in modern visual culture’.\(^\text{14}\) The rise of mass consumption and high-speed printing divided graphic design works from handmade, one-off art works. Distributing multiple copies of works of graphic design to the masses saw graphic design contributing to the culture of consumption and capitalist imperatives. Although graphic designers designed for a new mass market, they subscribed under the influence of modernism to values of

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abstraction, functionalism and the universality of human experience, influencing them to neglect the individual needs and preferences of the people they designed for.

De Stijl and Constructivism formed the basic principles of modernist graphic design between 1915 and 1921. The Bauhaus adopted these principles in 1922 when it made the shift from expressionism to productivism, formalising the basic characteristics of modernist graphic design in the 1920s through the work and writings of Herbert Bayer, El Lissitzky and Laszlo Moholy-Nagy, with their emphasis on abstraction, media-specific formalism and new reproductive technology. Frascara criticises the Bauhaus for producing formally excellent, but culturally blind work, lacking sensitivity towards the content and context of the designed message and the needs of people. This chapter draws primarily on the work of Frascara as a leading graphic design commentator as there are few other authors commentating on the intersection of graphic design and user-centred design. However, alert to the use of graphic design for propaganda purposes during World War I and in advertising, modernist graphic design in the 1920s and 1930s saw ‘any notion of design being dictated by “the market” as a debasement of standards’. With this in mind, it is reasonable to suggest that in the early 1900s seeking the views of the market was ignored as it was viewed as detrimental to the graphic design process.

From the mid-twentieth century, certain designers and design writers began to challenge the role and responsibilities of graphic designers in shaping public opinion in the service of clients, markets and governments. World War II propaganda used graphic design to influence the masses to join the war effort. A booming American economy after World War II put graphic designers to work in advertising, packaging and corporate identity design. Convincing consumers to prefer one product over another became a primary

concern for graphic designers, who viewed end-users as markets to be manipulated into purchasing goods and services.20

The 1950s saw the rise of the name designer. In the United States certain designers enjoyed minor celebrity status on the basis of the success of their signature styles.21 The New York School of advertising encouraged graphic designers to intuitively develop big ideas to underpin visual communications.22 Designers such as Paul Rand and Brandbury Thompson favoured original compositions with image and type, demonstrating their preference for ‘the flash of intuition and the individual designer’s creativity – the Ah ha! Method of problem solving’.23 Intuition and creativity were the preferred methods of designing for celebrity designers.

In the 1950s, European graphic designers looked to the emerging field of semiology, according to which visual communications were understood to function as a symbolic language. Swiss typographers proposed simplicity and order as the basis for more dependable design outcomes, bringing rationality and semi-scientific analysis into the design process.24 European graphic designers departed from relying on intuition alone and experimented with rational, thoughtful techniques to drive design outcomes. In either case consultation of the market’s views and preferences was ignored.

The introduction of anthropology, psychology and sociology into marketing in the 1960s had a major influence on graphic design. Frascara claims the social sciences influenced graphic designers ‘to change their objective from artistic creation to effective communication’.25 The use of social science principles and research methods shaped the development of marketing analysis and perceptions of human behaviour.26 Techniques such as focus

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23. McCoy, p. 6.  
24. McCoy.  
group testing entered market research, with advertisers keen to use the knowledge gained from social science methods to sell products more effectively. According to Ilyin, this created a conflict for graphic designers as post-war graphic designers found themselves in the difficult position of remaining committed to self-expression while serving the business objectives of corporate clients through the use of market research techniques. The influence of social sciences on graphic design indicates a shift to valuing effective communication in the mid-1900s, creating a platform for further research into how PD can address effective communication in graphic design.

High-profile graphic designers in the United States in the late 1900s pushed aside the philosophy and methods of social sciences preferring the freedom to act as design experts and creative stars. Ilyin typifies the self-perception of high-profile designers as ‘the fabulous us’, clients and end-users cast as the ‘not so fabulous them’. Stiff uncovers a designer-centred way of thinking, quoting graphic designers accounting for design choices during this period with statements such as ‘because I like it this way’ or ‘because it expressed my feelings’. For Stiff, Paul Rand typifies the sentiments of graphic designers with his statement, ‘If it looks terrific, then that’s all I care about … after the looks and strictly of secondary importance, comes client approval’. Tempering these views Heller argues that even famous graphic designers’ apparent disdain for the viewpoints of others is hubris, suggesting that even famous designers were ‘slaves to client whim and prejudice’. In the pursuit of becoming creative stars graphic designers set themselves above clients and audiences.

The introduction of personal computing and template design software in the 1990s exacerbated graphic designers’ high profile position. Personal computing threatened graphic designers’ professional role by allowing

27. Ilyin, ‘Fabulous Us’.
30. Stiff, p. 36.
everyday people to engage in low-level graphic design. Both Krippendorf and Meggs argue that the fear of losing work to desktop publishing programs prompted graphic designers to assert their professional expertise and artistic superiority by using computer software for aesthetic play and self-expression. Ilyin nominates designers’ constant reinvention of graphic style as a primary validation of graphic design. They used edginess to separate themselves from standard design, claiming this to be ‘ironic and elitist’. Ilyin argues the language of graphic design was used as ‘a game of exclusion’ to bolster the power of the designer. For Frascara, hyper-stylised typefaces and graphic symbols make designed communications illegible for end-users. The idea of ‘visual noise’ is included in this debate, where any formal element or creative expression that comes between the content to be communicated and its end-user is seen as an interference, or distortion or masking of the message. The rise of template software design prompted graphic designers to design complicated layouts to further the distance between themselves and everyday people.

Contemporary graphic design encounters increasing end-user segmentation and media diversification, including the rise of social media where end-users produce their own media content. However, this brief tracing of the history and influences on the graphic design occupation suggest that the application of PD to graphic design presents significant hurdles, as there has been little reason to undertake research into uncovering tools and methods for including end-users in graphic design, nor to shift graphic designers’ legacy of excluding end-users.

The Use of Intuition in Graphic Design

The historical training of graphic designers in fine arts has influenced the continuing perception that intuition and innate creativity are important drivers of design. The use of intuition is thought to be a suitable way to cut
through complexity and deliver memorable design propositions. Frascara argues that graphic designers have a special ability of intuition that enables them to make complex messages accessible to everyday people. The graphic design literature links intuition to the vision of the graphic designer as artist, enabling the emergence of inspired creative designs to resonate with end-users.

Historically, views of artistic creativity and the use of intuition built on the idea of divine creation. In European aesthetic debates in the nineteenth century, the idea of a higher calling in the arts framed concepts of creativity. At this time, two models of creativity dominated the arts. The first saw creativity as a rational process, emerging from Enlightenment concepts of autonomy, reason and freedom. Enlightenment debates divided the arts from the sciences, seeing artistic creativity as a distinct human intellectual capacity. The second model grows from Romantic thought, itself an offshoot of Enlightenment philosophy. It understood creativity as a special, magical way of thinking and acting, beyond ordinary abilities. Steeped in the culture of human subjectivity, Romanticism elevated the importance of intuition, feelings, imagination and genius.

Arguments concerning whether intuition and creativity are mysterious or explainable processes continue to divide the graphic design literature. Writers characterise the work of graphic designers as inspired and mysterious, as if happening by magic, with special insight and innate creativity being attributed to the work of the best graphic designers. Heller speaks of the Austrian graphic designer Stefan Sagmeister as an experimenter who built his work ‘on equal parts [of] intuition’ and ‘the desire to rise above the mundane’. Perceptions of the special, intuitive nature of designerly creativity drive the notion that the graphic designers’ role is to encourage clients to take

41. Coyne, ‘Creativity as Commonplace’, p. 135.
42. Coyne, ‘Creativity as Commonplace’, p. 135.
risks. Unpacking the intuitive process is rare in the graphic design literature, where discussions about creativity and creative intuition are speculative, lacking any form of evidence.

Academic writers outside of graphic design debate whether designers use intuition as an example of a special way of thinking or as a rational, logical process. Cross leads the argument for designers’ special ‘designerly way of knowing’, typifying their ways of thinking as distinct from knowledge production in the sciences and humanities. He represents designers as explorers who approach a design brief as a partial map of an unknown territory in which they will ‘discover something new’; returning ‘with yet another example of the already familiar’ is not an option. Others, such as Coyne claim designer intuition and creativity are unlikely to be a special way of thinking; more likely they are a construction of language. Seltzer and Bentley agree arguing that ‘creativity is not an individual characteristic or innate talent’, more the application of knowledge and skills in new ways to achieve a valued goal. Junginger is clear that, ‘To arrive at “good design” today, designers have to get involved in a systematic inquiry beyond aesthetics and functions’. He contends that when ‘Too much is left to chance ... too many opportunities arise for unintended consequences that can be annoying or outright dangerous’. The debate about the role of intuition in design occurs in academic writing, while according to Cross practicing designers would like clients to blindly trust their intuitive recommendations.

Graphic design studio culture thrives on using intuition and creativity. Graphic design textbooks and practice manuals such as that of Landa encourage graphic designers to depend on a mix of ‘intuition, intellect,
training and experience’. Ref. Resnick claims that ‘creativity speaks to the heart of the process of graphic design’ and he urges graphic designers to ‘work with their intuition’. Ref. Resnick challenges graphic designers to ‘never perceive the parameters of any assignment as a limitation to your creativity’. Ref. He exemplifies the persistent linking of graphic design with visual art by stating the ‘visual elements [of graphic design] are animated by the principles of organisation and the creativity of the artist’. Ref. This shows that graphic designers are trained to rely on their intuition at universities and via textbooks right from the outset.

Practicing graphic designers value being personally creative above seeking views of end-users or clients or relying on training. In an interview with graphic designer Grootens, the link between creativity and art is evident when Grootens states, ‘Being creative meant being an artist’. Ref. Even the idea of graphic design training or formal education is thought of as a negative influence on design propositions in contrast to relying on intuition and innate creative talent. In an interview with Mark Thomson, Thomson represents the views of practicing graphic designers when he states, ‘I haven’t been taught or exposed to any one particular heritage so my hand isn’t biased.’ Ref. This points to the entrenched view of the advantages of using intuition over rational processes in graphic design among practicing graphic designers.

One of the reasons put forward in support of the use of intuition in graphic design is that of project cost constraints. Other reasons include the short project timeframes and client imposed deadlines. Writers argue there is no scope for research-based processes in graphic design because of budget limitations. Ref. Graphic designers express frustration at how limited budgets

52. Landa, Graphic Design Solutions, p. 49.
55. Resnick, p. 58.
and clients’ lack of vision restrict designers’ innate creativity and capacity to produce unique, inspired work.\textsuperscript{59} Although Oosthuizen argues that graphic designers use low budgets to excuse ill-informed, pedestrian design.\textsuperscript{60} An alternative view is put forward by Resnick who argues that the limitations of a design brief created by consulting client or end-user preferences sharpens graphic designers’ intuitive problem solving abilities rather than restricts creativity.\textsuperscript{61} These arguments are in support of intuition over and above investigation of including end-user needs and preferences in the design process.

There are no examples in the graphic design literature of successful design propositions that have relied on intuition to propose outcomes. In support of the use of designers’ intuition to deliver highly successful commercial industrial design, Margolin claims hunches produced designs like the Sony Walkman and Frisbee rather than actual knowledge of their potential marketability. Here Margolin argues for the value of intuition to propose future solutions that are inherently unknown.\textsuperscript{62}

The idea of graphic designers’ special intuitive ability has come under challenge. A group of writers within the graphic design literature acknowledge that inspired guesswork is not working.\textsuperscript{63} Frascara argues that the graphic design discipline suffers from the abuse of fuzzy words such as ‘intuition’ and ‘creativity’ and that designers use the words as a lazy excuse for not being able describe what they do.\textsuperscript{64} For Frascara, not being able to articulate design knowledge and processes leads to the promotion of ‘the designer as an illuminated magician in the practice’.\textsuperscript{65}
argue that if graphic designers want to create design outcomes that ‘effectively persuade the viewer to adopt a new belief or change behaviour’ relying on intuition will not work.66 Demystifying the role and process of intuition is a starting point before the occupation of graphic design can consider inclusion of end-users into the design process.

The graphic design literature includes little discussion of the hard work and sustained thinking that actually drives the graphic design process. Frascara argues that graphic designers’ working methods need urgent investigation and exposure.67 Writers such as Forlizzi and Lebbon and Frascara propose that designers make recourse to rational processes rather than rely on intuition alone.68 For Frascara, creativity is a controlled process, based on ‘observation, attention, research and analysis’, the designer’s role being to discover unusual connections ‘in the midst of a flood of unconnected and chaotic data’. 69 Characterising the work of graphic designers as a rational process rather than solely intuitive is rare in the graphic design literature.

A compelling argument for why graphic designers do not seek end-user input is that doing so ruins graphic designer inspired design propositions. Holland calls this ‘design by consensus’ and claims it inhibits graphic designers’ creativity, producing nothing of significance. 70 The design management literature acknowledges the value of market research in improving commercial success, but Holland reports that graphic designers typically view market research as a ‘disaster check’ executed after design is completed and has no influence on design strategy beyond ensuring that designs with no chance of success do not reach the public.71 Large argues that graphic designers view any input into design by end-users as an unproductive watering down of creative response. 72 He urges graphic designers to work with groups of people and to redefine design as a ‘collective process’, but in

71. Holland, p. 152.
discussing the work of the Canadian designer Paul Arthur he shows how difficult this can be. He describes Arthur’s frustration at accommodating the views of end-users, believing this compromised the quality of his design.

**Graphic Designer as Expert Problem Solver**

In the general design literature, designers are characterised as expert problem solvers. Schön argues that modernity and its notion of scientific objectivity forged the idea of professionals as experts. Writers such as Coyne and Cross argue that as design is opportunistic and that design skills are an effective means of tackling ill-defined problems and inventing new things. In the period following World War II expert solutions, such as modern architecture to note a design example, prompted a loss of faith in professional competence and judgement, the inhuman qualities and effects of modernist buildings were seen as worse than the problems they addressed. Schön argues that professionals should relinquish their claim to expert knowledge and the authority it grants and enter into a ‘reflective contract’ with those they serve, acknowledging their uncertainties and becoming more accountable to their clients and the public. Swann argues that the idea of designers’ ‘mystical gift to provide creative solutions in a consumer driven market’ no longer holds to the degree it once did. The functionalist rationale of large-scale architecture and urban planning projects fuelled the crisis in confidence in professional expertise. However, the small scale of graphic design projects has insulated graphic design from considering the effect on everyday people of acting as expert problem solver.

Descriptions of the practice of graphic design uncover a preference for acting as an expert problem solver. Carvello and Dong represent the role of graphic design to include both form and function, demanding clear thinking individuals who can orchestrate these elements to produce distinctive, useful,

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[73. Large, p. 90.](#)
[74. Large, p. 90.](#)
[75. Schön, *The Reflective Practitioner*: p. 5.](#)
[76. Coyne, 'Creativity as Commonplace', p. 138; R Coyne, 'Wicked Problems Revisited', *Design Studies*, vol. 26, no. 1, 2005, pp. 5-17; Cross, 'Natural Intelligence in Design', p. 36; Cross, *Designerly Ways of Knowing*, p. 1.](#)
[77. Schön.](#)
[78. Schön, p. 299.](#)
playful, surprising, subversive or memorable designs. Frascara describes graphic design as the process of conceiving, planning and organising textual and visual elements for the purpose of communication. Landa proposes the graphic designer’s role as one of expert problem solver for the client as ‘the client is not sure of his or her own needs so the designer must help the client clarify the design problem’. Similarly Cross typifies a designer’s relationship with the client with the sentiment by Lasdun, ‘Our job is to give the client ... not what he wants, but what he never dreamed he wanted; and when he gets it, he recognizes it as something he wanted all the time’. These accounts where designers remain as experts ‘orchestrating’ solutions for clients and end-users preclude an interest in end-users in graphic design.

The creative leap is an alternative term used in the design literature to describe an intuitive way of designers acting as an expert problem solver. The creative leap refers to a moment of illumination, or a crossing of the logical gap between existing knowledge and any significant discovery or innovation. For Dorst and Cross, it is only in retrospect that designers can identify the ‘bursts of development’ in the design process at which a key concept emerged. Dorst and Cross’ discussion of the creative leap suggests that the design process supports business objectives in providing a rapid design response matching contemporary capitalism’s just-in-time systems.

The idea of a graphic designer’s use of a creative leap is also linked with business imperatives. Frascara sees the stress on the creative leap as a product of graphic designers’ involvement in the development of a saleable culture in a commercial world. According to Frascara, market-led design treats end-users as secondary information resources, designs being revised or abandoned if they fail in the marketplace. This is important because it infers that the use

82. Landa, Graphic Design Solutions, p. 44.
83. Cross, ‘Natural Intelligence in Design’, p. 28.
84. C Rust, ‘Unstated Contributions’, p. 70.
86. Dorst & Cross, p. 425.
87. Frascara, Communication Design, p. 94.
88. Frascara, Communication Design.
of the creative leap is entrenched in graphic design as it is linked with the
requirement to make a profit for a client.

The use of the creative leap has led to the privileging of rapid problem solving
abilities that allow graphic designers to produce good enough designs on time
and on budget. Reich, Konda, Levy, Monarch and Subrahmanian argue that
graphic designers can afford to take more risks than designers in other design
disciplines because of the ephemeral nature of design artefacts.\(^{89}\) However,
Frascara rejects the idea that design occurs as a single flash of inspiration that
neatly arranges all the pieces of the jigsaw; design depends on data collection
and analysis, he argues, not unconscious responses.\(^{90}\) For Frascara, graphic
designers problem-solve by synthesis, proposing a variety of propositions
until they decide on one that is satisfactory.\(^{91}\) Frascara is realistic in relation to
graphic design’s role in solving complex problems, arguing that graphic
design can aid in addressing complex design problems, although it cannot
always solve them.\(^{92}\) The unaddressed question in the literature is if graphic
designers continue to privilege rapid problem solving techniques such as the
use of the creative leap, how can end-user knowledge be brought into the
design process?

The Business Imperative in Graphic Design

A further cause for neglect of the end-user is the close relationship between
graphic designers and their clients’ business objectives. Design and business
are inextricably linked, but for Walton the future challenge is how this
relationship can be effective and creative.\(^{93}\) Design is an inward-looking,
iterative process that ends when designers arrive at an aesthetically pleasing
concept they consider fits the client’s brief within the time span and budget set
aside for a project.\(^{94}\) According to Large, graphic design projects allow
approximately eighty percent of the budget and time allocation on the client

\(^{89}\) Reich, Konda, Levy, Monarch & Subrahmanian, ‘Varieties and Issues of Participation and
Design’, p. 166.
\(^{90}\) Frascara, Communication Design, p. 88.
\(^{91}\) Frascara, Communication Design, p. 54.
\(^{92}\) J Frascara (ed), User-Centred Graphic Design: Mass communications and social change, Taylor
\(^{93}\) T Walton, ‘Design Management as a Business and Academic Discipline’, Design
\(^{94}\) T Lockwood, T Bachman, M Oldach & B Ruter, ‘Perspectives on Communicating the
relationship, ‘on getting the job, keeping the job, presenting the job and making pretty pictures’. Design studios use market research in the design process if such information is available from clients. Resnick argues that in design practice, clients provide the content and designers create the form in which this content is delivered. Resnick highlights the importance of graphic designers ‘listening to the client to articulate objectives’. This underlines the important relationship graphic designers have with their clients.

The view that graphic designers owe their allegiance to the client rather than the end-user of the design project is prominent in the literature. Graphic design has had an emphasis on winning business for a profit and commercial success over any other priority since the early 1990s. De Stadler and van der Land argue that clients and designers prefer an ‘authoritarian, top-down approach’ to design. An industry perspective is that if designers apply appropriate aesthetic criteria and conceptual form to the clients’ message and clients are effective in running their business, designs will be successful.

Milton Glaser is arguably one of the most renowned and distinguished graphic designers of our time as evidenced by the being the recipient of the 2004 Lifetime Achievement award from the Cooper-Hewitt National Design Museum and the awardee of the 2009 National Medal of Arts. He argued that the linking of commercial success and good design has robbed graphic design of a moral centre and contract with the broader public, leading to a lack of respect for creative endeavour in the field. This attitude indicates Glaser’s desire to see graphic designers engage with everyday people rather than concentrate on business outcomes, confirming that this does not happen in practice.

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95. Large, ‘Communication Among all People, Everywhere’, p. 90.
98. Resnick, p. 17.
100. De Stadler & van der Land, ‘Knowing Your Audience’, p. 68.
101. Lockwood, Bachman, Oldach & Rutter, ‘Perspectives on Communicating the Value of Design’, p. 82.
In the popular graphic design magazine, *Eye*, article titles reflect the importance of graphic designers’ primary relationship with the client. An article about Les Mason, regarded as a significant Australian graphic design figure, who art-directed Australian magazine Epicurean, is titled, ‘The Food, The Type, The Art Director and His Client’. This highlights the relationship between graphic designers and clients eclipsing the graphic designers’ relationship to end-users.

Design success can be considered on the basis of commercial returns to the paying client. In a commercial world success means selling a product or idea with the aim of achieving a profit. Graphic designer David Pearson is characterised as ‘the man who made series design fashionable (and profitable) at Penguin.’ This shows the importance of the relationship of the graphic designer with his client, Penguin, with the profit motive and the element of style. Reference to Pearson’s relationship with end-users is lacking. Criticisms are made of designers in general who follow business whims rather than act as thoughtful individuals and is expressed by Krippendorf in his statement:

Designers have lost their professional prowess in contemporary society by busily creating marketable products with the criteria of a rapidly fading industrial era, by helplessly floating in a stream of technological changes, or running after those who claim to have mastered the emerging discourse and pose like futurist intellectual fashion models.

In graphic design, it is assumed that if the design outcome makes a profit then the end-users are satisfied with the design. This demonstrates that from a graphic designer’s point of view, style and profit are the customary criteria of successful design.

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Challenging Designers’ Ownership of Creativity

The idea that creativity is not a special talent of certain individuals, but rather an innate human ability that can be encouraged, challenges designers’ perceived ownership of creativity.106 Academic conferences and special editions of journals in fields such as architecture, business studies, economics, education, psychology, cognitive science and technology reflect increasing interest in creativity. United Kingdom government educational programmes and creative partnership initiatives aim to ‘make self-governing citizens able to unlock their potential in order to achieve the state’s purpose of economic prosperity and social cohesion’.107 Governments internationally are backing market-oriented creativity, the idea of the creative economy breaking the link between creativity and the arts. If creativity can be commercialised and incorporated into the economy then the value of the arts as an endeavour outside of the economy with an intrinsic value of its own is lost.

The idea that certain personality types are more creative than others arose in the early twentieth century with the social sciences representing creativity as a function of behaviour, personality or cognitive processes.108 In 1963, however, Maslow countered such assumptions by representing creativity as a universal birthright for all self-actualising human beings and something anyone can achieve.109 Writers concerned with identifying creative thinking skills for use by all consider the essence of creative thinking accessible by everyday people.110

Since the late 2000s, creativity is understood as indispensable for a prosperous economy and successful nation.111 The contemporary push to acknowledge the universality of human creativity has strong economic underpinnings. For example, Pope’s Creativity: Theory, history, practice (2005) rejects the historical

111. Bill, Creative Girls, p. 111; Pope, Creativity.
dichotomy between creativity, artistic and scientific endeavour to introduce an ‘employment-oriented and economy based view’ of creativity.\(^{112}\) Currently, the nature and purpose of creativity is being reshaped globally as a driver of economic growth, the idea of creative economies becoming entrenched.\(^{113}\)

Creativity has been normalised as part of productive work, challenging designers’ claim to ownership of creative skills. The creativity literature distinguishes between creativity as action and reflection.\(^{114}\) Osborne argues that:

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[C]reation is a value which, though we may believe we choose it ourselves, may in fact make us complicit with what today might be seen as the most conservative of norms: compulsory individualism, compulsory “innovation”, compulsory performativity and productiveness...\(^{115}\)
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Schön proposed the notion of design as ‘reflective practice’, but Bill argues the current creative economy privileges the entrepreneurial values of physical action rather than those of cognitive reflection.\(^{116}\) The democratisation of creative endeavour is not acknowledged in the graphic design literature.

There are various opinions in the literature in regard to whether creativity is found in everyday people or remains a trait in artistic, creative types. Simon argues that everyone is a designer, putting forward the idea that creativity is a universal capability.\(^{117}\) Durling voices the designer position that creativity is an innate capacity although he does not specify whether it is innate to others outside of design, acknowledging that social factors and personality influence the expression, nature and spread of human creativity.\(^{118}\) He argues that

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112. Pope, *Creativity*, p. 27.
113. Bill, *Creative Girls*, p. 44.
118. Durling, ‘Horse or Cart?’.
creative people in arts and science do not share the same personality profile.\textsuperscript{119} Although people can be creative in science, Durling argues it is difficult to make creativity mean anything outside of aesthetic discourse and practices of art.\textsuperscript{120} The idea that creativity is an embodied behaviour belonging to certain aesthetic cultural practices tends to be ignored when the focus is on the object of creativity, as in Durling’s argument, rather than the creative subject.\textsuperscript{121} A reason for why certain groups of people do not engage in creative activity is put forward by Negus and Pickering who discuss how social divisions act to ‘inhibit and deny certain creative opportunities to specific groups and individuals’.\textsuperscript{122} The debate is non-conclusive in regard to who can be creative leaving room for further debate as to whether end-users can be equally as creative as designers.

Research into creative personality types shows that there are certain traits found in creative people although writers do not agree on whether creativity belongs solely to the artistic fields. Dudek, Berneche, Berube and Royer demonstrate artistic people to be high on motivation and driven by achievement.\textsuperscript{123} Art students were found to be ‘more impulsive and have less need for order and artists are also reported to have a propensity toward questioning and rebelling against established norms’.\textsuperscript{124} Creative people in both arts and sciences tend to be ‘open to new experiences, less conventional … driven, ambitious, dominant, hostile and impulsive’, according to Feist.\textsuperscript{125} However, Pufal-Struzik’s research found that painters, poets, writers and film directors were more aesthetically oriented, imaginative and intuitive when compared with scientists who are deemed less creative.\textsuperscript{126} There is a lack of discussion in the graphic design literatures concerning whether graphic

\begin{enumerate}
\item Durling.
\item Durling.
\item Durling.
\item Dudek, Berneche, Berube & Royer, p. 368.
\end{enumerate}
designers and everyday people both own creative traits, or whether there are creative divisions between the groups. The shift to valuing end-users’ creative contribution in contemporary society is growing, highlighting graphic designers’ position on creative authorship is out of step with contemporary conditions.

The parameters of contemporary graphic design are constantly shifting. Drucker and McVarish contend that in the future graphic designers will no longer design material artefacts, but will rather begin to focus on designing experiences in the new service economy, requiring a greater understanding of the end-user and design context.\(^{127}\) They argue that ‘whether serving commercial, entertainment public, or private sector interests [graphic designers] will be called on to design conditions of use, not just effective or aesthetic displays of useful information’.\(^{128}\) Heskett argues that the latest phase of mass production on a global scale requires the design industry to tailor designs to the diverse and specific needs of individuals.\(^{129}\) In facilitating a do-it-yourself culture, Sanders urges graphic designers to extend their creativity to develop tools that allow people to design for themselves, or at least to contribute their ideas to a design process involving trained graphic designers.\(^{130}\) This discussion shows that society is challenging graphic designers’ ownership of creativity and that designing tools to allow end-users to express their creativity along side graphic designers is a debated issue for the graphic design occupation.

**Chapter Conclusion**

Chapter One explored graphic design’s belief that graphic designers have special capacities of intuition that allow them to understand what is needed in respect of a design brief and special measures of creativity that allow them to produce inspired design. These beliefs limit the field’s interest in finding out the actual needs and preferences of end-users. Graphic designers’ strong links with clients stresses business objectives, creating a barrier to graphic designers


\(^{128}\) Drucker & McVarish, p. 338.


\(^{130}\) Sanders, ‘Scaffolds for Building Everyday Creativity’.
recognising end-user needs and preferences. The combined role of artist and expert problem solver has afforded graphic designers a certain freedom of creative expression within the bounds of client expectations; the more famous a graphic designer, the more freedom they can enjoy. An important idea raised is that graphic designers see sharing the creative process with end-users as risking mediocre design. The conflicting nature of these beliefs have conspired together to convince graphic designers that end-users are irrelevant to design. The point of intersection between graphic design, architecture and product design has not been discussed in this chapter as it was outside the scope of my research to investigate in detail other design fields.

The discipline of graphic design is poised to reconsider designers’ need for freedom of expression, an overhang of its basis in fine art. The influence of combining designers’ creative skills with effective user-centred practices is a gap in the graphic design literature. Buchanan comments that ‘The uneasy relationship of art and design will not soon be overcome’, pointing to the difficulties in breaking the historical roots of graphic design. However, Meggs argues that graphic designers need to ‘envision and establish conditions for production in these environments, rather than designing products themselves’. My research seeks to address Meggs’ call for graphic designers to refashion their expertise into creating the conditions for design by applying PD to graphic design. Meggs’ call was made twenty years ago, yet there is a dearth of research into how relinquishing the role of intuitive, expert problem solver influences end-users and graphic designers. This is the subject of my research.

The attitudes represented in this chapter point to the importance in my research of understanding the barriers involved when inviting end-users to share the creative space guarded by graphic designers. The introduction of a teamwork approach to designing in my research between end-users and designers has the potential to redefine the role of the graphic designer and challenge attitudes represented in the literature that intuition alone solves design problems. For the purposes of my research, I consider an intuitive

method of working as an inward method of problem solving, privileging individual designer views over shared views between end-users and designers. My research responds to Walton’s challenge to understand how the relationship between design and business can be both effective and creative. It seeks to change the parameters of this challenge by focusing on what happens in the relationship between designers and end-users, rather than designers and clients, when trialling PD methods in graphic design. PD is a form of UCD, which is a set of theories and practices for including end-user needs and preferences in the design process, but it is rarely embraced in graphic design. Examples of graphic designers who have undertaken UCD and PD are discussed in the following two chapters. I explore in Chapter Two the arguments for basing design on real knowledge of end-users in the literature of UCD.
CHAPTER 2
THE STATE OF USER-CENTRED GRAPHIC DESIGN

The central question of my research is how PD influences end-user and designer participants in the graphic design process. Chapter One explored the reasons for graphic designers’ common lack of interest in researching the needs and preferences of the end-users of design. This lack of interest seems like intransigence given the growing interest in user-centred design in other fields of design since the late 1960s. However, despite the broad impact of UCD principles on design generally there is little agreement on how to take account of end-user perspectives in the graphic design process. This chapter examines the UCD literature, considering debates about end-user research methods and their significance to graphic design as a basis for discussing PD as a particular approach to UCD in Chapter Three. In comparison to the weight of discussion of UCD principles in product design, human-computer interaction, interface design and workplace design, graphic design has neglected its relations to its audience, making this a key area for investigation in respect of design in general and graphic design in particular.

The History of User-Centred Design

UCD is a broad term for a range of approaches and positions in design concerning debates that stretch back to the early 1960s. UCD is commonly defined as the quest to design artefacts that are ‘easy and intuitive in their use, and that are useful and easily integrated in existing practices’.¹³³ UCD describes both a design philosophy and a set of methods that seeks to design according to people’s needs, abilities and preferences rather than forcing people to conform to a design. UCD is critical of designer-dictated design and testing that takes people as an extension of the designed artefact. By contrast, it privileges pleasurable interactions, emotional resonances and meanings in

human relations with designed artefacts. Authors propose that UCD focus on the human complexity of design, not the generic end-user notion implicit in the computer industry’s approach to design according to which people need to function efficiently to suit technology.\textsuperscript{134}

When people lived in small communities, artisans could base their designs on close knowledge of the people who used their products and how they used them.\textsuperscript{135} The rise of highly compartmentalised, mass societies in the modern era broke this link, prompting the modernist movement’s development of a notion of ‘form follows function’, with function being based on generalised pattern of use.\textsuperscript{136} Modernism advanced the idea of designing for use in reaction to the over-emphasis on style and decoration in early manufactured objects and architecture. In the late 1800s and early 1900s pioneering modernist designers began to propose that well-designed products, housing and visual communications be based on simple forms, truth to materials and mass production to enhance people’s everyday lives. For example, one student of the Bauhaus writes, ‘every door-handle must require a minimum of energy to operate it’, reflecting the modernist idea of functional efficiency, which remains a key concern in usability design and testing.\textsuperscript{137} Since the 1960s, however, critics beginning with Jane Jacobs have challenged the rationalism and formal reductionism of modernist design.

UCD is both a development of and reaction against design modernism as expressed in landmark books such as Jacobs’ \textit{The Death and Life of Great American Cities} (1961).\textsuperscript{138} The debates against modernism escalate in the 1970s with accounts such as Blake’s \textit{From Form Follows Fiasco: Why modern architecture hasn’t worked} (1977) and Wolfe’s \textit{From Bauhaus to Our House} (1981).\textsuperscript{139} In the 1980s, postmodernism saw strong criticism of modernist design’s privileging

\begin{itemize}
\item \textsuperscript{135} van Veggel, ‘Where the Two Sides of Ethnography Collide’, p. 3.
\item \textsuperscript{136} Redström, ‘Towards User Design?’, pp. 124-5.
\end{itemize}
The idea that everyday people held key knowledge about their own needs, to be incorporated into the design process was a new challenge for designers interested in UCD. American social scientist Herbert Simon argued that design is ‘central to what humans are and what they do’ in his 1969 book *The Sciences of the Artificial*.

Simon is an early pioneer of the UCD agenda in questioning the modern conception of the professional designer as neglecting the consequences of design ‘beyond the client’s directly articulated concerns’. Simon challenges designers’ ownership over a design, representing designers as problem partners, clients as problem owners and end-users as the ones who interact with a design. Here Simon identifies an issue in design practice in which designers are customarily bought in as experts to help clients with their communication objectives, with the resultant design being given to the end-user.

UCD has been characterised as having two phases of development where Bayazit sees the first phase being comprised of designers who reacted against modernism by individualising their own design approach paying lip service to end-user involvement and the second phase consisting of designers who incorporated end-user involvement in design decisions. Bayazit claims that end-user involvement did not come about as a utopian ideal from clients or designers rather, ‘User participation was a new democratic approach parallel to the prevailing political movements of the era.’ The term ‘user-centred design’ was coined in the early 1980s by Donald Norman, a major figure in the development of UCD principles, although there is no exact date agreed on in the literature about the initial articulation of the idea that design be based on the needs of people rather than secondary issues like aesthetics.

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141. Simon, *The Sciences of the Artificial*.
143. Simon quoted in Carroll, p. 8.
145. Bayazit, p. 22.
The principles of UCD are supported by the UCD International Standards Organisation: User-Centred-Design Process for Interactive Systems (ISO/DIS 13407 Model, 1999), suggesting it as an ‘Iterative Design Cycle’ that develops over stages. The standard is connected with the design of computer systems, but challenges designers in all fields to consider end-user participation as a feature of progressive design practice. Evidence for how the standard relates to graphic design is undefined.

Driving the historical development of UCD principles has been the recognition that complicated technology products provide little benefit to consumers and are a struggle for people to use, despite their features. Popular design books such as Norman’s *The Design of Everyday Things*, (2002) highlighted poorly designed objects from doors to computer software as examples of design’s failure to consider people. 147 To address poor design, Norman proposes a series of principles for designing useable and understandable designs that make difficult tasks easy. 148 He argues that the designer is ethically responsible for ensuring people can use a designed artefact after one reading of any instructions, or the design has failed. 149 Krippendorf also opposes a technology-centred design that views people as vague and disorganised in contrast to precise, rational and logical machines; he proposes a human-centred perspective that sees people as creative, context sensitive and resourceful. 150 The idea of user-friendly designs comes from the recognition that the views of end-users matter in the pursuit of appropriate design propositions.

Debates within the early UCD community centred on how to gather information from end-users. Writing in 1985, Gould and Lewis argue that designers typically discover end-users by reading about them or examining end-user profiles, contending that it is preferable that designers gather first hand understanding of end-users through interviews and observation before design begins. 151 Norman restricts the role of end-users in the design process

147. Norman, p. 87.
149. Norman, p. 188.
to demonstrating prototype functionality under test conditions. His challenge to established design does not substantially change the position of people as objects of the design process or the position of designers and clients as the main decision makers in design. This represents a limited understanding of the role of end-users in relation to the generative stages of the design process.

The positive aspects of a UCD approach are espoused, however there remains ambivalence in the design community about the value of incorporating the end-user into the design process. Gould and Lewis claim that UCD processes are not widely practised despite being in existence since the early 1960s. One of the reasons for the lack of acceptance of a UCD approach according to them is that designers see end-user diversity as overvalued, claiming end-users do not know what they want, standard design guidelines being enough and effective design means getting the design right the first time. It is apparent that resistance to including end-users exists underneath the rhetoric of the value of including end-users.

The literature of UCD is concentrated in the areas of human-computer interaction focusing on issues of accessibility, legibility and navigation. From the 1970s to the early 2000s, the literature in systems and management journals criticise computer programs and interfaces for failing to provide for the people they were intended, an influential example being Cooper’s 1999 book, *The Inmates are Running the Asylum*. There is an established movement in contemporary design against design that elevates technology over end-users’ needs, especially where people become a function of a product or technology. Barki and Hartwick wrote articles in 1989 and 1994 in the area of information systems, rethinking the concept of end-user involvement, where they demonstrate how conflict and disagreement influences end-user involvement.

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156. Forlizzi & Lebbon, ‘From Formalism to Social Significance in Communication Design’, p. 4; Norman, *The Design of Everyday Things*. 

involvement when designing information systems. This is important as it acknowledges that end-users are influenced when involved in designing.

Among the main motives driving the turn to UCD is the idea that designed artefacts have different social roles. Technological progress also drives the need for user-friendly artefacts. Acknowledgement of the presence of others in the design process replaces the primacy of designer as experts or lone genius, whether those others are collaborators from other disciplines, project stakeholders or end-users. Krippendorf represents the shift from designer and client-driven design to a UCD approach as an unprecedented paradigm shift that fundamentally changes design thinking. Questions about where the shift will lead and what it will mean for end-users and designers are yet to be outlined in the UCD literature.

The Shift from Object to Human-Centred Design

The overarching trend in the UCD literature is ongoing change in terminology, suggesting that things are progressing in the design industry though graphic design in particular is still operating according to established patterns. New terms pay lip service to consideration of end-users’ needs and preferences, but with little underlying change in attitudes. The turn from object to end-user to human-centred design is characterised as a major change for the field of design.

To stress that people are not objects of design, but individuals who interact with design, experience things and have their own needs, in 2003, Hanington proposed a change in terminology from UCD to human-centred design. Krippendorf emphasises this shift in arguing that end-users account for their interaction with products in two ways; extrinsic and intrinsic motivation. He

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contends that creating intrinsic products depends on a conversation with end-users. There is growing acknowledgment that including end-users is important for the success of the product.

A multitude of terms are used to refer to the recipients of design. Sanders highlights the shift from thinking about people as customers in the 1970s, consumers in the 1980s, users, participants, adapters and co-creators in the 2000s (Figure 4). Sanders uses the term end-users and urges designers to invite end-users to participate in designing, treating them as equal in status with relevant expertise, with designers becoming interpreters of end-users’ needs and dreams and not only the creators of artefacts. There is no standard terminology across the fields of design, demonstrating that UCD is being developed without a framework.

Figure 4. Changes in the way we think about people, according to Sanders.

There are new terms introduced to the literature constantly. The new term of ‘experience design’ shifts the focus from end-users’ behaviour and cognition to a situation where end-users can reconstruct the meaning of an interface. Desmett and Hekkert and Margolin discuss end-user experience from a

product design point of view. Forlizzi and Battarbee note the popularity of end-user experiences in human-computer interaction. UCD in the form of end-user experience design has been developed in the field of human-computer interaction and has become accepted through popular books. Garrett, a web designer, argues that the future of UCD is in the design of experiences. Yet end-user experience design is still a designer-driven process despite seeking to be all embracing and is not informed by understanding end-users’ needs and desires. A further new area of discussion is the idea of co-experience where the end-user and the designer co-create the experience, which has mainly been looked at in product design. What is missing from the literature is clarity around the terms and methods for how to include end-users’ needs and preferences in the graphic design process.

The literature concentrates on inventing a cascade of terms that I argue, leaves practitioners wondering about the meaning of terms. Here, I signpost two terms that are used in this thesis and my reasons for choosing them. The first term used throughout the thesis is ‘user-centred design’. Various terms describe design that privileges the needs and preferences of end-users, including user-centred, human-centred and people-centred design. I have chosen to use the term UCD, as it is a recognised term in the graphic design literature.

The second term is ‘end-user’. There is currently a growing emphasis on understanding the people who are the target of design, who I have chosen to refer to in this thesis through the abstract term ‘end-user’. Product design and human-computer interaction favour the term ‘user’, which emphasises the idea of someone using something. The term ‘user’ implies an interaction with a tangible product which is relevant when people interact with or use a

171. Frascara (ed), User-Centred Graphic Design.
website or software and is applicable to product design as people use products in their daily life.

In referring to the people who are the recipients of design, the graphic design literature uses audience, target market, customer or consumer, the majority suggesting the close relationship of graphic design to commercial activity. Each of the terms used to describe the people who are the recipients of design represents them as outsiders to the design process, which disrupts the whole claim of UCD to be inclusive. In this thesis, I chose to use the term ‘end-user’ as it suggests an active role for people in graphic design in comparison to audience, consumer, customer or target market. It is not a perfect fit for graphic design, but links the discussion of graphic design to broader debates on user-centeredness and participation. The currently popular term ‘co-creators’ signifies all stakeholder participants in design, but does not acknowledge differences between them.

Pragmatic and Ethical Reasons for User-Centred Design

Pragmatic or ethical principles, or a mix of both, that drive UCD principles have infiltrated the field of design. Writers advocating UCD see it as an ethical imperative, resulting in more democratic and empathetic designs that emphasise people’s humanity to better satisfy end-users’ needs and preferences. Others see the identification and satisfaction of end-users’ needs and preferences as a path to more commercially successful design. Others see that where design focuses on end-user needs and preferences, selling potential increases. Writers argue for design not to neglect people’s needs when answering commercial motives. As a consequence, what constitutes successful design in the UCD literature is the subject of a vigorous debate.

A key segment of those concerned with design ethics in the UCD literature prefers the term human-centred design to user-centred design. Buchanan argues user-centred design considers usability where human-centred design affirms human dignity and human rights. This argument extends to the


basic motivation for design. Frascara, a major graphic design writer to address issues of UCD, urges graphic designers to turn their skills to social marketing projects, such as crime, drug addiction or traffic safety campaigns, that use graphic design for public good rather than to sell products.\footnote{175}{Frascara (ed), \textit{User-Centred Graphic Design}.} In this endeavour, Frascara identifies an understanding of the end-user as paramount.\footnote{176}{Frascara (ed), \textit{User-Centred Graphic Design}.} Buchanan warns that if designers do not consider the ‘significant content of the products they create, their work will come to little consequence or may even lead to harm in our complex world’.\footnote{177}{Buchanan, ‘Human Dignity and Human Rights’, p. 35.} This demonstrates the importance of considering the benefits of adopting a UCD approach.

The UCD debate developed in the 1960s, but the basic benefits of UCD are still much discussed in the literature. Abras, Maloney-Krichmar and Preece address UCD’s overall advantages in creating products that are efficient, effective and safe, requiring less redesign and offering more creative propositions.\footnote{178}{C Abras, D Maloney-Krichmar & J Preece, ‘User-Centered Design’, in WS Bainbridge (ed), \textit{Berkshire Encyclopedia of Human-Computer Interaction}, Berkshire Publishing, Massachusetts, 2004, pp. 763-68.} Kuniavsky argues that where there is research into people’s needs and preferences, there is the capacity to remove ‘the guesswork’ from design and to ‘solve pressing problems and respond to change’.\footnote{179}{Kuniavsky, \textit{Observing the User Experience}, p. 527.} Hanington urges designers to immerse themselves in the end-users’ world to understand what they are designing.\footnote{180}{Hanington, ‘Methods in the Making’, p. 11.} However, not all authors support an altruistic view of the role of design. Redström describes the use of UCD for commercial ends as ‘[b]y providing the right material pre-conditions, we aim to make people more productive, more willing to consume, etc, through our designs’.\footnote{181}{Redström, ‘Towards User Design?’, p. 128.} It is evident that the design community divides into those who see knowledge of end-users’ needs and preferences as inconsequential to design and those who see it as a benefit.

Designers’ perceptions of ‘good design’ do not guarantee business profit. Sanders notes that eighty percent of all new products fail commercially shortly after their introduction into the market, suggesting the need for companies to
dramatically improve the research that goes into design development to produce useful, usable and desirable designs.\textsuperscript{182} Writers including Cuffaro, Vogel and Matt, Dodd, Gabbard, Hix and Swann II, Patnaik and Becker and Young are in agreement that designs fail because designers do not listen to end-users or consider the total end-user experience.\textsuperscript{183} In a study that surveyed over 200 design projects undertaken in small UK companies, Potter and Roy attribute the failure of design projects to neglect of end-user needs, lack of senior management commitment to design and a lack of funds to properly finance the project.\textsuperscript{184} Potter and Roy and Bruce, Cooper, Vazquez and Sanders claim that successful design companies combine listening to end-users with the goals of increasing profits.\textsuperscript{185} Bruce, Cooper and Vazquez and Sanders blame designers’ lack of focus on the end-user for design failures, attributing them also to the apprehensiveness of small companies about design; both their unwillingness as clients to accept a designer’s recommendations and their mismanagement of design.\textsuperscript{186} This discussion in the marketing literature suggests that designers are turning to UCD approaches in an effort to guarantee commercial success.

There is agreement in the UCD literature that including end-users in the design process leads to effective design. Dodd, Gabbard, Hix and Swann II, Nini, Sui and Young argue that design succeeds when it embraces end-user perspectives.\textsuperscript{187} A successful, market-driven product is Mirro’s Allegro cookware. Designers responded to end-user criticisms of the cookware product range producing a square cook pot with a round bottom for easy


\textsuperscript{186} Bruce, Cooper & Vazquez, p. 315; Sanders, ‘Converging Perspectives’.

\textsuperscript{187} Dodd, ‘Research and Design Success’; Gabbard, Hix & Swann II, ‘User-Centered Design and Evaluation of Virtual Environments’; Nini, ‘Sharpening One’s Axe’; Sui, ‘Users’ Creative Responses and Designers’ Roles’; Young, ‘What We’ve Learned so Far’.
stirring and a lip for pouring and handles on both sides for easy manoeuvrability as shown in 5.\textsuperscript{188} Other suggestions validated the incorporation of end-user feedback into the design process, such as built-in steam vents and strainers, as they contributed to the commercial success of the range.\textsuperscript{189} Another example of including end-users in product design is Dong and Vann’s design of a pill dispenser for disabled people with MS (Figure 6).\textsuperscript{190} These examples are in the field of industrial design where it is common to ask end-users to test prototype designs.

\textbf{Figure 5.} Mirro Allegro’s ergonomically designed cookware.

\textbf{Figure 6.} End-user testing of a pill dispenser and final design.

\begin{flushleft}
188. Dodd, ‘Research and Design Success’, p. 61.
\end{flushleft}
Standardised in Contrast to Individualised Design

The twentieth century has seen debates about the future of standardised mass production technology. At one extreme, designers continue to work with ‘super mass production’ on a global scale.\(^{191}\) Within this, there is the expectation that corporations cater to the variations between consumers through mass customisation.\(^{192}\) Dodd and Sui argue industrialism’s ‘one-size fits all approach’ to design is no longer relevant in an age of hybrid identities and escalating market segmentation.\(^{193}\) Kuniavsky argues that it is no longer acceptable to characterise everyone on the limited knowledge of a few individuals.\(^{194}\) Atkinson and Nixon and Sui claim that design is not serious when the diversity of end-user needs is not addressed.\(^{195}\) In a case study where end-users were involved in the design of Adidas sports shoes, Berger and Piller claim that mass customisation and mass production are complementary, arguing that mastering the challenges of mass customisation is a key source of competitive advantage for companies.\(^{196}\) Here, the UCD literature highlights issues associated with standardised in contrast to individualised design, suggesting the difficulty of undertaking UCD in industry design projects.

The UCD literature gives examples of the breakdown of design that fails to take end-users into account, focusing on a standardised design outcome. Sui discusses the design of a playground in Hong Kong that aimed to promote a healthy lifestyle through the development of exercise facilities in parks and playgrounds. He uses this example to show that when designers create intuitively, without direct knowledge of end-user needs or the design context, end-users respond to design solutions in completely unintended ways. Local residents used the playground for a diversity of other purposes including

\(^{193}\) Dodd, ‘Research and Design Success’; Sui, ‘Users’ Creative Responses and Designers’ Roles’, p. 64.
\(^{194}\) Kuniaevsky, *Observing the User Experience*, p. 526.
airing bedding, drying washing and salting fish (Figure 7).197 This design example shows a failure of project planning in the research phase of the design, as perhaps no one wanted to exercise, but people wanted to dry their clothes and salt their fish and had no equipment or space to do so. This example shows that a design has ‘no real existence until it is used’.198

Image omitted

Figure 7. Example of playground equipment used for drying clothes.

The design process is described as a problem solving process that requires designers first to analyse and predict how end-users are likely to use a design and then test the soundness of their proposals with actual end-users.199 In trying to arrive at the best fit between object and end-user, Frascara, Redström and Tyler argue that designers predict end-user preferences.200 Frascara claims that ‘to design is to forecast, to programme, to plan future action, to create things that do not as yet exist’.201 Tyler sees designers as able to predict what elements will persuade end-users into action by reference to end-users’ beliefs, understandings and visual literacy, but represents end-users as dynamic participants in the construction of meaning around designed communication.202 Redström argues designers design through ‘prediction’

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198. Sui, p. 66.
rather than actual knowledge of end-users and identifies that designing for ‘potential’ end-users and ‘unknown’ experiences is problematic.  

Sui’s playground example questions this position; a thorough understanding of end-user concerns and desires might have suggested a clothes-drying solution rather than playground equipment, but the government would have been unlikely to support this. Redström speculates what would happen ‘if we tried to make our designs ask questions about use that were open for its users to answer, rather than thinking of the designs as a way of providing well-defined answers from the start’. The concept design stage is referred to as a predictive stage in which designers’ creativity is seen to be more useful than involvement with end-users, creating a rationale of not including them in design.

Segments of the design community reject UCD philosophy on the basis that the design process proposes unknown design scenarios to unknown end-users. Redström argues that designers have a responsibility to refrain from overdesigning predicted use, the designer’s role not being to design ‘actual use, as well as “users” and their “experiences”’. Redström urges designers to recognise the difference between intended and actual end-users and be more focussed on what happens in the design process when designs do not match the complexities and subtleties of actual use. Kuniavsky argues that when designers act as experts predicting how end-users will interact with a design solution, end-users become passive recipients, or as he states, ‘alien creatures’. Kuniavsky claims that designers have called end-users ‘lusers’ and talk about making products ‘idiot proof’. This sees designers in a position of controlling the direction of the designed outcome, forgetting about including end-users in the process, maintaining the status quo of designer as expert.

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204. Redström, pp. 136-137.
207. Redström, p. 134.
208. Kuniavsky, Observing the User Experience, p. 526.
End-User Research Methods

Where the UCD literature agrees on the need for end-user research, there is diversity of recommended forms. Mao, Vreudenburg, Smith and Carey describe end-user research as ‘the active involvement of users for a clear understanding of user and task requirements, iterative design and evaluation and a multi-disciplinary approach’. Critics of end-user research methods in design have pointed to a need for new approaches to bring the end-user into the design process. Critics of end-user research methods in design have pointed to a need for new approaches to bring the end-user into the design process. Dodd rejects standard approaches, arguing that the nature of the design project should influence the choice of research methods. There are equally arguments about the timing and extent of end-user research and a preference for different methods in different fields of design.

Writers in the field of human-computer interaction have comprehensively trialled a range of end-user research methods. Mao, Vreudenburg, Smith and Carey surveyed 103 experienced human-computer interaction practitioners, addressing the effectiveness of the UCD methods used. They found that the top methods were usability evaluation, task analysis, informal expert review and field studies (Figure 8). Lofthouse and Lilley also provide an overview of UCD research techniques focusing on time and cost factors. Lofthouse and Lilley also claim that designers undertaking UCD prefer methods to be flexible as ‘people often behave in ways which are contrary to what is expected, allowing participants to move outside of the confines of a “planned activity” can provide unexpected insights’. Flexibility in methods is considered important as is the time and cost of the methods.

212. Dodd, ‘Research and Design Success’.
Common resistance to end-user research relates to perceptions of its complexity, duration and expense. Vredenburg, Mao, Smith and Carey have found a broad preference for informal, low cost methods. Lofthouse and Lilley compare the cost and time required to implement the individual methods, finding inexpensive methods like focus groups, participant observation, user trials, product-in-use and end-user diaries to be commonly used. Other examples of low cost, but time intensive methods are scenarios-of-use, web of association, layered games and mood boards which Gould and Lewis claim are valuable for early stage idea generation. Whilst low cost methods are preferred, design practitioners tolerate time intensive methods.

A principal division in the end-user research methods debate is whether representative end-users directly contribute information through focus groups or interviews, or whether observational practices from the social sciences should be employed. Hanington provides a useful framework for understanding direct and indirect end-user research methods, categorising them as either ‘traditional’, ‘adapted’ or ‘innovative’ (Figure 9). For Hanington, traditional end-user research methods derive from social science

and encompass focus groups, interviews, questionnaires and surveys. His adapted methods are observational ethnographic techniques. Direct and indirect methods are both used across the occupation of design.

Image omitted

Figure 9. Hanington’s categorisation of end-user research methods in UCD.

Methods for gathering end-user input that can be collected in a short space of time is preferred by designers. Designers face serious time constraints and need to work simultaneously on a variety of design projects, making it difficult to focus on the end-user. An idea that ethnography can help designers to form a common language enabling them to question the translation of behaviours and presumption of designers’ attitudes of end-users is put forward by van Veggel. However, van Veggel advocates the need for quick and easy to obtain approaches, as project managers expect ethnographers to provide ‘quick and inexpensive’ profiles of end-users. Forlizzi and Lebbon warn that when end-user information is partial or gathered in a short time frame, design outcomes will not be successful. Designers’ training in rapid problem solving is seen as an impediment to an appreciation of the need for time and rigour in the collection and analysis of end-user data.

226. Forlizzi & Lebbon, ‘From Formalism to Social Significance in Communication Design’.
There is much theory about the benefits of end-user research, but studies show that UCD approaches are not widely used in practice. Mao, Vredenburg, Smith and Carey’s study found that end-user research methods were not commonly used by human-computer interaction design practitioners.227 Abras, Maloney-Krichmar and Preece argue that end-user research is not undertaken because it takes time, is costly, requires stakeholder involvement and the results may be not transferable to other clients.228 Confirming these claims are Karat’s outcomes from a survey of practitioners in the field of usability design in regard to the types of end-user research methods they used.229 The practitioners in Karat’s survey indicated that there were few guidelines for how to undertake end-user research when asked to describe their attempts at using end-user research they said ‘such processes were under way’.230 ‘It takes too long’, ‘it is too expensive’ and ‘we don’t know how’ are the reasons put forward for the lack of UCD uptake.

Continual Cycle of End-User Research

Debate continues about when to include end-user research in the design process and the UCD literature establishes that applications have little relevance to graphic design. There are three main phases in a design project, each presenting an opportunity to include end-user research.231 Hanington calls these the exploratory or beginning, generative or middle and evaluative or end stages of design.232 Historically, marketing companies deliver data on end-user needs and perspectives to designers, who then pass their design responses to manufacturers and retailers who disseminate designs to end-users.233 The 2000s have seen a rise in the inclusion of end-user research in all

231. Young, ‘What We’ve Learned so Far’.
stages of the design process aiming for designs that better suit people’s needs and preferences.234

There is a focus on evaluative end-user research or usability testing in human-computer interaction and product design to test product usability and market acceptance. In the development of technology products, evaluative end-user research where products are tested with actual end-users for their efficiency and ease of use is prevalent.235 Aside from this, it has been reported that there is a lack of available methods for end-user research in the evaluative stages of the design process.236 Evaluative research comes at a point where there is little scope to change designs.

There is a growing argument to make end-user research more comprehensive by including end-users and other stakeholders throughout design development, beginning with exploratory end-user research, as feedback during the generative phases and as end-user research and during evaluation to enable further refinement. The literature recommends the development of an on-going relationship with end-users and designers, whereby all stakeholders become invested in a project.237 Hanington argues that collecting feedback from representative end-users early and often in the design process is the key to matching designs to end-users’ needs and preferences, avoiding unwelcome surprises at the end of the design process.238 He calls for end-user research to be ‘cyclical and mutually informing’, following an iterative process.239 Hanington urges that innovative research methods be oriented to design processes and the specific characteristics and parameters of the design project.240 Reich, Konda, Levy, Monarch and Subrahmanian describe the

process of obtaining requirements from end-user needs as ‘a cascading process where ‘any static technique for uncovering end-user needs will be inadequate’.241 Here, it is claimed that better designs will be the outcome if there is a continual cycle of end-user research throughout a product life cycle.

This points to the requirement for further research into how to design a study that allows for ‘a cascading process’ of end-user involvement, as writers do not provide suggestions for what this means in practice. Young recommends consulting end-users at three points in the design process.242 His schema for website research and evaluation is applicable to graphic design, but represents a model of UCD where end-users serve as passive sources of information.

Young nevertheless challenges designers to consider the higher aims of end-user research, arguing that if usability testing finds a feature or function to be workable according to an abstract measure of efficiency, it should not automatically be presumed to be good for end-users.243 This is evidence of designers being encouraged to consult end-users regularly throughout the design process but then to override some end-user feedback, in effect acting as expert problem solver.

Writers argue for end-user research to be included early in the design process or in the exploratory stage of the design process and to involve all people who can contribute relevant information.244 Sanders argues that traditional end-user research methods, such as market testing to gauge consumer reactions no longer work as they exclude end-user needs from the discovery phases of design.245 Frascara argues that by including the views of the designer, client and end-user and the context for design throughout the design process the end product will be appropriate.246 For Frascara, graphic designers should aim to understand the overall content of the design task as well as end-users’ social class, education, age, gender, value systems, cognitive styles, emotional

242. Young, ‘What We’ve Learned so Far’.
243. Young, ‘What We’ve Learned so Far’.
245. Sanders, ‘Converging Perspectives’, p. 50.
246. Frascara, Communication Design, p. 54.
makeup, visual preferences and daily habits.\textsuperscript{247} He contests the primary assumption in graphic design that end-users need only become involved in the design process once it is complete.\textsuperscript{248} In addition, Hanington argues that design needs its own integral method to allow end-users to contribute ideas and knowledge to the design process, suggesting all methods are more productive if those conducting the research avoid imposing their own values on the ideas and information people offer.\textsuperscript{249} There is a need for more published studies on end-user research methods since discussions of UCD in the main stress design philosophy.

The Neglect of User-Centred Graphic Design

It is only comparatively recently in the early 2000s that writers in the field of graphic design have begun to question the suitability of the client and designer determined message for its intended end-users, recommending an alternative, user-centred approach.\textsuperscript{250} Frascara has led this criticism, arguing that although designers have expertise in visual communication, end-users have experiential understanding of the communication context. Frascara argues that UCD creates significant financial and human benefit, setting out new roles and paradigms for graphic designers and discussing areas such as social marketing and techniques for end-user research.\textsuperscript{251} By designing without direct knowledge or involvement of the end-user, Frascara argues that market-led design treats people as databanks for the revision or abandonment of designs once they are market tested.\textsuperscript{252}

The scholarly journals *Design Studies*, *Design Issues* and *CoDesign* have taken the topic of UCD beyond the field of human-computer interaction, with architects, industrial and interior designers entering the discussion. In graphic design the literature is limited and restricted to arguments about the basic nature, relevance and application of UCD to graphic design practice, lacking any applied studies especially in relation to the nature and application of end-user research within the field. Strickler was calling in 1999 for end-user

\textsuperscript{248} Frascara (ed), *User-Centred Graphic Design*.
\textsuperscript{249} Hanington, ‘Methods in the Making’.
\textsuperscript{250} Forlizzi & Lebbon, ‘From Formalism to Social Significance in Communication Design’; Frascara (ed), *User-Centred Graphic Design*.
\textsuperscript{251} Frascara (ed), *User-Centred Graphic Design*.
\textsuperscript{252} Frascara (ed), *User-Centred Graphic Design*, p. 12.
research methods in graphic design to be developed, but little has been done since then.\textsuperscript{253} Forlizzi and Lebbon claim that emergent methods and processes for undertaking UCD in graphic design remain untested.\textsuperscript{254} Sanders rejects graphic designers’ typical way of designing for end-users where style is the main criterion for design success.\textsuperscript{255} She signals that in the future, graphic designers may work with ordinary people as experts, creating designs for which the criterion for success is effective experiencing and meaning making (Figure 10).\textsuperscript{256} Yet such predictions are unlikely without industry-tested case studies to back them up. Overall, the values of end-user centeredness and empowerment are espoused in graphic design, but there are few documented studies where end-users act as informants, much less participants.

There are tentative reasons put forward for the lack of published research on UCD methods in graphic design. Roth suggests that user-centred research is uncommon in graphic design because print and electronic communications are ephemeral and low-cost products.\textsuperscript{257} She argues for the need for graphic designers to use end-user research to explore legibility, readability and the

\textsuperscript{254} Forlizzi & Lebbon, ‘From Formalism to Social Significance in Communication Design’.
\textsuperscript{255} Sanders, ‘Scaffolds for Experiencing in the New Design Space’, p. 2.
\textsuperscript{256} Sanders, ‘Scaffolds for Experiencing in the New Design Space’, p. 3.
effectiveness of communication.\textsuperscript{258} Nini’s survey on end-user research in graphic design shows that little research is done in graphic design because graphic designers are brought into the process at the last minute when a solution has already been decided on.\textsuperscript{259} When Nini asked graphic design organisations if they undertook end-user evaluation of communication prototypes, seventy one per cent said they did not.\textsuperscript{260} This points to the need to undertake further research to understand why end-user evaluative research is not undertaken in graphic design. Of the existing end-user research methods used in graphic design, the examples used in graphic design and advertising are focus groups, observation and the laddering method.

\textit{Focus groups}

It is common for advertising and marketing companies to gather information as background project context about end-users in focus groups in relation to their beliefs and needs. Focus groups are also used at the end of the concept design phase in advertising and to test shortlisted designs with the market in major graphic design projects.\textsuperscript{261} Focus group interview techniques were developed in the early 1940s for use in the social sciences.\textsuperscript{262} Betts, Baranowski and Hoerr define the purpose of a focus groups as; ‘to elicit respondents’ personal perceptions of a defined area of interest through carefully planned, semistructured discussion’.\textsuperscript{263} Betts, Baranowski and Hoerr argue that qualitative methods such as focus groups are best suited to exploratory or formative design.\textsuperscript{264} According to Betts, Baranowski and Hoerr, one of the benefits of focus group research is that the synergy promoted by group interaction produces ideas that may not be generated using other methods.\textsuperscript{265} Graphic design studios use focus groups because the information obtained from end-users is readily understood.

\textsuperscript{258} Roth, p. 21.
\textsuperscript{260} Nini, ‘What Graphic Designers Say They Do’, p. 185.
\textsuperscript{263} Betts, T Baranowski & S Hoerr, p. 280.
\textsuperscript{264} Betts, T Baranowski & S Hoerr, p. 279.
\textsuperscript{265} Betts, T Baranowski & S Hoerr, p. 297.
There are also acknowledged problems with focus group research. van Veggel represents the research gathered through focus groups as dubious because ‘people are more inclined to say what they think they are expected to say’.\textsuperscript{266} He also argues that respondents are unaware of their underlying motives for the things they do, especially in regard to routine tasks or the use of designed artefacts in a complex context.\textsuperscript{267} Betts, Baranowski and Hoerr argue that generalisation is difficult because of the small number of respondents interviewed, because they are usually not randomly selected, and because their responses in a group interview are not independent.\textsuperscript{268} The occupation of graphic design glosses over these difficulties relying on focus group method as an accepted method of end-user research for the field.

\section*{Observation}

The technique of observation is a common technique used by graphic designers. Ethnographic techniques typically observe ‘people in their actual routine behaviours … and possibly complemented by these users’ explanations and descriptions of these behaviours’.\textsuperscript{269} Ethnographers can inform designers about the structures of meaning beneath ‘the surface of observable practices’, enabling a deeper ‘translation’ of behaviour and attitudes into products.\textsuperscript{270} Frascara and Lofthouse and Lilley argue that designers prefer to observe end-users in the environment in which the design belongs as a way of discovering end-user needs or preferences that they themselves are unaware of.\textsuperscript{271} Observation is useful, according to van Veggel, as the design industry requires designers to be rapid and decisive problem solvers and observation allows designers to overlook the complexities and contradictions of a design project.\textsuperscript{272} This shows that designers are not using the technique of observation to its full advantage.

Criticisms of the technique of observation include that it is not focused enough and that for it to be done properly, it needs to be interpreted by either an

\begin{itemize}
  \item \textsuperscript{266} van Veggel, ‘Where the Two Sides of Ethnography Collide’, p. 4.
  \item \textsuperscript{267} van Veggel, p. 4.
  \item \textsuperscript{268} Betts, Baranowski & Hoerr, ‘Recommendations for Planning and Reporting Focus Group Research’.
  \item \textsuperscript{269} van Veggel, ‘Where the Two Sides of Ethnography Collide’, p. 5.
  \item \textsuperscript{270} van Veggel, p. 13.
  \item \textsuperscript{271} Frascara (ed), \textit{User-Centred Graphic Design}, p. 12; Lofthouse & Lilley, ‘What They Really, Really Want’.
  \item \textsuperscript{272} van Veggel, ‘Where the Two Sides of Ethnography Collide’, p. 11.
\end{itemize}
anthropologist or through the use of a second method such as an interview.\(^{273}\) Observation alone as a technique without consultation with end-users has been criticised by van Veggel and Hanington who argue designer observations reinforce designer assumptions.\(^{274}\) In van Veggel’s experience ethnographic end-user research is often criticised in corporate settings as indecisive, overly academic and speculative.\(^{275}\) This shows that the technique of observation is used by graphic designers to filter end-user needs and preferences, reverting to an intuitive reading of a design problem.

**Laddering method**

Advertising has used market research methods such as the laddering method and personality profiling to gather end-user data since the early 1980s.\(^{276}\) Reynolds and Jonathan’s 1988 article ‘Laddering Theory, Method, Analysis and Interpretation’ is a foundation text for end-user research in advertising.\(^{277}\) The laddering method was originally derived from the ‘expectancy value theory’ proposed by Rosenberg (1956).\(^{278}\) The figure below shows a sample of personal attributes (A), consequences (C) and values (V) shown in its ladder format. Buying and eating a chip brand is the attribute where eating less and not getting fat are the consequences and the overall value is better self-esteem (Figure 11).\(^{279}\) The overall aim of the laddering method application to marketing is to ‘revisit everyday, commonplace experiences and examine the assumptions and desires driving seemingly simple choice behaviour’.\(^{280}\) The laddering method focuses on the attributes of a product and how they translate into end-user values. Frascara claims that, ‘Advertising design has known for a long time that if the public does not buy the advertised product the advertising strategy has failed’, regardless of the beauty of the ads or of

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278. Reynolds & Jonathan.
The number of awards collected. The laddering method is a form of end-user research that works in the marketplace.

Image omitted

Figure 11. Sample of laddering method.

The shift away from mass marketing approaches has raised the profile of UCD in the field of graphic design. Intuition and personal preferences are not enough to meet the communication requirements of a graphic design project today, according to Frascara and Nini. Frascara urges graphic designers to be more aware of the effects of designs on end-users and that a user-centred approach is required to analyse the context of the communication. Nini argues there is much work to be done in graphic design processes to include the needs and preferences of end-users. The techniques of focus groups, observation and laddering demonstrate that graphic designers see end-users as passive subjects to extract information from, or observe for insights that can be used by designers.

Chapter Conclusion

This chapter argues that UCD is concerned for the needs and preferences of end-users but it lacks design-orientated end-user research methods. UCD is deficient in applied studies in the field of graphic design, being dominated by the discussion of human-computer interaction and product design. The literature of UCD also lacks any discussion about whether the processes that apply to human-computer interaction and product design apply to graphic

282. Frascara, Communication Design; Nini, ‘Sharpening One’s Axe’, p. 10.
283. Frascara, Communication Design.
design and produce similar outcomes. The UCD literature looks to a range of fields including ethnography, marketing, psychology and sociology and their array of methods to learn about people. The use of focus group, observation and laddering method demonstrate an interest in graphic design to gather information about and from end-users, but leverage end-users as informants for designers. The absence of studies in graphic design confirms that UDC is not a common practice in graphic design.

UCD principles stress the humanity and diversity of end-users in the aim of developing more effective designs, seeing design as the creation of relationships with people, not the production of things. There are key divides in the literature of UCD. The debate on UCD includes those who recommend it for ethical and pragmatic reasons. The ethical imperative for the designer to understand the people who they are designing for appears to be growing. The literature of UCD tends to reiterate philosophical principles concerning the value of including end-users in design underneath the rhetoric of the value of including end-users.

Case studies approach UCD as a way of improving the marketability of products, but there is an equal group of writers who question designers’ role in consumer capitalism. The ‘one-size fits all approach’ of the industrialised, mass market model of design appears problematic in an age of hybrid identities and escalating market segmentation. An unanswered question in the UCD literature is how design can be more representative of a range of end-users’ needs and preferences?

My research seeks to establish what factors influence end-user involvement. There is little research about how UCD methods influence the end-users apart from the espoused benefits in better design outcomes. Lofthouse and Lilley’s significant statement that designers prefer flexible methods which allow for unexpected insights as end-users behave in ways that are contrary to what is expected, deserves further research and directly relates to my research into how PD influences end-user participants in graphic design.285 Barki and Hartwick’s research suggest that conflict and disagreement influence end-user

involvement.\textsuperscript{286} No studies acknowledge this tendency in graphic design leading to a gap in the literature. My research considers the differences between intended and actual end-users as Redström stresses the importance of distinguishing between the two.\textsuperscript{287}

This study draws on the review in this chapter, aiming to trial methods that suit both time intensive and time poor situations and favouring inexpensive methods. My research allows for a process of continually involving end-users in a flexible, dynamic way as recommended by Reich, Konda, Levy, Monarch and Subrahmanian, even though they do not go on to give suggestions for what this means in practice.\textsuperscript{288} My research focuses on the exploratory and generative end-user research stages, leaving aside the evaluative stage of design as outside the scope of my research.

Chapter One established the conventional role of the graphic designer as a blend of artist and communication expert who uses intuition to arrive at design propositions. This chapter establishes that in a conventional UCD process, the end-user is a passive object of study to extract information from or observed for insights. My research investigates the inclusion of end-users in the design process. The broad literature of UCD argues that rigorous preliminary end-user research and late-stage design testing is important to inform the design process, but it is less specific about what happens in the middle stages of this process. The literature of PD considers the nature and value of what I am calling ‘end-user designing’ and is the subject of Chapter Three.

\textsuperscript{286} Barki & Hartwick, ‘Rethinking the Concept of User Involvement’.
\textsuperscript{287} Redström, ‘Towards User Design?’
\textsuperscript{288} Reich, Konda, Levy, Monarch & Subrahmanian, ‘Varieties and Issues of Participation and Design’, p. 168.
CHAPTER 3
PARTICIPATORY DESIGN’S RELEVANCE TO
GRAPHIC DESIGN

This chapter explores the field of PD, setting out what has been theorised, attempted and achieved in its key areas of application—human-computer interaction, interface design, product design and workplace design—to establish whether there are any relevant criteria for its application in graphic design. The chapter examines the history of PD, noting the cyclical nature of discussions about PD. The previous chapter showed that as a set of framing arguments for PD, the literature of UCD also tends to speculate on the value and potential of UCD rather than providing empirical evidence for its efficacy, especially in respect of the end-user research methods that could deliver to design knowledge of end-user needs and preferences. PD can be seen as a specific method of end-user research by including end-users directly in the design process.

PD’s central premise is that the people who will use a design have a right be involved to a greater or lesser degree in its creation. Like the UCD literature, the PD literature represents this either as a democratic imperative that affords design rights to those affected by a design or as a pragmatic path to the creation of more commercially successful designs. This chapter investigates the politics of end-user participation and the new facilitation role specified for designers in the context of PD in order to discover knowledge of relevance to the use of PD in graphic design. PD has a broad and significant literature, but there are few published case studies documenting its application to graphic design. None of the graphic design cases reviewed provide significant detail on the PD methods trialed, focusing on the nature of designed outcomes rather than what happened in the process, establishing the need for the present study.
The History of Participatory Design

PD originated in Scandinavia in the early 1970s from broad debates around UCD as a unique form of design practice based on the idea that end-users and designers act as equals across design. This is an important distinction between UCD and PD. Carroll describes PD as a ‘major, orienting position in contemporary debates about design methods’. For Spinuzzi, PD is distinguished by the fact that research and design work ‘must be done with the users’, whereas UCD assumes that research and design work can still be ‘done on behalf of the users’. In conceiving PD, academics such as Bodker, Ehn and Kyng, Greenbaum and Schuler and Namioka worked with trade unions to develop systems for the promotion of workplace democracy and empowerment, an effort that gained urgency following the introduction of computer systems to workplaces. A useful representation of the intersection of UCD and PD that also shows PD’s Scandinavian roots is Sanders and Stappers’ diagram (Figure 12). Early Scandinavian PD projects took an action research approach, emphasising co-operation between researchers and workers to develop computer systems that allowed for quality of work life.

Ideals of democracy, social inclusion, engagement and empowerment are the foundation of PD. Ehn locates the roots of PD in ancient Greek democracy, which he credits with establishing the idea that decisions be made in the interest of the majority with the opinions of minority groups also being sought.\textsuperscript{293} Sanoff represents PD as designers’ rediscovery of conventional democratic philosophy sparked by the 1960s movement for participatory democracy that aimed to include all members of society in decisions influencing them.\textsuperscript{294} Kensing and Munk-Madsen represent the PD process as the design of new systems based on a combination of end-users’ knowledge of the work context and designers’ technological knowledge.\textsuperscript{295} The idea of end-users as potential designers was introduced by Simon who maintains that ‘members of an organization or a society for whom plans are made are not passive instruments, but are themselves designers who are seeking to use the system’.\textsuperscript{296} Democratic processes continued to be central to a PD approach to projects through its development.

\textsuperscript{293} Ehn, ‘Scandinavian Design’.
Since the 1970s, key projects around new computer systems and how people interact with them have demonstrated the value and issues of PD. The values of PD are to build on people’s immediate experiences of their own needs and situation by providing them with the opportunity to contribute their ideas directly to design. In the 1970s, Spinuzzi argues that workers had little option but to accept new computer systems given the erosion of employment by computing, highlighting the importance of not romanticising PD.\(^{297}\) This shows the importance of projects such as the Swedish DEMOS project (1975) that built on people’s experiences and preferences when designing computer systems in a newspaper, a locomotive repair shop, a metal factory and a department store.\(^{298}\) In the 1980s, PD projects included end-users of new technology products with the aim of developing people-friendly computer systems that were also efficient to use, echoing UCD philosophy. The pioneering UTOPIA project (Training, Technology and Products from a Quality of Work Perspective) of 1981-1984 saw the Nordic Graphic Workers’ Union and academics in Sweden and Denmark include the craft skills of end-users in the design of software for page mark ups in the newspaper industry, seeking continuity between the past and new technology and empowering workers.\(^{299}\) These key early projects became examples for subsequent designers to draw on the lessons learnt in designing directly with end-users.

The technique of a cardboard mock-up of a computer laser printer used in the UTOPIA project was a pivotal example of a tangible design-by-doing method.\(^{300}\) Ehn, a leader of the UTOPIA project, claims that in developing computer applications end-users have the practical understanding of what is needed, but lack insight into new technical possibilities.\(^{301}\) UTOPIA produced a set of PD methods called TIPS that was tested at newspaper companies, but a lack of resources meant the prototypes never resulted in commercial products, a frequent occurrence in PD projects. Nevertheless, UTOPIA is reported as an overall success in establishing some of the first tools and

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300. Ehn, ‘Scandinavian Design’.
301. Clement & van den Besselaar, ‘A Retrospective Look at PD Projects’.
processes for worker participation and mutual learning in design.\textsuperscript{302}

In 1986, Mumford developed the ETHICS (Effective Technical and Human Implementation of Computer Based Systems) approach in which designers and end-users redesigned computer systems.\textsuperscript{303} Building on the UTOPIA and ETHICS approaches, Belcore developed the PICTIVE technique (Plastic Interface for Collaborative Technology Initiatives through Video Exploration), which was applied to nine projects between 1991-1992. PICTIVE projects used paper and pencils to allow end-users not literate in computing to contribute to software design (Figure 13).\textsuperscript{304} All participants were considered co-designers, contributing ideas without any party controlling the session.\textsuperscript{305} These pioneering projects were innovative in educating end-users about design to elicit emergent designs. The projects involved consensus decision-making rather than voting so as not to disenfranchise any minority, the preference for consensus over majority rule being typical of early PD projects. This established the trend that stakeholder groups in PD arrive at mutually acceptable outcomes.\textsuperscript{306}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure13.png}
\caption{PICTIVE design objects and setting from Muller.}
\end{figure}

\begin{itemize}
\item \textsuperscript{303} E Mumford, ‘The ETHICS Approach’, \textit{Communications of the ACM}, vol. 36, no. 4, 1993, p. 82.
\item \textsuperscript{306} Muller, ‘Retrospective on a Year of Participatory Design Using the PICTIVE Technique’.
\end{itemize}
In the 1990s, Kensing, Simonsen and Bodker developed the MUST method in 10 projects in Denmark and the United States. The MUST method built on an understanding of end-user participation in the design of computer systems. Highlighting the issue of who is a stakeholder in respect of PD, managers were included into the process to address the problem of a lack of take up of design recommendations. Kensing, Simonsen and Bodker caution that the MUST method may not be transferable to cases where designer facilitators come from outside an organisation, as it may not work without their involvement.\(^{307}\) Detail about the way these early methods took place is missing from their accounts in the PD literature.

A number of writers have attempted to diagram the evolution of PD, stressing different characteristics of the field. Clement and van den Besselaar’s 1993 table records the pioneers of PD, their projects and the prime elements of each project (Figure 14).\(^{308}\) The table shows that PD attracted interest in North America in the area of human-computer interaction during the late 1980s. Muller, Wildman and White’s 1991 taxonomy of PD practices shows the successful transfer of PD outside Scandinavia and to non-research work, capturing the key factors in early PD projects (Figure 15).\(^{309}\) No such diagram captures PD projects undertaken since the late 1900s.

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307. See Muller, ‘Retrospective on a Year of Participatory Design Using the PICTIVE Technique’, p. 193.
Image omitted

Figure 14. PD projects redrawn after Clement and van den Besselaar’s 1993 table.
By the early 1990s, the interest in PD spread through different information technology and product development communities around the world, with clear philosophical tendencies emerging. Practitioners initially applied PD to the design of information technology from the field of software design. In Europe, the ethics of PD carries more weight, perhaps because of PD’s roots in labour relations. The genesis of PD in the Scandinavian union movement did not affect its adoption in the United States, despite its low union representation, as the values of PD merged with American values of democracy in government and education.

Scandinavian PD projects of the 1990s continued the early commitment to workplace democracy. According to Kuhn and Muller this commitment demonstrates ‘direct and effective worker participation (not “involvement”) in

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design activities and decisions.\textsuperscript{311} By contrast, researchers and practitioners outside Scandinavia had more varied attitudes to democratic decision-making. Carroll and Rosson and Forlizzi argue that in North America, weight fell on the commercial success of designs with less focus on democratic principles, PD having developed into contextual design with more emphasis on lightweight design exercises to gather input from end-users.\textsuperscript{312}

Members of the PD field are active in staging conferences. International conferences concerning PD issues in systems design are the annual IRIS (Information Systems Research Seminar in Scandinavia) conference starting in 1978, which began as an annual working seminar for Scandinavian researchers and PhD students. There are the International Working Group on Computer Supported Cooperative Work in Design (CSCWD) conferences (1988). The Computer Professionals for Social Responsibility (CSCW) holds an ongoing series of conferences addressing the application of PD to information technology development. The first CSCW PD conference was held in 1990 with 175 delegates from 12 nations in attendance. At this conference, PD researchers such as Greenbaum, Halskov, Miller and Wagner stressed the complex relationships between design ethics and politics in PD projects. In 1993, Schuler and Namioka’s ground breaking anthology Participatory Design: Principles and practices sampled the proceedings of the first 1990 CSCW PD conference.\textsuperscript{313} Papers presented at PD conferences are republished in journals including, Communications of the Association for Computing Machinery (CACM), Human-Computer Interaction (HCI) and Computer Supported Cooperative Work (CSCW). These journals and conferences show how the background of PD is heavily invested in human-computer interaction.

PD has a significant history in the development of information technology systems and workplace design, but PD has also been trialled by a diversity of other fields and organisations including architecture, community building programs, engineering, fashion design, health, hospitals, industrial design,

\textsuperscript{311} Kuhn & Muller, ‘Participatory Design’, p. 27.
\textsuperscript{313} D Schuler & A Namioka (eds), Participatory Design: Principles and practices, New Jersey, Lawrence Erlbaum Associates, 1993.
law offices, libraries, product design and public housing developments and urban planning. There are case studies in a variety of fields. There are a number of PD case studies in industrial design. Toker provides a case study of a participatory community building program. Kwok discusses PD in the area of urban living environment design. Other writers discuss the feasibility of PD for the fashion design industry. Although there is wide interest in PD, the different disciplines look at PD very differently with there being no interaction between these bodies of discussion. For example, product designers write about the tools and techniques for PD where the marketing literature discusses the problems of co-design from the perspective of supply and demand principles.

Since the 1970s, the arguments for PD form a cyclical set of debates. Design Studies (1979- ), Design Issues (1984- ) and CoDesign (2005- ) have devoted special issues to PD, covering the role and responsibilities of the designer, the nature of expert and tacit knowledge, who controls the PD process, who makes the ultimate design decisions and who owns the outcomes of PD. Design Studies dedicated specific issues to PD in 1985 and 2007. Problematic issues rise, ebb and return again without resolution. Each wave of fresh enthusiasm for PD sees the reiteration of PD’s general benefits and ideals, but the debate rarely moves forward.

The Politics of End-User Participation

PD represents a significant break with conventional design approaches in recognising end-users as full and active participants in the design process. In


PD, the roles of end-users and designers are fused. Sanders and Stappers claim that ‘the person who will eventually be served through the design process is given the position of “expert of his/her experience” and plays a role in knowledge development, idea generation and concept development’. Sanders and Stappers provide a drawing, showing the separateness of the roles in classic design in contrast to the roles in co-design shown in the round table approach of designing together (Figure 16). In PD when forming insights about the project, the designer respects the expert knowledge of the end-user by providing tools for idea expression.

Image omitted

Figure 16. Classical design and co-design process.

Ethical and pragmatic imperatives of PD are debated in the literature. The proposition of design with end-users rather than for them is a rationale that is difficult to ignore from both perspectives. Reich, Konda, Levy, Monarch and Subrahmanian claim participation is a ‘prima facia right of all people potentially affected by a design’. Writers including Dodd, Gabbard, Hix and Swann II, Sui and Nini present the ethical arguments for end-user involvement throughout the design process to advocate for their needs and preferences in such a way that they own the process. On the other hand, Ehn and Hyysalo and Lehenkari emphasise the egalitarian philosophy of PD, nominating issues of power and control among stakeholders in the design

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process as inherent to PD. Carroll and Rosson argue that the moral and pragmatic propositions of PD ‘fundamentally challenge conceptions of design as a profession’. Kensing and Blomberg raise the issue of rebalancing the power relations between end-users and technical experts and between workers and managers. Although they warn about the need to balance power between participants, they provide no examples where this has been successfully achieved. These positions show that the ethical imperative sees it as only right that end-users have the right to influence the nature of designs for themselves, whereas the pragmatic position sees end-user input improving the success of design.

Advocates for PD realise the benefits in achieving more marketable products, but Ehn dislikes its use for these motives. In 1993, Ehn warned that clients’ interest in the commercial benefits of using PD methods was taking over from interest in its potential to make design more democratic. Ehn argues that achieving a democratic emphasis on power and control in the workplace was ‘deeply controversial’ from a ‘management point of view’. Bravo, discussing the use of PD in database development advocates for the value of end-users in decision-making, urging that there should be a law that ‘No one who hasn’t managed a database should be allowed to program one’. It is apparent that PD has the potential to benefit commercial purposes although participatory designers prefer it to be used for democratic outcomes.

The shift from UCD to PD influences participants’ roles in the design process. Sanders and Stappers see end-users as the main players in the PD process, supported by designers and researchers. In design, someone has to decide on design directions and outcomes, raising issues of cooption and who owns design outcomes. Hanington argues designers need to make the ultimate

325. Ehn, ‘Scandinavian Design’.
decisions after the research and generative stages, taking responsibility for the synthesis and execution of ideas.\footnote{Hanington, ‘Methods in the Making’; Hanington, ‘Generative Research in Design Education’, p. 13.} When end-users are central to the design process, organising bodies, project funders and managers can feel excluded, their resultant lack of enthusiasm for or ownership of a project jeopardising its continuation in relation to future funding or final realisation. If the views of clients dominate, end-users may not be represented in decision-making, in this sense I argue that the resultant projects may not qualify as examples of PD and designs may be poorly accepted by end-users. Notably, PD writers generally leave the client out of the equation when in graphic design the client is an important agent in design. The PD literature has little to say about the inclusion of clients in the PD process and what their influence over participants’ actions and design decisions might be.

There is debate about the key benefits of PD with the issues raised around ownership and empowerment. Carroll and Ehn represent writers who advocate that the outcomes of PD are of higher quality, more successful and more acceptable to their intended end-users.\footnote{Carroll, ‘Dimensions of Participation in Simon’s Design’; Ehn, ‘Scandinavian Design’; J Howard, ‘Towards Participatory Ecological Design of Technological Systems’, \textit{Design Issues}, vol. 20, no. 3, 2004, p. 42.} For Sanoff, the idea that end-users will own the design outcome is seen as a key benefit of its practice.\footnote{Sanoff, ‘Community Participation in Riverfront Development’.} Howard agrees claiming that PD is an ‘experience concerning the exercise of strong democracy’ in a design project.\footnote{Howard, ‘Towards Participatory Ecological Design of Technological Systems’, pp. 41-2.} He claims that end-user empowerment is required to make PD successful, with end-users being encouraged to ‘share responsibilities and prerogatives conventionally reserved exclusively to professionals’.\footnote{Howard, p. 42.} However, Hyysalo and Lehenkari are more restrained in considering how democratic the design process can be and how different levels of end-user participation influences client relations, designers’ professional status and the quality of design outcomes.\footnote{Hyysalo & Lehenkari, ‘Contextualizing Power in a Collaborative Design’, p. 101.} Here, Hyysalo and Lehenkari argue that design is a small part of the power structure of corporations and projects and they call for designers to be realistic about what PD can achieve.
The idea that end-user participation benefits commercial success affords some power to end-users over designers and clients, but leaves aside PD’s original democratic ideals of a bottom up approach to design in favour of corporations’ desire for more marketable and profitable products. Lockwood, Bachman, Oldach and Rutter argue that it is easy to justify investment in end-user research on the basis of high commercial returns. The arguments for including end-users in the design process are not agreed upon and this hampers the field’s practical knowledge of what occurs when PD is applied in diverse design projects.

In early PD projects, the attempt was made to move decisions that were the prerogative of management to end-users. Kensing and Blomberg report that managers did not participate in early projects. Sanders and Stappers exemplify a growing interest in the PD literature in ‘participation at the moment of decision’. Yet even when end-users are involved in the final decision-making process, Lahti and Seitamaa-Hakkarainen warn of the potential for tokenism and manipulation, claiming that end-users’ design abilities and ideas are commonly omitted from the decision-making process. Elovaara, Igira and Mörtberg suggest that there are no solutions to the cyclical debate about the relationships between participants in the PD process. The question of who makes the decision and who decides on the next steps in PD is presented as the responsibility of the end-user, however this does not always happen in practice.

The PD literature is alert to paying lip service to the inclusion of end-users in design. Bravo cautions that although management talks about worker participation, there is ‘a big difference between making suggestions and making decisions … between having the right to participate and having

337. Greenbaum, ‘A Design of One’s Own’.
power’.

Sui criticises end-user research in the absence of end-user designing as identifying rather than facilitating people’s wants and needs. He attributes the proliferation of ‘user-unfit’ design to the fact that end-users’ needs are not seriously considered, urging designers to see their role as facilitators who enable people to participate in design. Such discussions can be found throughout the more than three decades of writing on PD, revealing the field’s tendency to continually identify and reinforce the value of PD rather than moving onto its wholesale application and studies into its real-world efficacy.

The PD literature discusses the problems of excluding end-users from the design process. Lockwood, Bachman, Oldach and Rutter highlight the link between people’s involvement in design and their ownership of design outcomes in discussing a project where visual displays were designed to save time and enhance the selling process for retail staff. However, the views of sales staff were not sought and the staff did not bother to unpack the merchandising displays when they were delivered. Lockwood, Bachman, Oldach and Rutter argue the staff had no sense of how the displays could help them in their daily work. They speculate that how and when people become involved in the design process is as important as the nature of a final design, motivated stakeholders being essential to successful design implementation. Lockwood, Bachman, Oldach and Rutter’s study questions the conventional measurement of design success. They argue that when end-users participate in the design process, an additional, neglected benefit is the long-term relationship-building participation in design can have on stakeholders. The debate about the politics of end-user participation is ongoing with suggestions that the role of the designer is changing to accommodate the difficulties.

343. Sui, ‘Users’ Creative Responses and Designers’ Roles’, p. 70.
344. Sui, p. 70.
345. Lockwood, Bachman, Oldach & Rutter, ‘Perspectives on Communicating the Value of Design’.
346. Lockwood, Bachman, Oldach & Rutter, p. 82.
347. Lockwood, Bachman, Oldach & Rutter, p. 82.
348. Lockwood, Bachman, Oldach & Rutter.
The New Role of Designer as Facilitator

There is an emergent debate that graphic designers’ role will change to that of a facilitator between client, designer and end-user. The PD literature connects the role of the designer to that of a facilitator, where designers use their knowledge of design and technology to help end-users fulfil their needs and wishes and to empower them in the design process. The PD literature uses a range of terms to describe the role of facilitation. Kensing and Munk-Madsen talk of ‘bridge-building’ between the worlds of end-users and designers to create something new from the combination of designers’ technological knowledge and end-users’ local tacit knowledge. For Sui, the designer no longer aims to deliver fixed solutions, but rather facilitates ‘conversation’ with end-users. He argues that the role of facilitator ‘allow[s] more flexibility and opportunity for users to actualize designs and participate in the decision process’. Luck depicts PD as a social process that transfers end-user knowledge to the designer, who then integrates this knowledge to the design process for the end-users’ benefit. Friedman depicts the designer as a ‘synthesist’ who solves problems by understanding the range of talents required to address them. Despite broad agreement in the PD literature that the designer’s role is poised to become that of a facilitator, what is missing is empirical studies trialling the designer in this facilitation role.

A facilitation role in graphic design would shift the emphasis from visual matters to human factors and entail sharing control of design with end-users. Frascara describes the future graphic designer as a coordinator, who supports end-users and decision-makers to achieve what is required through original analysis, creativity, realism and experience in working with people. Frascara likens this new facilitation role to that of a conductor, who requires an understanding of the range of instruments without knowing how to use each

351. Sui, ‘Users’ Creative Responses and Designers’ Roles’, p. 64.
of them.\textsuperscript{356} For Frascara, a by-product of the inclusion of end-users’ viewpoints sees the design process demystified, with respect achieved for designers and their social role.\textsuperscript{357} Forlizzi and Lebbon propose that when graphic designers and end-users ‘become active participants in the creation and interpretation of the visual message … the designer is empowered, shifting from a decorator of messages to an agent who has influence on the social implications of delivering a visual dialogue’.\textsuperscript{358} The graphic design literature, however, lacks any evidence that such propositions would be the case.

Designers, clients, management, developers and potential and real end-users are all possible participants in a PD project, contributing different relevant perspectives to the project at hand. Kensing and Blomberg, Luck, Prahalad and Ramasaway and Sanders and Stappers argue that all types of knowledge are equally valuable in the design process.\textsuperscript{359} Spinuzzi and Sui argue that end-users’ local knowledge is of greater importance than expert design knowledge.\textsuperscript{360} Reich, Konda, Levy, Monarch and Subrahmanian argue that ‘much of the difficulty in exercising equal participation is rooted in the platonic view of knowledge’.\textsuperscript{361} Early discussion of PD in the literature in respect of technology development is that end-users not be considered ‘luddites’, but rather key holders of tacit knowledge.\textsuperscript{362} Bertola and Teixeira distinguish between the designer’s role as a ‘knowledge integrator’ in global corporations and a ‘knowledge broker’ in local companies.\textsuperscript{363} They identify three types of design knowledge: the community knowledge contained in people’s everyday practices; organisational knowledge and the tacit knowledge possessed by end-users; and network knowledge beyond the

\begin{thebibliography}{99}
\bibitem{356} Frascara, \textit{Communication Design}, p. 8.
\bibitem{357} Frascara, \textit{Communication Design}, p. 58.
\bibitem{358} Forlizzi & Lebbon, p. 4.
\bibitem{360} Spinuzzi, ‘The Methodology of Participatory Design’, p. 164; Sui, ‘Users’ Creative Responses and Designers’ Roles’, p. 64.
\bibitem{361} Reich, Konda, Levy, Monarch & Subrahmanian, ‘Varieties and Issues of Participation and Design’, p. 166.
\bibitem{362} Muller, ‘Retrospective on a Year of Participatory Design Using the PICTIVE Technique’, p. 458.
\end{thebibliography}
boundaries of an organisation. What is presented here is that including a variety of participants in a design project brings different perspectives which add a level of complexity to the role of the designer as facilitator.

Balancing the interests of all participants is a challenge for designers when acting in a facilitation role. According to Suchman, PD is open to enduring questions of who initiates action and for what reason, who defines a problem or need and whose interests are at stake in the design process. Architects Johnson and Lyons claim they seek to balance the views of different stakeholders, describing the collaborative design practised in their business as seeking discussion and argument, which they aim to resolve through mutual respect. Whereas in Taxen’s account of PD facilitation that allowed museum visitors to shape their experience of museum exhibits in the concept design phase, visitors’ views were considered as more important than those of management, technical experts and designers. The visitors were part of the design team, as well as contributing to the initial research gathering phase and later design evaluation. From the literature it is unclear how to balance issues of mutual respect and consensus decision-making.

It appears from the PD literature that to be a facilitator the established practice of graphic designers relying on an intuitive recourse to their own creativity is not suitable. The PD literature suggests that designers learn new skills to understand end-users, recognising that conventional indirect methods are unsatisfactory. The design literature argues that design itself can facilitate understanding end-user tacit knowledge. According to Sanders, to be facilitators designers first need to develop an open attitude towards everyday

people’s ability to contribute creatively in the design process. Sanders suggests that one way to facilitate end-user creativity in design is to use trained social scientists since people trained in social sciences are more open to the abilities of everyday people. She urges future designers to focus on creating mediation tools rather than proposing resolved design outcomes. She proposes designers learn the differences between the roles of leading, guiding, providing scaffolding and offering a clean slate for designing (Figure 17). Sanders claims that it has become evident that everyday people are no longer satisfied with being ‘consumers’. They want to be ‘creators’ as well and designers can meet this need for creativity through the use of PD tools. Using design itself and specialised design tools are suggested for facilitating an understanding of end-users and creating the conditions for end-user involvement.

Accepting the creativity of others is presented in the literature as a requirement of PD facilitation. An enduring aim in PD is drawing out end-user knowledge in the design process to ensure designs fit the complexity of end-users’ needs and expectations. A significant aspect of PD is that ‘everyone can be and should be, a designer’, according to Simon. In 2006, Cross continues this argument claiming that everyone can be taught

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371. Sanders, ‘Scaffolds for Building Everyday Creativity’, p. 79.
374. Grudin, ‘Obstacles to Participatory Design in Large Product Development Organizations’.
designerly ways of knowing. Vienne suggests the public is already visually literate, everyday people being able to interpret the value of a product or the nature of a company from an advertisement or brochure. However, designers dislike this line of thought, claiming design involves special skills and expertise, the literature presenting designer knowledge as different to other knowledge. The PD literature has not fully resolved whether design ability is unique to designers, a result of training or something anyone can take up if given the reason and opportunity. The question of how to reconcile designers’ claim to expert status with end-users’ scope to design remains unclear.

The discussion in the PD literature of the designers’ facilitation role in PD is strongly linked to the development of software systems, where mathematically based principles are characterised as making design features and functions unintelligible to end-users. For Carroll, this has far reaching implications for the conduct of design; the preference for jargon and technology in professional culture needs to be relinquished for accessible language and processes that all parties understand, especially where the gap between the ‘worldview of the software designer and the worldview of the potential end-user of the software is one of the motivations for participatory design’. Reich, Konda, Levy, Monarch and Subrahmanian claim that ‘participatory design is the antithesis of conventional design in which designers are expected to exhibit their expertise’. They argue for the need for a special effort to include participants without technical knowledge to balance the project. Sonnenwald argues there are styles of communication that need to be considered when conversing with end-users. The jargon used in the development of software in PD is also present in other fields of design including graphic design. Overcoming the problem of technical designer jargon when working with end-users is a concern for participatory designers.

376. Cross, Designerly Ways of Knowing, p. 1.
381. Reich, Konda, Levy, Monarch & Subrahmanian, p. 173.
383. Frascara, Communication Design.
The PD literature describes various benefits and difficulties in the move to a facilitation role. Advocates of designers as facilitators claim it leads to building respect between stakeholders. Early writers such as Ehn, Kensing and Munk-Madsen argue that successful communication between designers and end-users has the potential to arrive at more creative and holistic propositions. When early PD projects failed, they argue it was usually because ‘the users and the system developers did not understand each other’. Other suggested benefits of designers acting as facilitators include focusing on the process rather than the outcome with the view to suiting the end-users’ needs and preferences. On the other hand, the PD literature acknowledges that end-user knowledge is difficult to access, analyse and generalise. Rust claims tacit knowledge, being unique to individuals and a product of their whole experience, is not generalisable. Spinuzzi argues end-user knowledge is ‘implicit rather than explicit, holistic rather than bounded and systematized’, thereby making it difficult to describe and formalise. The benefits and difficulties of working in a facilitation role with end-users is a debate with no outcome leaving it difficult for designers to know how to progress.

Fear of losing control of the creative space is a barrier for designers who are considering trialling the role of facilitators aiming to include end-users in graphic design. Rust, addressing design in general, argues that designers need to recognise the expertise of clients and end-users and overcome their natural tendency to assert their individual expert role. Rust claims that there is a growing mistrust among everyday people of design expertise. Carroll and Rust foresee a future where if designers do not relinquish their dictatorial ways, they will be marginalised or end up with no role at all. Carroll specifically warns that the facilitation role could see designers being invisible at the end of a project. Carroll, Drucker and McVarish and Reich, Konda, Levy, Monarch and Subrahmanian expresses concern that the introduction of PD casts designers as ‘technical professionals’ rather than experts and they

386. Rust, ‘Design Enquiry’, p. 79.
389. Rust, p. 83.
390. Carroll, ‘Encountering Others’, p. 287; Rust, pp. 84-5.
claim that designers do not have the skills to be adequate facilitators. Reich, Konda, Levy, Monarch and Subrahmanian argue that designers both need to promote the expertise of their discipline and recognize the limits of their knowledge. Alternatively, Sanders and Stappers reassure designers that professional design will not disappear overnight as end-users become co-designers; PD will make design expertise important. This debate shows that while designers remain attached to the role of expert, criticism of their skills to be effective facilitators is an issue that cannot be ignored.

**Participatory Design Tools and Methods**

Since the 1970s, writers have proposed a diversity of PD tools and methods to facilitate end-users’ involvement in design. Initially, PD borrowed techniques from social science, including focus groups, questionnaires, interviews and observation. Design tools such as mock-ups and prototypes have allowed designers and end-users to work together. Design workshops and creative sessions were common in the early days of PD, with end-users invited to generate or manipulate visual artefacts to communicate their ideas. Since 2000, however, writers have called for new generative methods and tools for PD. Hanington, Sanders and Stappers argue that effective methods to enable end-user participants to contribute design ideas are yet to be developed. This shows the cyclical nature of debate as effective methods were developed in the early days of PD, although the PD literature is consistent in calling for new tools or suggesting that tools are not yet developed.

One of the original and successful PD tools was the classic mock-up tool, Ehn and Kyng’s cardboard computer of the UTOPIA project. Ehn comments in

It was our responsibility as professional designers to be aware of such future possibilities [of computer laser printer technology] and to suggest them to the users … in such a way that users could experience and envision what it would mean in their practical work, before the investment of too much time, money and development work.397

The cardboard computer prototyping tool used a cardboard box to represent a laser printer, a matchbox for a mouse and a piece of paper taped to the wall for the computer screen.398 Ehn argues these allowed workers to manipulate the tools in ways that made sense to designers and end-users, the paper mock-up acting as a non-linguistic trigger to the imagination rather than a reflection of reality.399 The cardboard computer tool is deemed successful because of its low technology and inexpensive approach and has inspired the idea of the low-fidelity prototype used in design fields today.400

In 2000, Sanders proposed a suite of tools that are the foundation of tools and methods used today. Sanders is a pioneer in the use of PD methods and tools. Her company, called MakeTools, uses various tools for collaborative thinking in the areas of dreaming, feeling, mapping, remembering, storytelling and visioning (Figures 18, 19, 20, 21, 22 and 23).401 Sanders describes these six tools as the basis of all tools used in PD today providing a ‘design language’ that allows designers and end-users to work together.402 Her toolkits aim to give expression to people’s emotional response to designed artefacts and environments in a visual language suitable for designers, acknowledging their subjectivity. Sanders proposes the benefits of her toolkits as uncovering end-user stories and experiences, useful in the generative phase of the design

399. Ehn, ‘Scandinavian Design’.
where they can make visible ‘as-yet unknown, undefined and/or unanticipated user or consumer needs’. The question remains as to whether Sander’s toolkits are relevant as general categories of PD tools for today’s graphic designers. While these categories of tools have been outlined, the particulars of activities within each category and for different disciplines remain vague.

Image omitted

Figure 18. Dreaming Tool: Uses images to make an ideal home experience.

Image omitted

Figure 19. Feeling Tool: Uses pictures and words to show past experience.

Image omitted

Figure 20. Mapping Tool: Maps ideas about an ideal pet store.

The PD literature provides a variety of examples of potential PD methods to elicit ideas and opinions from end-users such as prototypes, card sorting, cognitive mapping, collage, cultural probes, Velcro modelling, verbal and visual games and visual diaries. According to Hanington, innovative tools have a better potential to assist participants in contributing high quality information to the design process than conventional activities like filling out a
survey or taking part in interviews. Cultural probes have been trialled in various design disciplines. A three-in-one end-user research process has been proposed showing further interest in probes (Figure 24). Postma and Stappers’ visual example of the cultural probe process shows how probes link with the design process of visualising teenager social interaction (Figure 25). These cultural probe examples show an emphasis on visual mapping of ideas when engaging with end-users.

Image omitted

Figure 24. Three-in-one end-user research process showing interest in probes.

Image omitted

Figure 25. Cultural probe poster for teenager social interactions.

An evaluation and comparison of methods is rare in the PD literature and non-existent in graphic design. Stappers and Sanders compared three methods: symbols and words method, images and words method and mindmap method. They discuss the planning of this experiment, finding that there were positives and negatives with each method (Figure 26).\textsuperscript{408} Their paper illustrates final design outcomes but detail is not given as to how they were achieved or what effects they had on participants (Figure 27).\textsuperscript{409} The differences between the methods of observation and probes have been previously studied and show that probes have a leaning towards articulating personality issues in contrast to observation which shows more about the environment (Figure 28).\textsuperscript{410} These are rare studies comparing PD methods, leaving unanswered questions as to the advantages and disadvantages of various methods over others.

\textbf{Image omitted}

\textit{Figure 26. Sample of an experiment designed to compare PD methods.}

\textbf{Image omitted}

\textit{Figure 27. Posters of design outcomes comparing three PD methods.}

\textsuperscript{409} Stappers & Sanders.
Of all the tools and activities suggested in the PD literature, personas and scenarios are relevant to graphic design. The use of personas and scenarios are examples of innovative tools that have been used by participatory designers as well as by advertising and marketing. In Atkinson and Nixon’s study of personas in the field of website development for ninemsm they criticise the use of personas as offering designers ‘the secure fiction of a stationary target’, where consumers are packaged as commodities, the media providing online advertisers with constructions and stories that are reflections of those offered to end-users. They are critical of media companies who use ‘personas’ to create ideal people for advertising purposes (Figure 29). This uncovers the problems of using personas in a PD setting and serves as a warning for participatory designers to think critically about their motives for using a method such as persona.

What is not discussed in the literature is that the use of persona is an unusual PD tool as it is inventing an end-user rather than working with actual end-users. Personas are an example of how designers try to characterise end-users and understand them. The fact that personas are discussed in the PD literature is a paradox, showing the struggle designers have with engaging with real end-users, reverting to a strong tradition of inventing imaginary end-users, giving designers the licence to work in a vacuum. Questions for further research include how to include end-users themselves in the creation of personas and if personas themselves are valid PD tools.

Scenarios narrate people’s experience of a proposed product or service. Bodker developed scenarios in the field of human-computer interaction to test abstract examples rather than actual situations. Scenarios best enable end-users and designers to judge an idea, according to Bodker, who claims that good scenarios are not detached descriptions of end-user tasks rather:

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[t]hey are selective scripts or stories that stage user actions with a future artefact. They are means of holding on to situations, and how they may be changed because of a design. They represent the reflection over situations, problems or solutions and facilitate action, such as hands-on prototypes or simulations.\textsuperscript{415}

Carroll highlights Simon’s early discussion of scenario based design showing that its use can make complex problems more understandable to all stakeholders.\textsuperscript{416} Bodker, an advocate of scenarios, argues that they enable designers to show what they have in mind, providing ‘critical situations, or even caricatures of situations’ that allow end-users to see the ‘full-blown consequences’ of their ideas.\textsuperscript{417} A sample of a scenario is given in Figure 30 showing Hoonhout’s Health Coach with a title, picture and short narrative.\textsuperscript{418} The PD literature represents scenarios as unlocking tacit knowledge from end-users’ practical experience to make it accessible to designers, placing the emphasis on extracting information from end-users rather than end-user designing.\textsuperscript{419} However, Rust argues that some designers use scenarios to force end-users into novel situations deliberately to compel a change in behaviour and show new possibilities to the designer.\textsuperscript{420} The paradox of inventing personas and scenarios presents challenges for PD.

\textsuperscript{415} Bodker, p. 72.
\textsuperscript{416} Carroll, ‘Dimensions of Participation in Simon’s Design’, p. 12.
\textsuperscript{417} Bodker, ‘Scenarios in User-Centred Design’, pp. 61-73.
\textsuperscript{418} Hoonhout, ‘Setting the Stage for Developing Innovative Product Concepts’, p. 25.
\textsuperscript{420} Rust, ‘Design Enquiry’, p. 79.
The PD literature argues the nature of the design project can determine the choice of PD methods, Dodd warning against a one-size fits all approach to methods.\footnote{Dodd, ‘Research and Design Success’}. Forlizzi argues that the choice of methods can be open, leaving room for designers’ intuition.\footnote{Forlizzi, ‘The Product Ecology’, p. 20.} Arguing for a holistic approach to end-user research, Forlizzi proposes a conceptual framework for understanding the complex context for product use that she calls the ‘product ecology’.\footnote{Forlizzi, p. 20.} A recognised problem in design is that design solutions are inappropriate because of an effect Crabtree calls ‘tunnel vision’ where designers propose solutions to an assumed project brief.\footnote{Crabtree, ‘Ethnography in Participatory Design’, p. 93.} Crabtree emphasises ethnographic investigation as a way to rectify this problem, preventing designers going down irrelevant paths.\footnote{Crabtree, p. 93.} A one-size fits all approach to end-end-user research methods suits a mass market model of design whereas opening up the choice of methods to suit the project suits an individualised approach.

How best to engage with end-users is a thread of discussion in the PD literature that has developed without a structure, although there is interest in the idea of workshops. In 2000, Sanders proposed the idea of ‘Strategic
Visioning Workshops’ to allow people the time and space to listen to each other’s ideas and dreams. An further development to the idea of ‘workshops’ is Binder and Brandt’s Design:Lab, using the metaphor of a laboratory instead of workshop or studio. An example of Sander’s visioning workshops is Visser, van der Lugt and Stappers’ study into the area of product innovation of new facial shaving experiences that allow end-users to call up past memories and invite future dreams. There are a variety of PD tools, but the PD literature lacks a substantial body of evidence for how they work in practice.

When to Incorporate End-Users in Participatory Design

As with UCD methods, when to use PD tools in the design process is debated. Spinuzzi argues that the majority of PD projects exhibit three typical stages. Stage one involves initial exploration of work, where the designers meet the end-users and get to know their routines, procedures and general way of working with each other. Stage two involves a discovery process, where end-users and designers define the goals of the project. In stage three designers and end-users iteratively shape the designed artefact to fit what is needed and desired. Howard warns that without adequate funding and resources, ongoing projects trialling engagement with end-users is impossible to achieve, thereby hampering any reform of the design process and an understanding of when to use PD methods. In PD projects, issues such as organisation, resources, time and budget and stakeholder involvement determine when to use PD methods. PD lends itself to projects where the commitment to socially beneficial outcomes and the lack of a profit-motive allow flexibility in budgets and timelines. As with UCD, a common criticism of PD is that it takes too long and is too expensive, influencing when to use PD methods.

The majority of authors argue that early in the design process is the best stage to integrate end-user advice about important decisions, as any decisions after

Cosmetic. A small number of graphic design writers raise the idea that end-users’ needs and preferences inform the generative stages of design. In graphic design, Frascara claims that graphic designers disregard the expertise that end-users offer, especially in the generative stages of a project. Mascarenhas, Kesavan and Bernacchi from the field of marketing, acknowledge that conventionally end-users are brought in only to test resolved concepts, although they claim that the field is showing interest in end-user involvement in the generative stages of design. Kleinsmann, Valkenburg and Buijs claim that typically eighty per cent of decisions are made during the first twenty per cent of project time although they provide no research to support this claim, although it shows the importance for end-users’ views to be included at the outset. What is missing is debate about including end-users in the middle stage of the design process that Sanders and Stappers have called ideas or concepts and Spinuzzi the discovery process.

Engaging end-users on projects in the early stages of design that involve predicting the future or envisioning new products is thought to be difficult, as according to Hoonhout, end-users are not capable of predicting and imagining design possibilities. Hoonhout identifies a gap in the PD literature in a lack of validated end-user research methods relevant to the generative stages, especially in helping to reduce the number of unworkable ideas. Hoonhout claims it is not feasible for end-users to be involved in co-creation in the early creative phase. This view sees designers as creative, intuitive expert problem solvers, refusing to admit that end-users have something to offer the creative process when involved in the concept design of a new product. Sanders and Stappers disagree with Hoonhout claiming in their diagram that the largest

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432. Frascara (ed), *User-Centred Graphic Design*
The proportion of PD activity happens in the early phases of design, which they call the ‘fuzzy end’ of the design process (Figure 31). \(^{439}\)

![Figure 31. Sander’s representation of the co-designing process.](image omitted)

Research into what actually occurs is required. After this examination of PD methods and tools, I now turn specifically to the field of graphic design to see what influence PD is having on the occupation.

**The Extent of End-User Participation in Graphic Design**

PD has a measure of acceptance in fields such as workplace design, information and communications technology development, human-computer interaction, product design, architecture and urban planning as evidenced by the number of academic papers on PD from these areas. By contrast, Drucker and McVarish and Frascara represent graphic design as reluctant to invest in its application, underscoring the distance between graphic designers and their end-users. \(^{440}\) One factor that limits the interest of graphic designers in PD is that graphic design projects have small budgets and short timeframes that do not support end-user research. \(^ {441}\) The majority of PD case studies concern web design, virtual environments and consumer products, their methods and arguments not being a perfect fit for graphic design, although they do shed light on the challenges of implementing PD.

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\(^{439}\) Sanders & Stappers, ‘Co-Creation and the New Landscapes of Design’, p. 3.


The proceedings of PD conferences from 2000-2008 include no papers on graphic design, with the majority of papers concerning technology development, complemented by a smaller number of case studies on architecture, product development and social innovation projects. Frascara discusses PD tendencies in graphic design in his book, *User-Centred Graphic Design*. In 2009, Barnes, Taffe and Miceli, published findings from the SASI Clean study adding to the number of cases in graphic design. Dr Karel van der Waarde’s research on the suitability of the typography on printed patient pharmaceutical inserts is a further graphic design case study. There are a handful of graphic design case studies in the area of PD that are of relevance to this study. They have no particular relationship to each other, suggesting the embryonic nature of PD in graphic design.

Focusing on the design propositions rather than the detail of the end-user engagement process is central to case studies in the field of graphic design. Cahill’s 2007 study deals with the application of participatory research to graphic design in a project using marginalised end-users. The paper discusses the series of products that were designed including a report, two websites and a series of stickers that sought to provoke people to think about social stereotypes. (Figure 32). Six young New York women aged 16-22 were positioned as the experts in a ‘bottom up’ process. This case lacks a detailed description of what occurred with the end-users in the design process.

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447. Cahill, pp. 326-36.
In another graphic design study that used PD methods, a claim is made that student designers worked closely with end-users, however no detail is given about the techniques employed. Nini’s 2005 study where PD methods were applied to the design of a cookbook for people with developmental disabilities using student designers, highlights the students’ initial resistance to participatory methods until they realised the potential for better results. (Figure 33).448 Nini argues conventional graphic design processes ignore end-users in focusing on the designers’ own interests and agenda, thereby running the risk of excluding or alienating end-users.449 It would have been useful to have detail on the methods used.

448. Nini, ‘Sharpening One’s Axe’.
A graphic design study, claiming to use end-user research methods is Forlizzi and Lebbon’s three campaigns, CD covers for a fictional band called ‘Trainer’, ‘What’s Your Anti-Drug?’ poster and ‘Wire Design: Design with a point’ poster, addressing youth safety and the knife-carrying culture in Britain’s inner cities (Figure 34). This case study describes a user-centred graphic design project, where Forlizzi and Lebbon claim that the design outcomes were successful because the designers were ‘empowered to create a common ground for dialogue, community-building and behavioural change’. However, again there is little detail on the methods for participation or how the campaign was received.

It appears PD in graphic design is in its infancy as the techniques used in PD cases suit a UCD definition rather than a PD one. End-users are being used as either informants to design in the form of focus groups or used to test design ideas. The extent of end-user engagement in ‘Trainer’ CD covers was student evaluation of design concepts, in the ‘What’s Your Anti-Drug?’ poster designers gathered end-user information at the initial stages of the process. In the ‘Wire Design: Design with a point’ poster prototype designs were developed and students were asked to comment on the imagery. Group interviews were undertaken to make visible student perceptions, beliefs and attitudes around knife carrying and safety and the students evaluated image boards in the light of these conversations. The use of end-user group interviews and evaluation methods demonstrates that the field of graphic design is lagging behind other design fields in trialling innovative PD methods.

A further study where end-user participants act as informants to the design process rather than as co-designers is Strickler and Neafsey’s report on their 2002 participatory graphic design research into preventing harmful drug interactions with prescription medicines in older adults, using an animated, interactive software program. This project demonstrates the potential for collaboration between social scientists and designers. The design students designed prototypes for end-user focus group sessions, where end-users were invited to compare information retention and reported behavioural change between two groups. Similarly Bleakley, Merzel, Messeri, Gift, Malotte, Middlestadt and VanDevanter’s 2008 community awareness campaign in New York City evaluates the effectiveness of small media campaigns in raising community awareness of the importance of health check-ups. The authors surveyed 535 end-users to determine campaign material recognition. They aimed to test the effectiveness of graphic design information campaigns rather than co-create new designs with end-users, thereby using end-users to test designer ideas.

453. Strickler & Neafsey, p. 117.
454. Bleakley, Merzel, Messeri, Gift, Malotte, Middlestadt & VanDevanter, ‘Check Out That Body’.
In contrast to this is Young and Barrett’s examination of visual methods for gathering information from Kampala street children about interacting with the socio-spatial environment.\textsuperscript{455} This study outlines the visual methods of engagement with end-users as 1) mental and site maps, 2) thematic and non-thematic drawings, 3) daily time lines and 4) photo diaries claiming that the diaries produced positive end-user engagement. The description is rich concerning the employment of these methods as they explain they were to encourage engagement from the children and ‘providing a stimulus for eliciting further oral material’.\textsuperscript{456} This is a rare study that uses children to design with the team rather using them than to test ideas.

In another rare case where a graphic designer embarked on PD in an industry project, the discussion afterwards leads him to debate the merit of the PD process and left him considering a variety of problems about it. Before designing an identity for an advocacy project, Wilkinson worked with end-users to create a clear understanding of the project parameters.\textsuperscript{457} He acknowledged that the PD process was a success where all the end-users ‘participated, felt involved and had a level of ownership in the result’, however he was concerned that the final design proposition was not the best proposition. He acknowledged the difficulties in maintaining a balance between involvement, ownership and aesthetic control. Wilkinson wondered ‘Should I have been more persuasive? Should I have been less inclusive? Should I, as the designer, have had the final say?’\textsuperscript{458} This shows the strong ability of graphic designers to trust the PD process and leave behind the security of an expert problem solver position. The whole design process was turned on its head and according to Wilkinson he had to relinquish a level of control that he preferred and felt entitled to.\textsuperscript{459} Cases that document the struggle to maintain a participatory approach are rare and useful for future participatory designers to understand some of the difficulties.

\textsuperscript{455} Young & Barrett, ‘Adapting Visual Methods’.
\textsuperscript{456} Young & Barrett, p. 141.
\textsuperscript{458} Wilkinson, ‘Education’, p. 94.
\textsuperscript{459} Wilkinson, ‘Education’, p. 94.
For a broad field like graphic design, the existence of only these few cases suggests the lack of PD activity. In searching for cases that focus on the influence of participation on end-users in the application of PD to graphic design, Cahill’s study appears to be the only documented case.460 He notes that the participants were struck by their differences making it difficult to come to a consensus in regard to design directions. No resolution to deal with this issue is offered. It is also notable that all illustrations in these participatory graphic design cases show final designs, not the design process. In design fields such as industrial design, the co-design process is visualised, showing an interest in the process rather than a focus on the outcomes. (Figure 35).461

Image omitted

Figure 35. Personal statement cards to record facial shaving experience.

Chapter Conclusion
I have outlined in Chapter Three the history and key principles of PD as well as showing that PD is not established in graphic design. A substantial body of opinion and knowledge on principles and methods for end-user designing is discussed in relation to the use of PD. The main areas of debate centre on the value of end-user participation, decision-making, the role of designer as facilitator, claims to expert knowledge and choice of PD methods and activities. The literature review shows that a diversity of areas have

460. Cahill, ‘Including Excluded Perspectives in Participatory Action Research’.
contributed to the PD debate. The principles of PD have spread from human-computer interaction, product design, systems design and workplace design without much thought about what such transferral means. No one is grappling with whether specific design disciplines require different approaches to PD. My research seeks to address whether the existing tools and methods for PD are transferable across design fields. Although it may appear there are PD methods available to graphic designers from other disciplines, their transfer to graphic design is untested.

Exactly whose responsibility it is to determine, create and interpret the outcomes of PD tools and activities is a question raised in the PD literature that provokes the design industry. If designers create the tools and interpret the outcomes they are likely to be leading the process and investing ownership in the design project. In this sense, the purpose of PD tools continues to be positioned as a way for designers to access information from end-users rather than a way to enter into a shared joint ownership of the creation of the project.

The PD activity reviewed in the graphic design cases is not significantly different to focus group research and end-user testing and is poorly suited to the requirements of real graphic design projects with real budgets and deadlines. How to distinguish focus groups from PD in graphic design is not addressed in the literature, leaving a gap. The subtleties in how end-users and designers are influenced by PD compared to focus groups is also an unexplored area in the literature. In focus groups, information is extracted from end-users for the benefit of designers whereas in PD information is shared between end-users and designers with the purpose of jointly designing outcomes. This points to further research required to examine the differences between PD and focus groups.

The inclusion of end-users in the design process, as represented in the UCD and PD literature, promises appropriate design responses aligned to end-user requirements, where the graphic design literature rejects end-user creative input as watering down final design proposals. The PD literature focuses on a new facilitation role for the designer, but this is also a challenge, for graphic
designers are trained to behave as creative experts. As the UCD debate continues in PD as to the value of end-user participation, my research assumes that including end-users in the design process is beneficial and investigates how being inclusive of end-users’ creative ideas in the graphic design process influences all the participants involved. Documentation of case studies is required to shed light on what it means for all involved participants. There appears to be one documented case of PD in graphic design focusing on its influence on end-users.\textsuperscript{462} The purpose of my research is to explore the influence of PD processes on participants in the graphic design process, in particular on end-users and designers, building on the knowledge gaps in the literature. In Chapter Four, I introduce the case study method used to trial the application of PD to two graphic design case studies.

\textsuperscript{462} Cahill, ‘Including Excluded Perspectives in Participatory Action Research’.
CHAPTER 4
RESEARCH METHOD

Participatory graphic design is a new area of design research, meaning there are no methodological exemplars to build on. Participatory design involves working with people, necessitating a research method that responds to the twists and turns of the design process and the rich data it generates. Contextual specificity and individuality are characteristic of graphic design projects. This study required a qualitative, flexible research design to accommodate the context-specific nature of design projects and one that was responsive to factors outside my control, as recommended by Robson and Yin.463

In this chapter, I introduce the case study method underpinning the research. Yin defines a case study as ‘an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’.464 Valkenburg and Dorst recommend case study as the best existing research method for describing the design process in providing ‘data that is rich enough, in that it spans both the design process and relevant aspects of the design context’.465 This chapter discusses the two design projects chosen for examination and the techniques used to ensure rigorous data collection, analysis and reporting procedures used in the presentation of the cases in Chapters Five and Six.

The Use of Case Study Method

For design research there are two principal epistemologies from which to draw, objectivism and constructionism. Objectivism reflects a positivist theoretical perspective, while constructivism reflects the

position of interpretivism. The objectivist position sees design as rational problem solving, where theories are logically informed by distinct, empirical facts.466 Design research following an objectivist position separates experience from reality, believing that objects or situations have their own meaning which is discoverable. Examples of methodologies used to seek an ‘objective truth’ are experimental and survey research. Among the methods used are focus groups, interviews, questionnaires and their statistical analysis.467

A constructivist position stresses design as a reflective practice. Within this position there is not one observable truth as the idea of truth and meaning is viewed as constructed through connecting and reflecting with a situation. Constructionism sees the act of designing as research when it is followed by reflection on the process of designing.468 Examples of relevant methodologies are ethnography, grounded theory, action research and feminist standpoint research. Among the methods used are qualitative interview, observation, narrative, life history and case study.469 Yin and Flyvberg’s account of case study research subscribes to the constructivist position as they hold that different meanings exist even in relation to the same context. I have chosen case study method within the constructivist position as I agree with the idea that each given context is complex and that in design a reflection on the case at hand from many perspectives is required to build knowledge.

This study uses case study method, based on a constructivist position, previously known as naturalistic inquiry and realism.470 Case study privileges individual subjectivity over objectivity.471 For Lincoln and Guba, contextual

469. Crotty, The Foundations of Social Science Research.
studies begin from the perceptions and experiences of the participants or phenomena, working iteratively towards plausible explanations and theories through the provision of rich information, although knowledge claims relating to wider applications are tentative.\textsuperscript{472} Case study is one method within the constructivist gamut, being recommended for contemporary issues where accepted principles and constructs are yet to be established.\textsuperscript{473} 

Case studies are recognised as a valuable complement to theoretical discussion.\textsuperscript{474} A benefit of case study is its ability to be flexible, in that it can describe phenomena, develop or test theory.\textsuperscript{475} Various writers depict case study as useful where research and theory are at their early, formative stages, other methods being more suitable for hypotheses testing and theory building.\textsuperscript{476} Merriam values case study for focusing on process rather than outcomes, discovery rather than confirmation, depth and intensive description rather than breadth and acknowledgement of external forces.\textsuperscript{477} Flyvberg argues the production of concrete, context-dependent knowledge through case study can be ‘more valuable than the vain search for predictive theories and universals’ in studies that involve people.\textsuperscript{478} Simons values case study for its focus on issues from an in depth and holistic perspective.\textsuperscript{479} She defines the value of case study in its scope to capture the complexity of a situation and to ‘render the unfamiliar familiar and the familiar strange’.\textsuperscript{480} An advantage of case study is that it accounts for the unique features and contradictions of a phenomenon, acknowledging that a study involving people will be inconsistent.

\textsuperscript{472} Lincoln & Guba, \textit{Naturalistic Inquiry}, p. 277.
\textsuperscript{473} Lincoln & Guba, \textit{Naturalistic Inquiry}, p. 83; Perry, ‘Processes of a Case Study Methodology for Postgraduate Research in Marketing’, p. 787.
\textsuperscript{474} Flyvberg, ‘Five Misunderstandings About Case-Study Research’; Frascara, \textit{Communication Design}, p. 60; Yin, \textit{Case Study Research}.
\textsuperscript{478} Flyvberg, ‘Five Misunderstandings About Case-Study Research’, p. 224.
\textsuperscript{480} Simons, p. 225.
Case studies are used extensively in anthropology, economics, history, political science, psychology, sociology and practice-oriented fields such as education, law, management science, public policy, social work and urban planning. Flyvberg argues that carefully chosen cases were important to the work of major intellectual figures such as Newton, Einstein, Bohr, Darwin, Marx and Freud who each initiated whole new fields of study. While the value of case studies has been documented, they are comparatively rare in the literature of design.

A number of writers explore the need for well-prepared case studies in graphic design and the reasons behind their lack. Until graphic designers address their fear that opening up their design practices for all to share will give away their competitive edge, Frascara argues that necessary reflection on graphic design methods will not happen. For Frascara and Swann, knowledge of graphic design will only emerge from systematic, self-critical evaluation in researching and evaluating its processes. Breslin and Buchanan contend that because design projects involve commercial information, design has become closed to examination that builds disciplinary knowledge. Breslin and Buchanan attribute the lack of case studies in design to the notion that design artefacts spring from inspired individuals working intuitively in the moment, discounting the possibility that universal principles underpin the discussion of specific projects. Breslin and Buchanan argue that existing design case studies in professional journals are cases of businesses promoting their work through the discussion of key projects where the articles are anecdotal, lacking in the objective methods and rigour of an effective case study. Graphic design publications also focus on individual projects, designers or consultancies, impeding the uptake of case study method.

483. Frascara (ed), User-Centred Graphic Design.
486. Breslin & Buchanan, p. 37
The Cases

The literature on case study establishes no ideal number of cases. Yin recommends that more than one case study allows for comparative analysis, more comprehensive theory construction and increases the reliability of the research.488 I use a two-case research approach in which inferences were drawn from the application of PD to graphic design in two different settings. The two cases I chose are not identical and I have followed Stake’s recommendation that a two-case research design is useful for closely examining cases linked together with a particular issue or phenomenon.489

The two cases I chose for my study are the SASI Clean and the Asthma Foundation projects. Flyvberg notes that some cases are given to a researcher, others are carefully chosen.490 The SASI Clean study presented itself early in my research process, in this sense it was given to me as the first case study. I chose the second case after a period of reflection about what was learnt form the first case and refinement of the research questions. The Asthma Foundation study investigated problems of information delivery and was a client environment open to trialling new design tools. I sought to vary the context for the application of PD in choosing a second case to learn about the effect of the context.491 I chose both cases for their non-commercial nature, allowing for a longer engagement with the organisations involved. Both cases involved site visits to establish a trusting, working relationship with the end-user participants and for the designers to become familiar with the context for the eventual design proposals.

Yin distinguishes between descriptive, exploratory and explanatory cases.492 A descriptive case focuses on the context, providing a thick description of the case context.493 An exploratory case is where characteristics are discovered in the cases that warrant further investigation.494 Explanatory cases provide causal explanations for the data. Yin argues that when attempting to explain a

488. Yin, *Case Study Research*.
491. Stake, *Multiple Case Study Analysis*, p. 23.
phenomenon using explanatory case study method ‘there are no fixed recipes for building or comparing explanations’. 495 Yin compares explanatory case study to a detective reconstructing a crime. 496 I chose to follow the exploratory case model. The case studies of my research, present various circumstances beyond my control, thereby an exploratory case study method was required as one suitable for dealing with this complexity. Emerging theories were uncovered in an area with few previous case studies, requiring further research to build on the findings.

Ethical approval

Both case studies required ethical approval. The SASI Clean case ethical approval is SUHREC Project 0607/153, titled, *PD tools and processes for the development of a guide to safe and sustainable cleaning*, with approval to 30 December 2007. The Asthma Foundation ethical approval is SUHREC Project 2008/043 titled *PD tools and processes for the development of asthma information*, with approved duration from 26 August 2008 to 15 August 2009 [Project Modified October 2008]. A modification to the Ethics application was sought to include the Foundation staff as a further participant group. An appendix to the thesis includes the Ethics approval and participant consent documentation. Ethics requirements have been rigorously followed. All case data and records are securely archived in accordance with the approved application in a locked cupboard in the Faculty of Design.

The Participants

In the SASI Clean case, the eleven childcare workers who served as end-user participants in the workshops responded to an invitation to participate. They came from four Melbourne childcare centres: the independent, not-for-profit Lady Gowrie Centre, Carlton and three not-for-profit centres funded by the City of Yarra, Gold Street, North Carlton and Yarraberg. All participants were female, there being no male childcare workers employed by the childcare centres involved in the SASI Clean study. The childcare workers ranged in ages from 25 to 55 years.

The participants were paid a standard fee in line with market research focus groups to compensate them for their time, this being AUS$100 per three hour workshop and a total of AUS$300 for attending all three workshops. They commented that they volunteered to participate because they were interested in the study, but added that initially payment was an incentive. At the end of the workshops they commented that these were an enjoyable and valuable experience for them. In retrospect, they felt they would have participated without the financial recompense.

The designers were five Masters graphic design students from Swinburne University of Technology’s Design Centre. The Centre’s students work on a variety of external projects. Only two designers of those involved in the SASI Clean study had previous industry experience, reflecting Cross’ argument that much design research is done with novice designers, design students being easiest to access.497 The students were chosen based on their design and project management skills and the range of projects available in the Design Centre. They were free to choose not to participate or to withdraw from the study at any time.

Young designers are open to new ways of doing things, which is considered to be an advantage over using more experienced designers who may have been more attached to conventional design methods. I also chose to use student designers for the reason that they have not had years of practice in viewing the inclusion of end-user research in a negative way. My PD workshops discussed with the student designers from the outset the value of including end-users in the process, based on Holland’s argument that doing so increases the likelihood of an appropriate design response.498 In the SASI Clean study, it was possible that members of the design team felt that childcare workers would not be able to make a conceptual contribution to design. I considered these biases when reviewing the workshop notes.

In the Asthma Foundation Clean case, twelve staff of the Asthma Foundation from the group responsible for public education and outreach participated in the workshops. This group was a main end-user of the Foundation’s

information on asthma risk and management and had close knowledge of the needs of people with asthma and their carers. Participation was voluntary and took place during office hours. The designer participants were four Masters graphic design students, a different group to that which took part in the SASI Clean study. Three of the students had industry experience.

Data Collection Procedures

I used the techniques of notetaking and photography to record the proceedings of the case studies. For Lincoln and Guba, notetaking is transparent, allowing informal continuous checking to occur.\textsuperscript{499} In each of my case studies, during the design workshops, two notetakers recorded general observations and I photographed the activities and design outcomes. The notetakers were senior lecturers at Swinburne University of Technology. Darke, Shanks and Broadbent note that if the researcher can take rough, but extensive notes during contact with people and write them up in full within 24 hours, electronic data capture is not necessary.\textsuperscript{500} The two notetakers in my study prepared a full record of each workshop within each case within 24 hours. Contact notes were produced before and after each workshop. All notes were recorded unaltered as digital files, providing a complete case record.

Since notetakers necessarily pay close attention to events, Lincoln and Guba suggest they can flag issues for consideration.\textsuperscript{501} A limitation to notetaking is that in the early stages, the notetakers may not know what it is important to record or flag as happened in the initial SASI Clean study.\textsuperscript{502} The identification of issues early on recorded by the notetakers was important for the funnelling of issues to record later on in the process. The use of two notetakers provided different accounts of what transpired, where I checked my impressions with them, ensuring that they were not biased.

Audio or video recording could have been used to record a complete description of activities, but I decided not to use video or audio because of the potential to make participants self-conscious. I also favoured notetaking above

\textsuperscript{499}Lincoln & Guba, \textit{Naturalistic Inquiry}, p. 272.
\textsuperscript{500}Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 283.
\textsuperscript{501}Lincoln & Guba, \textit{Naturalistic Inquiry}, p. 272.
\textsuperscript{502}Merriam, \textit{Qualitative Research and Case Study Applications in Education}, p. 87.
video recording as Blomberg, Giacomi, Mosher and Swenton-Wall argue that although notetakers’ notes are never complete they evoke memories of the experience and ‘the taste, smell and feel’ of the activity that video recording cannot do.\textsuperscript{503}

A practical difficulty of case study is the amount and variety of data collected.\textsuperscript{504} This has created much debate about whether a full case record is required in case study. Four aspects have been identified by Walker in the preparation of a case study; case data, case record, case study and case analysis.\textsuperscript{505} Yin rejects the idea of a full, narrative case record as recommended by Walker.\textsuperscript{506} On the other hand, Darke, Shanks and Broadbent suggest that a case study database can be established at the outset of the case and maintained throughout.\textsuperscript{507} I created a complete case record and I consider it a useful component of my case study analysis. I continuously referred to it in considering different issues. I found the complete case record a meaningful way of capturing and storing data. The SASI Clean study record has 155 pages of written notes and 239 photographs. The Asthma Foundation study record has 57 pages of written notes and 356 photos, the greater number of photos reflecting my growing interest in capturing the use of design tools and activities in PD workshops. The two case records and all other documentation are maintained as an archive for review. They are available for review if required. An extract of the case record follows:

\textbf{SASI Clean study: Workshop Two on 28 July 2007}

\textit{2:25 pm Design Development Session 1}

ST showed the designers’ PowerPoint presentation of ‘The SASI Clean Journey’, that is, the process of the PD workshops. This was done to remind the participants of the process and aim of design before the final design development occurred. The designers presented and the childcare workers

\textsuperscript{504} Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 286; Yin, \textit{Case Study Research}, p. 10.
\textsuperscript{506} Yin, \textit{Case Study Research}, p. 61.
\textsuperscript{507} Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 283.
(CCWs) watched intently, commenting quietly to each other. ST explained that it was important to consider the context in which the design work had been done and its purpose.

- 2:35 CCWs and designers split into the two groups that had come up with various design ideas at the last workshop.
- Since the last workshop, the designers had developed the ideas into prototype products. In my group there were three developed products, a manual, a website and the relief card system.
- A designer explained that these were not finished products. They have been quickly worked up in the past few days to indicate what a finished product could be. The designer explained that designers like to do things at the last minute.
- The designer introduced the key ring binder and explained how it could be customised by individual centres developing their own information, which could be included with images of children’s work and photographs from the centre. The information would be organised using a template downloaded from the SASI Clean website.
- A designer showed how the information could be put into acetate or plastic pockets, or into self-laminating pouches. He showed the CCWs examples that he had made up to give an indication of how the ring binder would look, creating a mini photo album of the centre.
- One CCW thought the photos were a nice touch and laughed when the designer said they had come up with the idea quickly.
- A CCW expressed the opinion that the idea looked great. A designer congratulated the CCWs because the ring binder was their idea.
- A CCW pointed out the problem of things getting wet. A designer talked about the practical details of how the ring binder would work, saying that the self-laminating pouches were probably a better alternative than the acetate sheets that were hole punched.
Data Sources

My research used a variety of data sources. Yin argues that the strength of case study is its use of multiple sources of evidence.\textsuperscript{508} Others have stressed that the variety of possible data sources and collection methods, places significant demands on the researcher.\textsuperscript{509} Three general categories of data collection predominate case study: interview, observation and documentary analysis.\textsuperscript{510} The data sources used in my research were:

- Existing information materials such as brochures, posters and reports
- Photographs of the workshops
- Site visit photographs
- Diaries, notes and photographs contributed by the end users
- Notetaker’s notes
- Email correspondence between the client, the participants and myself
- My general observational notes regarding the six workshops
- Design work produced before, during and after the workshops
- Prepared information sheets filled in during the PD activities.

The copyright for all the photographs in Chapters 5, 6 and 7 rest with myself as I took all the photos before, during and after the workshops and are covered by the Ethics approval.

Data Analysis Procedures

Although case study is perceived as difficult to summarise, analyse and generalise, for Flyvberg this reflects the reality being studied; it is not a specific effect of case study method and signifies that complex issues are being made visible.\textsuperscript{511} Darke, Shanks and Broadbent argue that difficulty in analysing and generalising case study findings is a consequence of the ‘subjectivity’ of data collection and of researchers’ interpretation of events and

\textsuperscript{508} Yin, \textit{Case Study Research}, p. 13.
\textsuperscript{509} Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 283; Robson, \textit{How to do a Research Project}, p. 93.
\textsuperscript{510} Merriam, \textit{Qualitative Research and Case Study Applications in Education}; Robson, \textit{How to do a Research Project}, p. 93; Yin, \textit{Case Study Research}, p. 13.
\textsuperscript{511} Flyvberg, ‘Five Misunderstandings About Case-Study Research’, p. 237.
data.\textsuperscript{512} They argue that case study requires a level of initiative and pragmatism from the researcher in responding to unexpected findings.\textsuperscript{513}

For analysis, I combined all the data sources, reorganising them chronologically under activity headings. I systematically considered the relationships between issues in the quest for substantive findings. I took note of Yin’s concern about the overuse of quantitative data, especially the use of coding in case study where the resultant categories become too small and numerous, where the search for meaningful events are useful to drive a case study.\textsuperscript{514} I focused on the concrete things the participants discussed; Flyvberg arguing these are important evidence in a case study.\textsuperscript{515} For case study researchers, the closeness of the case study to real-life situations and its multiple wealth of details are important for the development of a nuanced view of reality.\textsuperscript{516} I also allow for conflicting events and interpretations to surface and have used my own judgements to make sense of what occurred.\textsuperscript{517}

The analysis of the cases began with a series of broad questions that revolved around a general area of exploration. My research question is a ‘how’ question: how does PD influence the participants in the graphic design process? I chose case study as Yin recommends case study method when an investigation raises ‘how’ and ‘why’ questions, rather than ‘who’, ‘what’ or ‘how many’ questions.\textsuperscript{518} My research began with investigating the general efficacy of PD in the graphic design process. It was only at the completion of both cases that it became evident that PD influenced the end-user participants in a unique way that has not previously been reported. Case study enables knowledge to emerge, for Lincoln and Guba as the study progresses and as the researcher becomes more familiar with the environment, where propositions are derived from the data as it is collected over the study life cycle.\textsuperscript{519} I decided to focus on the influence of PD on the participants rather than the graphic design process itself. Stake argues that the research questions

\begin{thebibliography}{99}
\bibitem{512} Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 286.
\bibitem{513} Darke, Shanks & Broadbent, p. 275.
\bibitem{514} Yin, \textit{Case Study Research}, p. 61.
\bibitem{515} Flyvberg, ‘Five Misunderstandings About Case-Study Research’, p. 238.
\bibitem{516} Flyvberg, p. 223.
\bibitem{517} See Darke, Shanks & Broadbent, ‘Successfully Completing Case Study Research’, p. 275.
\bibitem{518} Yin, \textit{Case Study Research}, p. 13.
\bibitem{519} Lincoln & Guba, \textit{Naturalistic Inquiry}, p. 333.
\end{thebibliography}
for an individual case can be called issues and reflect the complex relationship that direct researchers’ attention to ordinary experience and discipline knowledge. A theme in both case studies was whether participants, both end-users and designers were changed by participation.

The questions that have potential influence on a case study analysis are numerous. Bryce argues that pragmatic decisions about what to include relate to the researcher’s main concerns, while collecting enough data to answer open questions. In my research, the limits of workshop activity suggest a natural boundary for the case studies. Potential influences on my research that I chose to leave out were the large volume of email correspondence involved in setting up the workshops, the experience and personality of the participants and the order of PD activities. These issues were outside the boundaries of my research and are not present in the discussion in the following chapters. I did not include the email correspondence in my analysis as I decided to concentrate on the workshops themselves and the actual activities that the end-users were part of. Studying the influence of the personality of the participants I decided was outside my experience as a designer and researcher as I did not have any training in psychology. Analysing the order of the activities would require a large study in itself. Each workshop would need a rotation of activities to understand the influence of their order.

I gave consideration to the type of reporting structure for the presentation of my findings and their analysis. A typical case study report that is ‘a lengthy narrative that follows no predictable structure’ has been criticised by Yin. Flyvberg has criticised case study for reading like a story. My analysis approach is in line with the metaphor of case study research as ‘snapshot of reality’ or a ‘slice of life’. I divided the issues across the cases following Yin’s recommendations that case study reports need to be based on a ‘a series of answers to a set of open-ended questions’. Stake argues in multiple-case study research as ‘snapshot of reality’ or a ‘slice of life’.
research there will be research questions or issues in common across cases and others in particular to each. Stake brings up the debate about whether to spend minimum attention to the cases and maximum to a cross-case discussion. In some cases, a cross-case analysis is the major goal of research and here there is no need for single-case reports. Such a study might consist of brief summaries of individual cases, followed by a cross-case analysis. I followed Stake’s recommendation allowing for the particulars of an individual case to be thoroughly analysed before the discussion of any points of intersection.

A short case context precedes the thematic presentation of my research findings, an appreciation of context being important to understanding the findings. The SASI Clean first study is where I focus on the influence of PD on end-user participants, reported in Chapter 5. The Asthma Foundation second study is where I explore the influence of PD on designer participants reported in Chapter 6. In Chapter 7, I discuss issues that relate to both cases. The reporting style in the thesis allows readers to interpret the findings in their own way and apply the findings to other contexts.

**Addressing the Limitations of Case Study Research**

Case study has been criticised as a weak method, lacking in rigour. Flyvberg and Yin deal with the major criticisms and limitations of case study research. Flyvberg provides convincing arguments to demonstrate that case study has no less rigour or greater bias toward the researcher’s preconceived ideas than other research methods. Lincoln and Guba argue that case study has its own rigour that can be established through credibility, dependability and transferability. Case study does not aim to supply absolute truths and as Yin argues, proof is inevitably context dependent and bias can be present in all types of research. Yin attributes scepticism over the objectivity of case study method to the

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526. Stake, *Multiple Case Study Analysis*.
527. Stake, *Multiple Case Study Analysis*, p. 47.
528. Yin, *Case Study Research*, p. 64.
529. Stake, *Multiple Case Study Analysis*, p. 10.
530. Stake, p. vii.
532. Lincoln & Guba, *Naturalistic Inquiry*.
absence of quantification. Flyvberg argues that it is now recognised that proof is hard to come by in the social sciences, allowing careful discussion of individual cases to be accepted as a way of establishing knowledge. Both Flyvberg and Yin acknowledge that case study can rely heavily on researchers’ previous experience and sense of the worth of things, but this has value. In qualitative research, a researcher can be influenced by a variety of factors, but Stake argues that this is to be expected. For case study research to be rigorous, Darke, Shanks and Broadbent state that ‘sufficient evidence for research findings must be given and alternative interpretations must be carefully considered and clear reasons given for their rejection to establish rigour and reliability of the research’.

To establish rigour in my research, I used the technique of informal review to cross check my findings across all my data sources. A benefit of an informal review, according to Bassey is that the review process happens while the interpretations are in their formative stages, rather than using an external review process at the completion of the research when analysis is finalised. In relation to my research, this means that I was able to understand where the themes overlapped in both cases and across the PD activities. I could have held a bias about the capabilities of the end-user or student designer participants. To counteract my personal biases and subjective interpretations, I continually checked my interpretations with people both inside and outside my research process.

In the SASI Clean study, I consulted a review panel including the student designers, their manager, the notetakers, the client and managers of the childcare centres and academic colleagues. The project’s steering committee also provided feedback on the findings. In the Asthma Foundation study the data was informally reviewed by sharing observations with the same review panel with the addition of the CEO of the Asthma Foundation and an external

537. Stake, *Multiple Case Study Analysis*, p. vi.
design director from a Melbourne-based studio who had previously undertaken design work for this client. This provided insights and contradictory interpretations of the workshop proceedings, adding knowledge about the acceptability of PD methods for graphic design. I followed Morse, Barrett, Mayan, Olsen and Spiers’ advice to keep the informal reviews of secondary importance in comparison to my own efforts to take responsibility for the internal rigour of the study process.\(^{540}\) I wrote notes from the informal review discussions and added them in sections to my case record. These notes were a part of the recorded notes on each activity.

Herr and Anderson outline a sequence of possible researcher’s stances in relation to participatory research ranging from insider to outsider.\(^{541}\) I considered whether my stance as an outsider or insider influenced the findings. The PD process strives for all participants to learn from each other and share expert knowledge domains, continually challenging the position of insider and outsider. The researcher’s stance could be positioned as an insider, or an insider in collaboration with other insiders, or insider(s) in collaboration with outsiders, or insider-outsider teams or outsider(s) in collaboration with insider(s) or outsider(s) studying insider(s).\(^{542}\)

In conducting the PD workshops, my position moved between that of an insider and an outsider to the research. I decided that I would learn about the issues influencing participants by placing myself within the context being studied as recommended by Flyvberg, because by being immersed in the design project and witnessing first hand the behaviour of the participants I would gain a rich understanding of the influences PD has on the participants.\(^{543}\) PD aims to balance power in design decision-making between all project stakeholders. My expertise as a graphic designer aligned me with the team of student designers, as we shared design knowledge and processes and language, which was evidently different to the end-users’ practices and traditions in the process of the workshops. This saw me aligned as an insider.

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with the designers. At times, the student designers positioned themselves as outsiders, their expert knowledge differentiating them from the end-user participants. In this sense, they were outsiders to the end-users project context.

When reflecting on the case studies I shifted my focus to that of an outsider to observe patterns of behaviour, including insider-outsider shifts in behaviour between participants. Perceptions of the researcher as an outsider with power can influence the positions of all participants in the process.544 My case analysis in the following chapters describes strategies I used to minimise the influence of power relations. The notion of ‘inside’ knowledge is itself ‘a slippery, contradictory space’, according to Cahill who questions whether a participatory approach gets ‘better’ data because insiders know things that outsiders do not.545 Cahill notes that it is important not to romanticise ‘inside’ knowledge as the ‘truth,’ that outsiders might not be able to understand or indeed erase the differences between the views of the various ‘insider participants’.546

One of the limitations of case study is that it is context specific, where the findings are discounted as not generalisable. I understand that this is a limitation of case study as a research method. Exploring the influence of PD on graphic design is a practical endeavour. The findings are of value when they can be discussed in relation to their implications in similar contexts. I took care to consider how transferable my findings were for graphic designers and other PD researchers. In discussing the findings in my cases in the following chapters a thorough description of the transactions and processes observed in their context is provided. Lincoln and Guba argue that for another practitioner to make a judgement about whether the findings are transferable to their own context, a comprehensive description of the case needs to be provided, ensuring that all significant factors relevant to the context of the case are included.547 Complete generalisability cannot be guaranteed in case study as findings are context specific, making a reliable statement about transferability unlikely, so that in relation to my research the findings are

545. Cahill, p. 331.
546. Cahill, p. 331.
547. Lincoln & Guba, Naturalistic Inquiry, p. 319.
specific to graphic design and to the types of non-profit information design projects I chose as cases studies.

Chapter Conclusion
In this chapter the method of case study is introduced as an appropriate method to investigate a broad understanding of how participants behave in the context of graphic design projects. My research is a case of observing the behaviour, conversation and actions of end-users and designers in a structured situation while working on real-world graphic design projects. My background as a graphic designer does not lead me to look for single realities as design work looks for different perspectives and meanings and supports a paradigm where realities co-exist. I chose to use the method of case study, as PD applied to graphic design is a new area of design research, thereby suggesting a method which allows the whole context of a phenomenon to be explored and a rich understanding of the factors involved to emerge. Case study method framed from a constructivist position enabled me to grapple with the context-specific and individual nature of the industry graphic design projects in my research. Chapters Five and Six now present the SASI Clean and Asthma Foundation studies.
CHAPTER 5
THE SASI CLEAN CASE STUDY

Chapter Five examines the influence of PD on end-user participants in graphic design. The chapter has two parts. The first discusses the overall SASI Clean project where childcare workers as end-users and designers developed information strategies to promote low chemical cleaning in childcare centres. It describes the specific activities and procedures undertaken in a series of workshops. The second part presents the results and analyses the influence of PD on the childcare workers, showing a series of significant effects. This chapter discusses how the PD process changed the childcare workers as end-user participants in that they preferred the role of designer than end-user and chose others to design for.

The SASI Clean Study Context

The overall SASI Clean study aimed to investigate the broad context of cleaning practices in Australian childcare centres. The goal was to reduce environmental impacts and risks to health through the use of safe products and low-chemical cleaning practices to achieve significant reductions in environmental toxins, packaging waste, embodied energy and sodium in waste-water. There are approximately 2,700 childcare centres in the state of Victoria. Each childcare facility sits at the hub of a broad social network, suggesting the potential to spread low-chemical cleaning further into society.

The participatory design work for this case study took place in Melbourne, Australia, between February and November 2007 and formed a minor part of the larger SASI Clean study. An independent, sustainable cleaning consultant approached Swinburne University of Technology in February 2006 to assist with the SASI Clean study. Officials from Sustainability Victoria, the state government’s environmental sustainability agency, funded the overall project and sat on the study’s steering committee, as did others from the National Childcare Accreditation Council and Community Childcare Victoria, their role
being to ensure the project proposals fitted policy directions in the childcare sector.

The overall SASI Clean study involved using a mild, plant-based detergent diluted to the required strength in warm water to clean baby change mats and play tables, followed by rinsing and drying where necessary (Figure 36). Detergent breaks the surface tension of water, allowing it to penetrate better the dirt that enables germs to live and multiply, lifting the dirt off the surface and making it easier to wipe or wash away. Subsequent rinsing and drying further denies germs the conditions they need to survive. There are good reasons for seeking safer and more sustainable cleaning practices in childcare. Intensive cleaning is needed wherever groups of babies and pre-school children are cared for and young children can be highly susceptible to the effects of chemicals.

The Australian Government publication *Staying Healthy in Child Care*, issued by the National Health and Medical Research Council (NHMRC) is the sector’s primary source of information on cleaning and hygiene. *Staying Healthy in Child Care* recommends diluted detergent for cleaning surfaces outside food preparation areas and explains the steps to low-chemical cleaning, arguing why it is not necessary or possible to achieve sterilisation in
community settings. Staying Healthy in Child Care explains that, ‘Washing germs down the drain is better than trying to kill germs with disinfectant’. It stresses that to kill germs, a disinfectant needs to be the right one, applied to a cleaned surface at the right strength and left for at least ten minutes. Even then, not all germs will be eliminated, fewer than 100 virus particles being sufficient to spread infection from a surface to a child.

Staying Healthy in Child Care is freely available over the Internet. Its approach to communication uses factual explanation and standard publication design to present the facts on cleaning and infection control. Yet surface sprays, disinfectants, harsh detergents and air-fresheners are freely used in Victorian childcare centres. That childcare centres use strong cleaning chemicals indicates that information on low-chemical cleaning has had little traction in the sector despite the availability of clear guidelines on its use. Figure 37 shows a cupboard labeled with the word ‘Poisons’ and the types of chemical cleaning liquids found in childcare centres. As well as polluting ecosystems and indoor environments, the purchase of these products is a significant cost burden for childcare centres, their purchase showing that information alone is inadequate to the task of influencing attitudes and behaviour.

Figure 37. Cleaning disinfectants and bleaches.

The SASI Clean study involved a variety of individuals, organisations and expertise in recognition that the strategies for shifting childcare centres to the use of low-chemical cleaning were unlikely to come from a single source of knowledge. Microbiologists compared the efficacy of low-chemical cleaning with current cleaning products on actual surfaces in the centres. The inclusion of designers targeted the failure of existing information to influence childcare centres to adopt low-chemical cleaning. The design component opened existing cleaning information and its delivery systems to contestation through the participation of childcare workers in design workshops. My research concluded with the development of prototype designs. It was beyond the scope of my research to test the design outcomes produced as part of the SASI Clean study in a wider setting. The production phase did not go ahead for a lack of new funding.

**Workshop Procedures**

The case study involved a series of three workshops, based on design industry activities and procedures applied to a PD setting. In June 2007, before the staging of the workshops, the design team undertook site visits to four childcare centres to understand the context for information delivery. Following Robson’s recommendation that in case study, ‘the details can and should be sorted out as you feel your way through’, the design team visited the childcare centres to form a relationship and establish trust with the childcare workers, who would be the likely participants in the workshops. Figure 38 provides a range of contextual images taken in the designers’ site visits to the four childcare centres. The design team undertook a variety of commercial design briefs for the SASI Clean project before the research began. A brand mark and letterhead was designed along with a website design, brochure, newsletter and a SASI Clean launch invitation (Figures 39 and 40).

To RSVP or find out more please contact Bridget on:
Tel: 03 9349 4299 or Email: info@freshgreenclean.com.au

The Safe and Sustainable Indoor Cleaning Project
Launch Party

The Safe and Sustainable Indoor Cleaning project is ready to go! We have a new website, we’re commencing pilot trials, and now we’d love you to join us as we celebrate the launch of the SASI Cleaning Project!

The SASI Cleaning project is directed by Fresh Green Clean, funded by the Sustainability Fund (managed by Sustainability Victoria), and supported by the City of Yarra, the Lady Gowrie Child Centre and Swinburne University. This exciting new project is helping four children’s centres in the City of Yarra to:

- protect our children from toxic and harmful chemicals
- achieve safe and hygienic conditions
- care for the planet by saving water, waste and energy.

Figure 38. Site visit photos of the SASI Clean childcare context.

Figure 39. SASI Clean brandmark, launch invitation and letterhead design.
Over a two-month period, I organised three PD workshops with a group of eleven childcare workers and five designers. Recognising that locations are never neutral, I carefully considered where to hold the workshops. Yin suggests that to undertake the case study in the end-users’ setting can add to the understanding of the context. I had thought to hold the workshops in a childcare centre to stress the specificity of the design context and validate the experience of the childcare workers, but this became too difficult so the workshops took place in a design studio in the Faculty of Design, Swinburne University of Technology (Figure 41). My fear that this prioritised designers in the design process did not come to pass, the end-user participants taking delight in this location.

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552. Yin, *Case Study Research*, p. 84.
To make the workers feel as comfortable as possible, Workshop One began with a tour of the studio. The arrangement of desks, the priority given to technology, the profusion of source books, magazines, font samples, colour swatches, the mock ups and other clippings pinned on walls evoked the nature of graphic design, potentially demystifying its practice for the childcare workers in much the same way as the walls of the childcare centres spoke to us of their daily experience. The childcare workers showed interest in its layout and the colour swatches, sample imagery and prototype designs lying randomly on workstations. During breaks the workers spent time exploring the studio. Two workers even migrated into the hallways to look into nearby studios and computer laboratories. Others chatted with the young designers about their work, the level of interest being such that it was difficult to get everyone back to the formal work of design.

**Workshop One, Exploring Ideas**

Workshop One, ‘Exploring Ideas’, took place on 23 June 2007 between 2 and 5pm. I based the workshops on Cross’ argument that anyone can be taught designerly ways of knowing.\(^5\) At each step in the design process I took the

\(^5\) Cross, ‘Expertise in Design’.
time to explain the nature and purpose of design methods. My research examines what happens when conversation is opened up between end-users and designers, investigating how end-users behave when invited to join the designing process. Here, I built on Sander’s call for designers to create spaces that she terms ‘scaffolds’ upon which everyday people can express their creativity. \(^{554}\) Questions that arose for my research were how does sharing the creative space with end-users influence graphic designers. Keeping in mind that Chapter One argued that graphic designers are reluctant to share control of the creative space, my research specifically asked the graphic designers to share the creative space to understand the influence it had on them. My research included activities that invited the graphic designers to be facilitators to see if they have the skills to adequately facilitate end-user creative ideas.

There is a vast array of possibilities for potential activities for PD workshops. My research allowed the graphic designers to devise activities as they related to the case study project. The workshops sought to involve participants in PD activities using text and image. My research aimed to not allow the PD workshops to become reminiscent of focus group research. Below I set out the activities trialled in the aim of identifying the barriers to safe and sustainable cleaning:

**Brainstorming**

Workshop One began with a brainstorming activity recording ideas about cleaning practices and products on a whiteboard in a whole group. I asked participants to consider issues such as, ‘What do you do, use, think, feel, know about cleaning products, practices, infection, chemicals, information, policies, guides, accreditation, children, parents, information and cleaning guides’.

**Future Scenario**

The future scenario activity recorded participants’ ideas when asked to imagine a future childcare centre and to complete a phrase beginning with, ‘What if …’. This activity was recorded on butcher’s paper.

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554. Sanders, ‘Scaffolds for Building Everyday Creativity’.
Mood Boards
The creation of mood boards occurred in two groups and asked participants to propose the ‘look and feel’ of SASI Clean information. The groups were asked to create three mood boards on three A2 boards placing images and ideas on the relevant boards; according to how sustainable or safe they perceived the products or ideas in the images to be. The boards were themed in response to ideas of conventional and sustainable cleaning product and practices and ideas about the spread of infection, including ideas about low and high harm cleaning. The materials available to use were images and words from magazines, site visit photos and designer found pictures, coloured paper, Blu-Tack, glue and Post-it notes.

Mood Board Ranking Activity
This activity involved ranking the ideas on the mood boards, where all participants were asked to place coloured dots on the images and ideas on the boards. Green dots represented promising ideas and red dots less favourable ideas. Participants were asked to agree on key words to sum up what the activity had suggested to them about cleaning. The words were individually written on Post-it notes and collectively placed on a new board. The aim was to identify overall project values.

Disposable Camera and Visual Diary
At the end of the workshop, each childcare worker was given a disposable camera and an A5 visual diary to record observations or reflections. I asked them to collect any relevant images, brochures and any ‘information guides’ to do with the overall theme. This concluded Workshop One.

Workshop Two, Design Strategy
Workshop Two, ‘Design Strategy’, was held on 28 July 2007 between 2 and 5pm. It represented the design concept and strategy phase of a graphic design project and included the following activities:

Childcare Worker Diaries
The review of diaries and re-establishment of the parameters of the project occurred as a whole group activity. This activity aimed to establish directions
for appropriate graphic design outcomes. The designers presented a summary of what was learned from Workshop One. Childcare workers shared diaries, photos and their reflections over the previous weeks. One childcare worker presented drawings the children had done on the theme of cleaning in between the workshops in her diary.

**Laptop Presentation**
A sequence of design works for the logotype for SASI Clean was shown via a laptop presentation. The designers showed a set of images about design that reiterated the steps of design. The designers ran through various processes used in their design.

**Developing a SASI Clean Manual**
The client had asked for one of the design outcomes to be a manual, outlining a range of information including the steps to safe and sustainable cleaning. This activity was designed to involve the childcare workers in the form and content of a SASI Clean manual, where participants were to identify the sort of information to be covered in the manual and develop a series of chapter headings. All participants drew or wrote about ideas for the manual. Childcare workers and designers took turns in recording the ideas to see whether the act of recording contributed to ownership of ideas.

**Concept Design Presentation**
The designers presented their designed responses to Workshop One to the childcare workers who had helped develop each proposal. The childcare workers then presented these proposals back to the designers of an alternative group for comment. Ideas presented included bottle tags, mascot and SASI Clean manual designs. Discussion proposed new ideas including a relief worker card set. This activity aimed to see what would happen if the role of presenter were swapped and whether being involved in the process from the beginning influenced the participants' commitment to the developing ideas.
Workshop Three, Design Review

Workshop Three, ‘Design Review’, was held on 18 August 2007 between 2 and 5pm. It represented the refinement stage of the design process and involved the following activities:

The SASI Clean Journey Screen Presentation
The design team presented ‘The SASI Clean Journey’ on a large screen to the whole group. This activity recapitulated the process of the PD workshops and the design activity undertaken up to this point. The purpose was to remind the participants of the design process before the final design development occurred.

Mascot Creation
This activity was to develop a ‘good’ and ‘bad’ mascot to represent SASI Clean and was conducted in two groups. The idea of the mascot was to reinforce good and bad cleaning routines with a symbolic mascot, using everyday and recycling materials.

Design Ideas Presentation
In this activity the designers presented prototype designs in response to the ideas proposed in Workshop One. Two groups presented ideas twice to different childcare workers. I asked the childcare workers to give directive feedback: what would work, what would not work among the ideas the designers had presented.

Cleaning Procedure Information
This activity was to develop a delivery system to instruct on the SASI Clean principles, involving recording information on prepared sheets in two groups. I asked the childcare workers to write a page of information about their cleaning process. The designers organised the recording process so that specific details were noted in a systematic manner such as the necessary colour coding of cleaning cloths.

Client Presentation by Childcare Workers
This activity put the designers in an unnatural situation, with the childcare workers presenting concept designs to the client in recognition of their joint
right to ownership of design ideas. The childcare workers presented the design ideas to the client and the designers operated the computer and video projector. The aim was to test the idea of having end-user participants present final design ideas to the client to see what influence this would have on the client’s acceptance of the design concepts. The client joined this workshop for the final presentation of ideas and was not aware that the childcare workers rather than the designers would do this. I took this approach in part because of the client’s preference for her own idea of a SASI Clean manual crammed with dense written and tabulated information.

**Final Review of PD Process**

Participants were asked four questions as a group, ‘Why did you want to be part of the workshops? Did you have any concerns about the workshops? What activities did you imagine taking part in? What did you know about childcare or design work?’ The designers explained how the materials from previous workshops were analysed and developed. Participants discussed promising ideas. Designers showed world’s best practice design ideas they had researched. Participants interviewed each other in pairs and took notes on prepared interview sheets, which were collected. At the conclusion of the three workshops I conducted follow up site visits and had discussions with the childcare workers in their workplaces.

**Findings and Analysis**

The SASI Clean study trialled participatory design to enable childcare workers to better negotiate competing information about cleaning. One of the aims of the SASI Clean brief was to examine the barriers and triggers to behaviour change in relation to safe and sustainable cleaning. My analysis of the SASI Clean study focuses on how PD influences end-users in graphic design, showing a series of significant effects.

**Involvement Creates Commitment to Information**

The SASI Clean study showed that involvement in PD promoted ownership of the information to be communicated in the graphic design outcomes among the childcare workers. I expected the childcare workers to represent
themselves in the PD process as eventual end-users of the design propositions. I imagined the childcare workers would develop graphic design artefacts specifically related to their own needs and preferences. The findings of the SASI Clean study show that the childcare workers used the PD process as a forum for discussion of SASI Clean principles rather than for the co-design of graphic design outcomes for themselves.

Workshop One defined the purpose of the SASI Clean study and the role of graphic design and information within it. The childcare and designer participants saw the overall project goals differently. One childcare worker deemed the goal to be, ‘To keep the children healthy, giving them a good start in life’. The childcare workers provided rich information about the overall goals and context for design. These included, ‘To escape the huge influence of media, telling us which harsh products to use’; ‘To have knowledge of safe cleaners’ and ‘To have proof that environmentally friendly products actually work’. Two childcare workers highlighted the conflicting information on how to clean in a childcare centre. They expressed a desire for standardised procedures to be followed in any Australian centre, even though this information is available.

The designers strove to understand the basic context for design so they could start designing. The disparity with the childcare workers’ focus on the study’s value for children is to be expected. Grudin describes designers as ‘young, rationalistic and idealistic, products of relatively homogeneous academic environments’ with ‘little experience or understanding of the different work situations and attitudes of the users’. Grudin argues that the less the designers understand end-users’ experience, circumstances and needs, the more likely they are to take heed of the contributions of end-users. This occurred in the SASI Clean study as the designers began with little understanding of both childcare and cleaning practices. The designers listened intently to the childcare workers’ views and experience.

556. Grudin.
In an activity to specifically design a SASI Clean manual in Workshop Two the
designers asked the childcare workers whether they would prefer an
electronic or print based manual. One childcare worker said it would need to
be in folder on a shelf for immediate, easy access as there would be no time to
leave the children to look at a computer screen. As a group, the childcare
workers laughed at a designer’s suggestion of a touch screen device, given the
low level of funding in childcare centres. One childcare worker pointed out
that a ‘tailor-made manual is a great idea but centres would never do it, as it
would be too time consuming’. The client was advocating a tailor-made
manual so each centre would have ownership over the information. However,
one childcare worker said, ‘If we have to have a manual we would prefer the
information not to be centre specific and photos to be generic’. Another said, if
one were produced, it needed to be, ‘not too cumbersome’, being easy for
workers to grab and look things up while caring for children, with ‘quick
reference dot points at the head of each section’. The childcare workers
repeatedly stressed their preference for discussion and demonstrations on
how to clean, one participant predicting ‘a manual would be stored rather
than read’. Figure 42 shows a range of manuals stored on a bench in one of the
childcare centres and one childcare worker told us they are rarely opened.

Figure 42. Existing manuals in the childcare centre.
In a discussion about the worth of a SASI Clean manual there were opposing views put forward by the participants. Figure 43 shows the context for the round table discussion about the manual. At first, all participants saw it as important to have an information system that allows for review as knowledge on sustainable cleaning changes. The client favoured the idea of a SASI Clean manual containing all relevant information on safe and sustainable cleaning from the beginning. She supposed that this is what the end-users needed. One designer presented a mascot design and a flexible folder for a SASI Clean manual design concept as shown in Figures 44 and 45. This designer explained that her idea was much like the *Staying Healthy in Child Care* publication, containing guidelines that people can work through. She argued for the value of being able to replace pages in a manual as new ideas about cleaning arose, such as using squeeze rather than spray bottles to dispense cleaning fluid. She proposed the sections to be colour coded and the photos to be presented like those in a photo album (see colour coded tabs in Figure 45).

The childcare workers as a group did not like the concept of a SASI Clean manual. The childcare workers were firm in their rejection of the idea of a manual, regardless of how innovative the designer attempted to present her idea of a manual. Figure 46 shows the preferred concept design of the SASI Clean manual co-designed by all the participants and Figure 47 shows the final inside printed page layouts.

![Figure 43. Discussion about the idea of a SASI Clean manual.](image_url)
Health
Reducing potential harm to the health of children and staff in childcare & all living beings.

Planet
Reducing the harm that cleaning can cause our environment.

Water
Reducing the use and increasing the re-use of our water.

Works
Making SASI Cleaning Work: effectiveness, hygiene & viability.

Figure 44. SASI Clean mascot design.

Figure 45. SASI Clean manual initial concept design.

The SASI Clean Criteria

What is a criteria?

The SASI Clean Criteria is a clear, systematic and proactive evaluation and decision-making framework for the selection of effective, safe and environmentally sustainable cleaning products, equipment and practices within early childhood education and care services.

Why do we need a new criteria?
The SASI Clean Criteria is an essential tool for child care services to ensure effective, safe and environmentally sustainable cleaning practices and products are selected. The criteria promotes the use of environmentally sustainable products and equipment, ensuring the health and safety of children, adults and the environment. The criteria is based on the latest scientific and technical knowledge and includes a comprehensive list of criteria that are essential for effective and safe cleaning practices.

Two important rules
The SASI Clean Criteria is designed to ensure that the use of effective, safe and environmentally sustainable products and equipment is prioritized. The criteria includes a set of rules that must be followed to ensure that the criteria is applied correctly. The rules are as follows:

1. The product must be effective and safe for use in early childhood education and care services.
2. The product must be environmentally sustainable.

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I used brainstorming to prevent groups from early settling on an idea, however this activity produced no promising ideas (Figure 48). One explanation for why no promising ideas occurred in the brainstorming activity is provided by Holmquist who has taken the idea of brainstorming one step further in a trial of ‘bootlegging’. This is a structured form of brainstorming which proved successful for participants with limited experience of brainstorming as it was more open minded than conventional brainstorming.557 Perttula, Krause and Sipilä’s research has shown that people tend to produce similar ideas early in a brainstorming session and more

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individual ideas towards the end of a session. Their experiments show that when groups use a ‘brainwriting’ technique in which ideas are exchanged by written notes instead of verbal expressions, greater idea productivity is achieved compared with groups who did not share ideas in this way. The childcare workers did not have any experience of brainstorming resulting in a reluctance to contribute freely. Certainly, my research found that verbal expression did not produce new or exciting ideas.

In my research, the childcare workers and designers quickly settled on design ideas and resisted looking for further ideas. In a presentation of designer ideas, the group straight away decided on the idea of a relief worker card set without discussion of the other design ideas. In searching the literature as to why this occurred, Stempfle and Badke-Schaub’s research shows that when confronted with a decision, people usually generate one or two alternatives and as soon as an alternative seems acceptable a decision is quickly made in its favour although there may have been better alternatives available. In their research, two out of three observed groups evaluated new ideas

Figure 48. Brainstorming recorded on whiteboard.

immediately without prior analysis. They claim that if no suitable alternative is found, people reconsider discarded alternatives, analysing them in more detail, modifying their own internal value threshold. They argue evolution has led the human brain to think and act quickly, reducing complex information to manageable chunks to enable rapid decisions even if this can lead to less correct decisions. In this study the authors do not elaborate as to whether it was the designers or the end-users who jumped to decisions about which design ideas were worth pursuing.

The designers and the end-users in my research did not work on any further ideas after settling on the relief worker card set, reflecting Cross’s observation that designers laboriously worked on ‘various slightly improved versions until something workable was attained’. Cross claims that adherence to initial concepts that are good enough is typical expert design behaviour. He observes that designers become attached to single, early solution concepts and are reluctant to abandon them in the face of difficulties in developing these concepts into satisfactory propositions. Cross reasons that it may be that good designers produce good ideas early in the design process or good designers fluently modify concepts without recourse to alternatives if difficulties arise during development. This goes some way to explaining why the participants instantly decided on the relief worker card set at the expense of the other ideas that the designers proposed.

The colour-coded bottle tags were a design proposal that initially had support from the designer participants as a promising design direction to pursue (Figure 49). The bottle tags carrying colour-coded instructions would be attached to cleaning products with elastic bands. The position of the designers was that the bottle tags be handmade and attached with a rubber band so that when the childcare workers read the information it would catch their eye (Figure 50). The childcare workers and the designers jointly produced final bottle tags, but at the conclusion of the workshops, one childcare worker gave

feedback that, ‘Honestly we hate the bottle tags, they get in the way and we haven’t read them’. The client was dismayed to hear that the carefully worked out colour-coding had been used on the wrong bottles and that the carefully crafted instructions had never been read. This shows the importance of listening to the views of the end-users who know what will work in their workplace environment.

Figure 49. Bottle tag initial concept designs.
PD brings together groups of end-users and designers from different backgrounds. Where group members have different interests in relation to design it is unlikely that everyone in the design process will immediately understand an idea. Stempfle and Badke-Schaub claim that mixed groups of people provoke the group to evaluate ideas, heterogeneous teams being repeatedly found to outperform homogenous ones in complex problem solving tasks.\textsuperscript{567} They argue that the group can eventually accept discarded ideas when ideas are challenged through the creation of a ‘shared mental model’.\textsuperscript{568} The feedback from one of the childcare workers indicates that the design idea was not working showing the value of PD in bringing end-users together with designers so as to produce relevant ideas.

The findings in my research demonstrate that PD encourages end-user participants to contribute their ideas, but the client’s views can eclipse the end-user participants’ views. The client wished to develop the manual idea as the client was adamant that a SASI Clean manual was necessary, in the end it was produced. This shows that the client’s views took precedence over the needs and preferences of the childcare workers, making apparent that careful attention is required as to who is involved in the PD process and how understanding the hierarchy of decision makers is important. The client also became attached to the bottle tags idea and pushed for their realisation, in spite of one childcare participant’s comment, ‘Once we have been instructed

\textsuperscript{567} Stempfle & Badke-Schaub, ‘Thinking in Design Teams’, p. 492.  
\textsuperscript{568} Stempfle & Badke-Schaub, p. 492.
with what to do, we do not need the labels any more’. The childcare workers repeated the message that they do not have time to read information and that they prefer to be shown things once after which the information would be embedded in their minds. Despite the rejection of the manual and the bottle tags by the childcare workers, the client clung to it and wanted it developed at all costs.

The diary review and re-establishment of project parameters activity in Workshop Two aimed to establish directions for appropriate graphic design outcomes. However, the findings showed that the childcare workers preferred to use the time to talk about cleaning. One of the childcare workers presented a booklet about cleaning by children in her centre, prompting the sharing of anecdotes about cleaning and water saving (Figure 51). Another presented an article on hand cleaning and reducing bacterial count, picking up the media focus on the term ‘surgically clean’. The point was raised that in the United States human bodies are not decomposing because of the use of preservatives, so cremation is being recommended. One of the childcare workers backed the worth of the changes introduced by SASI Clean, including the significant lowering of costs, emphasising the importance of using warm not hot water.

![Figure 51. Children’s drawings of cleaning from a childcare worker’s diary.](image-url)
In the review of project parameters activity, one childcare worker stated that it was ‘no longer accepted practice to use spray bottles because they push bacteria back in your face’. She noted that, ‘squeeze bottles are now preferred’. Figure 52 shows the type of spray bottle for spraying cleaning fluid in childcare centres next to the SASI Clean recommended squeeze bottle with an information label co-designed by the participants in my research. When I tried to close the cleaning discussion and move to the task of designing a SASI Clean manual, one of the childcare workers responded, but raised what were essentially issues about cleaning again. Discussion of the information underpinning the communication task was important to the childcare workers, eclipsing for significant periods in the workshops discussion of the form of designed artefacts.

The PD activities throughout the three workshops were framed as a forum for design development of graphic design outcomes. However, the findings showed that the childcare workers spent time talking about the development and identification of cleaning practices rather than designing. They discussed the relative value of diluted bleach and vinegar and about how colour coded cleaning implements and products was easier now that they had reduced their use of cleaning products. In Workshop Three, the childcare workers were still discussing cleaning methods during the presentation of designs to the client.
My research shows that where behaviour change is the motivation for design, as in the acceptance of low-harm cleaning, commitment to ideas takes talking through.

Discussion was an important part of the PD workshops for the childcare workers. In the diary review and re-establishment of project parameters activity in Workshop Two, one childcare participant recounted an anecdote that captured the attention of all participants. She told us of the time when she realised disinfectant chemicals were being used neat in her childcare centre with severe effects. The disinfectant label instructions, indicating that it needed to be diluted with forty parts water to one part disinfectant, had not been read. Figure 53 shows the small type size of the directional information making the label difficult to read. Wiping tables with the neat chemicals saw staff suffering nosebleeds and babies sneezing and coughing. Important cleaning facts were noted in relation to this anecdote such as, ‘It is colour and strength of smell that suggests the effectiveness of the cleaner for us’, where if you cannot smell the cleaning product childcare workers doubt the product is working. They also worried that without a strong smell present the parents of the children would not consider the centre clean. This anecdote confirmed the importance of the SASI Clean study and engagement in the PD workshops for the childcare workers. The more the discussion about cleaning, the more the commitment to the SASI Clean principles, the less need there was for discussion about design outcomes.

Figure 53. Example of cleaning label instructions.
Managing health issues such as occupational injuries and the provision of an ergonomically healthy work environment was important for the childcare workers. McGrath and Huntington’s survey of 168 New Zealand early childhood workers confirms the anecdotes of my study’s childcare workers where they indicate that, ‘One-quarter of respondents experienced an illness related to their work with children during the past year, most commonly respiratory and gastro-intestinal illnesses’. McGrath and Huntington found careful hand washing and strict sanitation processes when changing babies lessened contamination on hands, tap handles and the immediate environment. This shows that listening to end-users can have health benefits if design can be done to suit end-users’ needs.

Misreading or ignoring instructional labels on toxic chemical containers flags the problem of ineffective instructional label design. Rogers, Shulman, Sless and Beach’s study into improved labelling for over-the-counter medicines for the Australian Federal Government found that existing label regulations hindered good information design principles. They argue that with changes to current regulations and through the use of advanced methods of information design over eighty per cent effective following of medicine bottle instructions is achievable, which is an improvement on the current rates. They argue good enough design not based on usability studies is not good enough for end-users. My research confirms the problems of poor label design leading to health problems. It included the end-users in the design of an artefact to address this problem and the end-users claimed they did not need labels, they did not read them and that they would prefer a conversation to understand instructions for use.

This study suggests the promise of the PD process in identifying effective information delivery methods from the end-users’ point of view. The childcare workers discounted information in the forms of a manual or bottle tags as ineffective forms of information delivery to promote behaviour change. Instead a preference for hands-on demonstration of sustainable cleaning

570. McGrath & AD Huntington, p. 5.
methods emerged. In Workshop Three, the childcare workers discounted the designers’ recourse to technology solutions with comments such as, ‘We would not be big users of the pod casts’. The childcare workers liked the idea of cleaning tutorials, especially for people from agencies who came in the morning when there was no time to give much information. In this activity, I found that participants continually jumped in to corroborate or qualify what one of the childcare workers was saying, suggesting strong ownership of ideas overall. Demonstration methods were preferred rather than graphic design outcomes to achieve the SASI Clean behaviour change goal. Commitment to the SASI Clean principles through discussion during the PD workshops created a further unexpected influence on the childcare workers.

**End-User Participants Act as Designers**

During the PD workshops in my research, the childcare workers took on the role of designing for groups other than themselves, no longer seeing themselves as the subject and target of the information. The site visits identified the profusion of printed information on the walls of childcare centres as a problem for the delivery of any information on safe and sustainable cleaning. The designers imagined that this indicated a preference by the childcare workers for information posters to be locally displayed around the walls of their work environment. The designers saw the dense layer of printed material as visual overload, posters being used to indicate to parents and other visitors that the centre was following guidelines provided to them. By contrast, the childcare workers agreed that the environment is cluttered and ineffective, as shown in Figure 54. They felt cleaning information would be best disseminated through other means, posters highlighting values but being unlikely to be read. In this way, the childcare workers demonstrated their expertise of design issues in the workshops when discussing the cluttered information context in their childcare centre.
One of the childcare workers raised the issue of child-like in contrast to children’s drawings. This showed that the childcare workers had an advanced perception of graphic design style. One reported that they were offended by the cartoon-like imagery found on material sent to them (Figure 55). She saw this as treating her like the children she cared for, rather than having a professional interest in children. Indeed, this childcare participant, a trained early childhood teacher who ran the education program in her centre, took the initiative to have the children in her care draw about cleaning as a source of imagery for visual identity elements in the SASI Clean study. She was motivated by the knowledge that childcare workers spend time in their day supervising children’s artwork. She reasoned that imagery developed around children’s artwork was much more appealing to childcare workers than cartoon-like imagery developed by adults (Figure 56). The designers used these drawings as a basis for prototype poster designs as shown in Figure 57.
Figure 55. Example of cartoon-like imagery sent to childcare workers.

Figure 56. Examples of children’s drawings of cleaning procedures.
The final poster concept that was jointly proposed by the childcare and designer participants initially included no information as shown in Figure 58. Rather, it was a laminated sheet for posting in wet areas of a childcare centre to be filled in using a whiteboard marker with steps for cleaning or other important information. The permanent staff of a centre would determine the information, setting their own approach to cleaning rather than having these dictated to them by an external authority, such as the SASI Clean accreditation program.
Prospective end-users are typically included in a process of PD to contribute reliable self-knowledge to design, their individuality and ‘reality’ making the design context more accessible, familiar and memorable for designers. However, when discussing the poster design, the childcare workers assumed the detached perspective and objective language of the designer. The site visits had identified the profusion of printed information on the walls of childcare centres as a problem for the delivery of any information on safe and sustainable cleaning. When I raised this issue, the childcare workers proposed designerly strategies to draw attention to the SASI Clean poster. One commented, ‘It should be simple and have visuals and diagrams showing real people going through things such as cleaning procedures’. She also noted that it was important to make sure all information was consistent and the poster easy to identify. The final prototype poster the designers developed in collaboration with the childcare workers reflects these qualities. The idea of being able to change the information on the poster relates to its utility, but the fact that it is blank suggests the childcare workers’ primary concern was to signal their commitment to SASI Clean principles to others.
The childcare workers and designers proposed a set of cards for relief workers, the childcare workers seeing it as a valuable idea to emerge from the workshops. The concept proposed that steps for safe and sustainable cleaning be provided on a set of small cards to be hung from a belt or put in a pocket (Figures 59 and 60). It reflected extended discussion of the childcare workers difficulty in maintaining desired practices in their workplaces. Centres use high numbers of relief staff. The relievers arrive at the start of the day at the same time as the children are arriving. The childcare workers reported how difficult it was to provide relievers with orientation in the practices used at a centre. They identified relief staff as a key point for information breakdown and the priority end-users in need of targeted information on safe and sustainable cleaning principles. One childcare worker described the pressure of dealing with a changing cast of relief workers who come into centres for a day or so and never return. Another reported that relief workers can feel uncertain about what to do because in relation to nappy changing, hand washing, wearing or not wearing gloves, each centre has different practices. The childcare workers suggested the cards could empower relief staff, stopping them from feeling ignorant and giving them a sense of connection to a centre. One commented, ‘I know how it feels to go into a new place and not know anything’.

Figure 59. Relief worker card set early concepts.
The familiarity of the childcare workers with the issues and needs of relief workers helped the process of designing for someone else. Stories of frustrations with relief staff gave the design team faith in the validity of the card set. One childcare worker commented that despite her efforts to train relief staff to be on top of sustainable cleaning processes, relievers ‘come in, do what they like and ruin everything’. Handmade notices had not encouraged relievers to use the right cleaning cloths for instance. Her frustration was such that she said she felt like giving up on the safe and sustainable cleaning effort; taking part in the design workshops was a final attempt to solve this problem.

In the activity of designing the card set, the designers were assigned the role of technical expert. My research followed Sui’s argument that designers can be facilitators directing end-users’ level of awareness about design choices, providing opinions and professional advice about the consequences of alternative choices while end-users give opinions and contribute practical experience.572 One of the childcare workers pointed out the problem of information materials getting wet and becoming unreadable. Previously, water had quickly ruined handmade labels as shown in Figure 61. The idea was for the bottle tags to be laminated so water would not damage them. One of the designers commented on the practical details of how the relief worker card set would work, recommending self-laminating pouches as a better alternative than acetate sheets that were hole punched as water gets through the hole punched area (Figure 62). Since cost is an issue in childcare centres,

572. Sui, ‘Users’ Creative Responses and Designers’ Roles’, p. 73.
another reason the childcare workers suggested the paper templates to be laminated to create sturdier, waterproof cards is that lamination is a cheap technology available in childcare centres.

Figure 61. Childcare centre self made bottle labels showing water spoiling.

Figure 62. Designer showing the waterproof pouch.

The card set sought to act as a quick reference guide to the principles of safe and sustainable cleaning. Figure 63 shows one of the final layouts for a card. The designers contributed the idea that individual centres customise the information, deciding their own steps for cleaning. The idea was that with an
attractive template available on the Internet to download, it would not take long to produce new cards or update them when necessary. The childcare workers were adept at refining the prototype and considering its implementation, suggesting the inclusion of photographs of a centre and of children’s art to make the cards more memorable. The steps to cleaning could be decided at a staff meeting, establishing group commitment to safe and sustainable cleaning.

The childcare workers saw the card set as well-adapted to the nature and pace of childcare, where a worker changes up to one hundred nappies a day, making it difficult to consult a manual about how to clean. Being kept on the person, the card set was contained and accessible. It could be quickly fanned out to give access to a specific piece of information and it could be wiped clean. The childcare workers described it variously as ‘cool’, ‘catchy’ and ‘simple’. One designer felt the card set cut through to the ‘nitty gritty’ of the SASI Clean principles. Only one childcare worker commented that whatever information delivery system was used, everyone would need training in how to clean and she wanted backup posters throughout centres to ensure cleaning was properly implemented. However, the group were sure that the relief

Figure 63. Final design for one relief worker card.
workers were a key target for information and concentrated on ways to get information to them.

Throughout the PD process, the childcare workers picked up design language and concepts. One childcare worker explained that the ‘look and feel’ was based on children’s drawings, the term ‘look and feel’ being designers’ language. The childcare workers were competent acting as designers on the card concept as they highlighted the language that was necessary on the cards to communicate successfully with the relief workers. Comments from the childcare workers were, ‘The cards should use focused words’, another said ‘The cards would work if they were small’ and another ‘A reliever could carry the cards with them or hang them on a hook’. They were active in the discussion of the imagery to be used on the cards.

The barriers between the designers and end-users dissolved while designing the card set. When discussing what the group liked about the card set, the developing familiarity and good humour in the workshop was evident when one childcare worker joked, ‘Oh, we just like the designer’, at which everyone laughed. In searching the literature to find evidence of end-users acting as designers in other PD projects, I found Humphreys, Leung and Weakley’s study describing end-users in the PD process with design knowledge as ‘embedded researchers’. They show that when end-users participate in PD it is an advantage if they already have design knowledge or skills. Although Kanstrup and Christiansen disagree with this claim, arguing that end-users with no design experience make outstanding innovators and additions to a PD team. In my research, the notion of insiders and outsiders dissolved as the childcare workers and the designers acted as a united team when proposing designs with no sense of division between the participants.

**Nominating Alternative End-Users**

In my research, the childcare workers joined the designers’ camp to nominate

design outcomes for alternative end-users. The intention was that the childcare workers would represent themselves in the design process on the assumption that knowledge of the barriers and triggers to the adoption of safe and sustainable cleaning in childcare resided with them. During the workshops, it emerged that the childcare workers did not identify their own situation and perspectives as a barrier here. They nominated issues with children, parents and relief workers as the necessary focus of information and key to establishing and maintaining desirable practices in childcare. In PD, the design process serves as a bridge between two different realms of experience. In my research the childcare workers crossed the bridge to the side of the designers, in assuming the role, language and behaviour of a designer and in suggested design ideas for someone other than themselves.

The PD process in my workshops included extensive, detailed discussion of how to formulate the information to be communicated. During this process, the childcare workers became immersed in this information, making informational outcomes for them appear redundant. The childcare workers reoriented design to end-users they imagined as needing information: children, relief staff and parents. Design ideas for children included board games, science experiments and storybooks. One childcare worker commented, ‘The children must be involved’ and another said ‘We need to design kits for children and experiences for teaching children about cleaning, for example, through science experiments and games’. Design ideas for parents included booklets and a calendar. They sought to design information for parents, one worker commenting, ‘We need to design displays and posters for parents to make a statement about the centre’, another said ‘We need a brochure to give parents ideas for cleaning at home’ and another put forward the idea ‘Parents need education and reassurance in a booklet’. The key ideas developed in the workshops according to the childcare workers were the poster and the card set and they were aimed at parents and relief workers. All these concepts are directed at others and mark the point in the design process at which the childcare workers changed their identity in respect of design.

Throughout the process of the PD workshops, the childcare workers became aware of the importance to promote ownership of and commitment to safe
and sustainable cleaning rather than compliance. The poster design concept reflected the aim of the global SASI Clean study, which sought to empower childcare workers and individual childcare centres to make their own choices about sustainable work practices and better environmental health. In respect of the posters, the designers felt that hand written messages would stand out among the official printed matter in childcare centres, appearing more friendly and noticeable. However, in a follow-up visit to one of the childcare centres, the childcare workers showed they had not used the poster as intended. Deciding that they preferred the convenience and professionalism of printed information, they had typed up A4 sheets of paper on cleaning and attached these to the SASI Clean poster demonstrating use to be the final phase of design.

The designers strived for the poster design to be relevant for the childcare workers but they were clear that the end-users for the poster were not them, but relief workers and parents. One childcare worker described how parents place onerous expectations on centre staff, making it important that staff not only act in certain ways but have to be observed to be doing so by parents. Another childcare worker gave the use of bleach for cleaning as an example here, reporting that they knew it was not necessary to use bleach to clean on a day-to-day basis. The childcare workers thought the poster would reinforce the SASI Clean messages for the parents who visited the centres daily.

**Discussion**

The SASI Clean study showed the difficulties in arriving at appropriate graphic design propositions especially in behaviour change campaigns. Yanovitzy and Stryker demonstrate that public health campaigns may increase public awareness of health risks, but few can claim behaviour change in relation to campaign messages. They claim that poor design contributes to message failure and that campaign messages produced by community programs have only small benefits despite being well designed. Yanovitzy and Stryker’s comprehensive study of the effect of news coverage on youth

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binge drinking for the period 1978 and 1996 shows no effect on drinking, but a significant influence on policy action and the social acceptability of such behaviour. They claim, ‘It is unclear that more informed and sophisticated efforts to disseminate persuasive information to the public may be sufficient for promoting health behaviour change given the well-documented knowledge-behaviour gap’. My research tackled this problem from a different angle, using PD workshops for end-users and designers to co-develop workable design propositions for behaviour change. My PD activities influenced the childcare workers’ behaviour in relation to safe and sustainable cleaning practices immediately, as they began adopting the desired change. This occurred through discussion embedding cleaning principles while proposing design artefacts.

Others have indicated the need to include end-user participants in the process of designing behaviour change campaigns. Mitchell, Fraser and Bearon’s research in environmental health suggests that unsafe food handling practices are a major contributor to the transmission of food-borne illnesses, but worker education and training interventions demonstrate only modest success in changing food service worker behaviour. They suggest that efforts to change this behaviour are more likely to be effective if attention is paid to the context and if workers are viewed as partners in preventing food-borne illness in food service establishments. My research shows that while creating design propositions targeting information about safe and sustainable cleaning, the childcare workers showed a commitment to changing their behaviour, demonstrating the success of PD workshops to influence end-user behaviour without the need for final design propositions.

In support of the findings of my research, in a study addressing the effectiveness of behaviour change campaigns, Noar shows that health campaigns that foster discussion among the target audience increase the reach

and influence of a campaign.\textsuperscript{581} Noar claims that discussing behaviour change messages has a greater influence on individuals than the direct effects of viewing a campaign.\textsuperscript{582} Noar urges designers of health campaigns to encourage dialogue.\textsuperscript{583} This has implications for PD in graphic design as it suggests designing messages that continue participation with end-users after the PD process is finished. The findings of my research confirm Noar’s research that the childcare workers preferred discussion to the design of artefacts as a way of promoting cleaning behaviour changes.

In the SASI Clean study, PD embedded information and promoted behaviour change more effectively than an eloquently designed information campaign, enhancing commitment to the information message. Even without a designed outcome, the childcare workers became intimate with and advocates for, SASI Clean principles. Gronbaek, Grundin, Bodker and Bannon’s research indicates that the activities and processes in PD are as key a priority as the outcomes.\textsuperscript{584} My research confirms the research of DiSalvo, Nourbakhsh, Holsters and Louw’s study that PD activities show commitment where clients are surprised that end-users want to be involved.\textsuperscript{585} My research confirms their research showing that in PD the design process is as important as any resultant artefacts.

The findings of my research raise issues concerning the authority, representation and embodiment of knowledge in PD, having particular implications for projects where the production of information and behaviour change are the task. These issues suggest why the uptake of PD has been slow in graphic design. In design fields where a tangible product is the outcome of design, prospective end-users can imagine themselves owning and using that product. However, where the graphic design artefact seeks to communicate a message or a body of information, designing for one’s self does not really work in the usual sense because the process of designing immerses the end-

\textsuperscript{581} Noar, ‘A 10-Year Retrospective of Research in Health Mass Media Campaigns’, p. 35.
\textsuperscript{582} Noar, p. 35.
\textsuperscript{583} Noar, p. 35.
user in the information.

My findings suggest that involvement in graphic design changes end-user participants to the extent that what they produce may no longer represent the preferences of the end-user group from which they were drawn. Zorn, Roper, Broadfoot and Weaver’s research into focus groups supports the idea that the process of representing a group changes participants. They argue:

[F]ocus groups are not simply a means of data collection, but, rather they are contextualized group communication events in which, like other group communication events, people assert their views and question, and learn and change. In other words, participants influence each other and come away from the experience changed in some ways.

Simonsen and Hertzum call for the future of PD to be an engagement in large-scale projects. Others urge for large-scale PD projects to be embraced and that including end-users in large-scale technological developments enriches the project. Johnny and Mitchell argue that the current trend is towards the development of international markets, world media and global advertising agencies, large marketers effectively pushing for the entire planet to be treated as one market. However, they note that where information delivery and behaviour change are the focus, local campaigns are needed, the globalisation of campaigns surrounding AIDS, for instance, being shown not to work. Rather, they provide research to show that local initiatives providing culturally relevant expressions of health messages are more effective public

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587. Zorn, Roper, Broadfoot & Weaver, p. 136.
education campaigns. For example, the World AIDS Campaign acknowledges that it failed to reach its full potential because its global program was ‘insufficiently sensitive to local issues and priorities’. Photographic concepts and visuals in large-scale behaviour change campaigns can subvert campaign goals when local end-users interpret messages in unintended ways. In response, the World AIDS Campaign shifted campaign governance to national NGOs from 2004, allowing campaign objectives to be framed around local themes.

Audience fragmentation is a hallmark of contemporary societies, conflicting with graphic design’s tendency to generalise. Noar’s study (2006) confirms that even well-executed mass media campaigns in public health have only small-to-moderate effects on health knowledge, beliefs and attitudes and on people’s behaviour. In reaching a larger group of people, mass campaigns with a small-to-moderate effect can have a greater influence on public health than group-level interventions with a large effect that only reach a small number of people.

My participants’ preference to design for other end-user groups highlights the potential for ambiguous and elusive responses from end-users’ involvement in PD. In the SASI Clean study, this was likely an effect of the situation of childcare workers. Although each childcare centre is a unique setting there are certain characteristics of childcare work that are common across societies. Childcare workers have high commitment to their work with children, but childcare is marked by high staff turnover because of the combination of high responsibility, poor working conditions, low pay and the low social status of the work. Hodges notes that early childhood education has a high female participation and is founded on ideological assumptions about women’s special relationship and rapport with children. Folbre and Nelson observe that the poor financial remuneration for this nurturing career creates a moral

595. Noar, p. 36.
597. Hodges.
dilemma for individuals and society.\textsuperscript{598} In addition to these ideological and gender constraints, women teachers and the childcare centres and practices are themselves highly constrained by government legislation and policy.\textsuperscript{599} Collins observes that cleaning is a gendered issue, with the associations between cleaning and women being particularly strong.\textsuperscript{600} In Australia, national accreditation guidelines closely govern the practices of individual childcare centres and their predominantly female workforce. In the childcare centres the walls are covered with information as seen in Figure 64, suggesting the range of factors childcare workers need to be mindful of and compliant with in their work.

![Figure 64. SASI Clean childcare centre showing regulatory type posters.](image)

Long-term debates about PD characterise it as more democratic in allowing

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end-users to articulate their needs in and through design. However, Lyotard’s theory of the demise of meta-narratives like democracy in post modernity cautions against the notion of democratic outcomes, including cultural production. Despite potentially greater respect of participants’ perspectives and circumstances, the path to their fulfillment is rarely straightforward and without compromise. For the client of the global SASI Clean study, all staff needed training in the principles of safe and sustainable cleaning because people have different ideas and knowledge of hygiene and an important technical process like cleaning to maintain hygiene requires constant reinforcement. The client did not share the design team’s enthusiasm for information materials directed at relief staff and parents only.

My findings underscore the importance of an epistemological shift. In nominating alternative end-users for design, the childcare workers were not participating on the basis of an unconscious self-referentiality with the effect of retaining the designers as the effective authors of design. They changed instead to the status of design’s effective objects. Keinonen argues that a rigid conceptual stylisation has characterised ideas of the authority and contribution of end-users in the PD process, although he notes that perceptions of the expertise, responsibility and initiative shared between end-users and designers in UCD and PD are changing for the better. In the SASI Clean study, complex relations of subjectivity and objectivity emerged in respect to the end-user participants’ role in design, these being underscored when they began acting as designers.

Chapter Summary and Conclusion

In this chapter I explored the influences of PD on the end-user participants in the SASI Clean study. My research illustrates that participation in the design process encouraged commitment to the SASI Clean principles for the childcare workers through participation in design itself. The findings show that when

603. Keinonen, ‘Protect and Appreciate’.

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the SASI Clean information became familiar to the childcare workers they rejected suggestions for design for themselves. One of the reasons that the childcare workers became so involved in the process is that the issue of sustainable cleaning was so important to them. This may be a variable that does not exist in other case studies, making the findings not transferable.

The childcare workers used the design process as a forum to discuss cleaning principles and to share stories and tips from their workplaces, ignoring discussion of the form and content of graphic design outcomes for themselves. As the childcare workers were exposed to information about safe and sustainable cleaning principles and practices they became committed to the principles at hand. The designers struggled to keep the PD process focused on the information delivery system, whilst the childcare workers kept shifting the conversation to cleaning methods and products. Learning and exchanging knowledge, I discovered, was an important part of PD workshops. The childcare workers reiterated that they did not need design outcomes for themselves. They stressed that they would not have time to read information outcomes in their daily work. They were clear that they would prefer to be shown the SASI Clean principles in a demonstration rather than read the information in the form of posters, websites, manuals or bottle tags.

It was envisaged that the childcare workers would represent themselves in the design process, but the findings show that the childcare workers did not behave as expected. The PD process changed the childcare workers, causing them to nominate new end-users for design rather than design for themselves. They assumed the role of designer, adopted designers’ language and behaviour and joined with the designers to propose new end-users for design—relief workers, parents and children—rather than design for themselves. These findings have not been previously reported in the PD literature and signal a clarification of what it means to design with rather than for end-users in graphic design.

Potentially all graphic design projects require alternative end-users, making it difficult to design for oneself. A possible explanation for my findings is that the end-user participants felt outside the process and wanted to be on the
inside. I did not expect this and as facilitator I remained vigilant about encouraging the childcare workers that the process was to design findings for themselves, to keep the focus on themselves. However, these efforts were in vain. The childcare workers refused to design for themselves and this poses the question of if PD extended its reach to relief staff, would they propose an alternative end-user and so on? Where would it stop? My research also raises questions such as, Does PD suit discussion rather than design of outcomes? The following chapter examines the influence of PD on the designer participants.
Chapter 6

The Asthma Foundation Case Study

Chapter Six reports a design project for the Asthma Foundation of Victoria in which Foundation staff and designers conducted an audit of the Foundation’s asthma information. Where relevant the influences on the end-user participants in the Asthma Foundation study are discussed to confirm the significant change in end-user participants’ behaviour reported in Chapter Five. The chapter has two parts. The first presents the overall Asthma Foundation study context including a description of the specific activities and procedures undertaken in a series of three PD workshops. The second part introduces the influences of PD activities on the designers. The project trialled a variety of concept design PD activities to understand their influence on the designers as they trialled acting as facilitator of end-user knowledge. The conditions for successful mediation are analysed in relation to four concept design activities. Verbal and visual games were trialled demonstrating their bridge-building potential. This chapter discusses how the PD activities created the conditions for the designers to challenge established ways of designing asthma information and to understand the actual context for information delivery in identifying emotional triggers to asthma.

The Asthma Foundation Study Context

The Asthma Foundation case study began with discussions with a Melbourne-based design studio which offered a working relationship with one of its existing clients. The Asthma Foundation was open to investigating PD, being willing to invest staff time in exploring their approaches to information delivery. The design director of the studio acted as a consultant throughout the case study, providing an industry perspective on the practical application of PD. This offered an important informal review checking process with an external designer who was not invested in my research outcomes.

Deciding on which of the Asthma Foundation’s end-users I would work with was a joint discussion between the Asthma Foundation’s CEO and myself. The
eventual aim for the Asthma Foundation is to undertake PD with each of their end-user groups, but this was not in the scope of my research. The research design project I devised for the Asthma Foundation was to investigate the nature and purpose of designed communications on asthma risk and management for the asthma staff themselves. There was work to be done to assess how the staff, as end-users of the current profusion of information resources, would like to deal with asthma information before consulting particular end-user groups. There have been studies evaluating the effectiveness of asthma information systems, but not using PD.

Site visits to the Asthma Foundation offices revealed that the Asthma Foundation had a mass of information materials, print and digital, developed over an extended period with consequent poor relations between individual pieces and sets of information. An inspection of the storeroom where the Foundation housed its printed matter showed significant duplication of information. Figure 65 shows a sample range of the Asthma Foundation brochures. When I asked to see a frequently used brochure for women aged 50 and over, the Asthma Foundation staff member did not find one. Proposing a communications strategy for the Foundation depended on understanding how different stakeholders used its information, providing a robust context to explore PD processes. All fieldwork for this case study was conducted in Melbourne, Australia, between October and December 2008.

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Workshop Procedures

The Asthma Foundation study involved site visits to establish a working relationship with the end-user participants and to familiarise the designers with the context for the project. The main fieldwork involved PD workshops where participants worked together on an information audit and developed new design concepts where necessary. As with the SASI Clean project, the workshops reflected the three stages of design: idea generation; design development; and design refinement. A range of different participatory graphic design activities was trialled to understand their influence on the process. The workshops ran as prepared but there were extra activities in reserve if things did not go as planned. The sequence of workshops allowed for reflection and completion of design work in the intervening periods.

The workshops took place in the training room of the Asthma Foundation’s offices for the following reasons: the time involved in transporting twelve Asthma Foundation staff to an alternative location was costly; the Asthma Foundation had a suitable training space on site and I wanted to trial conducting the workshops in the end-users’ space in comparison to the designers’ space as in the SASI Clean study (Figure 66). I sought to see if end-users were comfortable designing in their own space and if the designers were
more prepared for the project by being surrounded by asthma material pinned on the walls, models of dust mites and information kits on surrounding tables as seen in the site visit photos taken by the designers in Figure 67.

Figure 66. The Asthma Foundation PD workshop environment.

Figure 67. The Asthma Foundation project context.
My decision to run two-hour workshops for the Asthma Foundation reflects the fact that they were held during working hours where end-user participants’ time was restricted. Cunningham recommends participatory meetings be restricted to two hours, as he considers longer than two hours to be too long for agency personnel.605 By not including a break as had happened in the SASI Clean workshops and staying focused for two hours I predicted there would be ample time to get through the work.

**Workshop One, Exploring Ideas**

This workshop took place on 29 October 2008, between 10.30am and 12.30pm and covered the information gathering and development stage of the design process. This workshop aimed to familiarise the participants with each other and to share knowledge in relation to asthma information and design. I involved the participants in open-ended exploration of design issues to establish preliminary themes, imagery and design approaches for the development of information. The participants worked in teams on a variety of activities, using coloured paper, images cut from existing printed matter on asthma, pens and pencils, Post-it notes, scissors, glue and tape. The teams explored attitudes to existing asthma information, information media and the circumstances in which people would use information about asthma. The aim of this workshop was to elicit end-user responses that would support inventive concept design. The activities trialled were:

**Verbal and Visual Game**

In this activity I asked all participants to brainstorm words about information where words such as ‘power’, ‘information’ and ‘consistency’ were itemised on a whiteboard. Then all participants chose a word to write on a card. Each participant then passed the card to the person on his or her right whose task was to draw an image of the word. The card was then passed to a third participant, who I asked to guess at the meaning of the drawing and the original word.

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605. WS Cunningham, ‘Voices from the Field: Practitioner reactions to collaborative research initiatives’, *Action Research*, vol. 6, no. 4, 2008, p. 386.
**Information Audit Poster**
This activity aimed to gather information about the asthma information material. I provided the participants with an array of brochures, photos and magazine images on asthma and asked all participants to select their favourite and least favourite examples of the Foundation’s existing information. Participants were asked to paste them onto A1 sheets of paper and then annotated their selections with Post-it notes.

**Future Scenario Ideas**
In two groups, I invited participants to brainstorm 50 possible forms of information delivery and then to imagine new forms of asthma information delivery scenarios. I used two techniques to prompt ideas; Wouldn’t it be great if… and imagine a futuristic film with an asthma scenario. The groups used large sheets of paper to record ideas using words and sketches. From the ideas suggested, participants listed then discussed five promising ideas.

**Ideas Review**
In this activity I clarified the direction of the project, identifying what all participants would like to work on in the following workshop, noting ideas on a whiteboard. The discussion revolved around promising ideas and potential problems focusing on the mass of information and lack of resources that had been brought up in the workshop. I asked all participants to write a small story about asthma that had influenced them or that was memorable in their work.

**Workshop Two, Design Strategy**
This workshop took place on 19 November 2008, between 10.30am and 12.30pm and represented the concept design and strategy stage of the design process, trialling the following activities:

**Ranking Ideas with Cards**
I invited the Foundation staff to rank issues raised in Workshop One in respect of the Foundation’s information delivery or to organise them into meaningful groups using cards the designers had developed to identify valuable or failed approaches.
**Information Audit Discussions**

I collected every piece of information from the Asthma Foundation storeroom in preparation for this information audit. The designers conducted short discussions with the Foundation staff asking them to individually assess each piece of information and to comment on their favourite information materials, recording comments on prepared sheets. At the conclusion of this activity the designers aimed to have an idea of the key issues for the Foundation.

**Personas and Scenarios**

This activity involved exploration into personas and scenarios of typical people who use the Asthma Foundation’s information. I asked each participant to summarise their persona, clarifying the person’s name, age, a brief description and drawing of the person’s situation or scenario. This activity incorporated verbal and visual elements, expanding on the success of the verbal and visual game in Workshop One. The Asthma Foundation had previously developed a range of brochures targeting each particular age of end-user. The front cover of these brochures represented a particular demographic, such as women over fifty, teenagers or children, however the text inside duplicated information with a slightly different focus. Workshop One identified that it was confusing for staff to know where to store and then find their brochures. This persona and scenario activity aimed to see what patterns emerged to enable streamlining of asthma information.

**Workshop Three, Design Review**

This workshop took place on 3 December 2008 between 10.30am and 12.30pm and represented the refinement stage of the design process. It sought to develop four design concepts that the participants thought had potential after Workshop Two. The four design concepts were developed by the designers in between Workshop One and Two with a focus on being interactive concepts, to trial designing with design tools, where the Foundation staff interacted with the concept and co-created the final proposition with the designers. The concepts built on Sanders’ call to take ‘take advantage of the visual ways we have of sensing, knowing, remembering and expressing’. 606 The concepts were conducted in small groups of a mix of Foundation staff and designers:

**Asthmate Folder**

The Asthmate folder design concept housed a range of printed matter on asthma, organising it into colour-coded categories. The designers felt that as a result of all the discussion from the previous workshops, the Foundation staff wanted a way of categorising the mass of information they had. The final activity planned for this concept was to select images of people from a collection of photos. To further investigate the influence of verbal and visual games on the participants, the designer trialled a mix and match card game that was part of the Asthmate folder activity. This game involved matching words to symbols on cards to check whether specific symbols were understandable by the Foundation staff.

**Bubble Day Out**

The bubble day out design concept was to be an annual day of awareness building and fundraising for the Asthma Foundation and the asthma condition. The activity aimed to mediate between the Foundation staff and the designer the details of the event where the participants jointly made a booklet with a strategy for the awareness campaign, using stickers with images, calendar dates, words and other ideas.

**Dear Designer Diary**

The dear designer diary concept was a diary for future designers. The idea was that the Foundation staff would use the final dear designer diary when briefing future designers on information requirements for the Foundation. The diary was in the form of a ring binder supplemented by envelopes containing photos of people of different ages and genders and in a variety of situations such as at home, at mealtime, at work and in the car. Participants jointly selected photos from the envelopes and pasted them onto a timeline in the diary to represent a day in the life of a specific asthma sufferer. Participants added speech bubbles and Post-it notes to describe common situations in respect to the chosen persona’s asthma condition.

**Smart Number Key Tag**

The smart number key tag concept intended to increase public awareness of the Asthma Foundation. This concept involved a suite of ideas, presented to
the participants in envelopes. There were cut and paste materials so that the
group co-designed the idea making joint decisions about the name of the idea,
the phone number, the size, colour and position of the typefaces and layout
options. From the three ideas presented by the designer, the group selected
the key tag as appropriate.

Final Presentation
Workshop Three concluded with the Foundation staff presenting each of the
four design concepts to the whole group. The aim of this presentation was to
evaluate each group’s commitment to the four concept designs.

Findings and Analysis
This analysis considers the Asthma Foundation study from the perspective of
how PD influences the designer participants. The findings indicate that verbal
and visual activities offer significant benefits in bridging the worlds of end-
user and designer participants, breaking down barriers and enabling learning.
The findings also show that PD has the potential for designers to try new
ways of approaching graphic design problems that promise to make visible
core issues for clients and end-users, here for example, the idea of categorising
asthma information via emotional categories rather than age, gender or any
other category.

Participation in Graphic Design Concepts
Workshop Three in the Asthma Foundation study focused on developing
dedicated tools and activities for participating in graphic design concepts. The
aim of the activities was to mediate between end-user and designer
knowledge. The designers created four activities to further develop their
concept designs, based on relevant ideas that emerged during the preceding
workshops, each meeting with mixed success.

Asthmate Folder: Testing designer intuition
In introducing the Asthmate folder, the designer facilitating this group
immediately met negative feedback. The two Foundation staff of this activity
saw the folder as an idea the Foundation already used. There was confusion
over whether the Foundation staff or the public would use the folder. One
participant stated that he did not and would not use planners or folders, seeing the idea as an ‘old-fashioned approach’. The two Foundation staff dismissed the Asthmate folder stating that the idea did not excite them stating that it ‘does not have merit’. The group was tense, as both the Foundation staff showed no interest, their attitude negative and antagonistic. Before the start of the workshop, this idea was the favoured idea by all the designers. They agreed that the designers of this concept had entered the spirit of participation, understood the project context and designed an appropriate design solution. The designer who created the Asthmate folder felt disappointed at the design’s rejection. She reflected that in the spirit of PD she had worked to respect the Foundation staff’s opinion and that this respect was not returned. Figure 68 shows the components of the Asthmate folder and the designer explaining the design attributes to the Foundation workers.

![Figure 68. Designer promoting Asthmate folder.](image)

The designer of the Asthmate folder appreciated the process of designing the tools as it cemented what PD was all about for her. She admitted that she started with preconceived notions and assumptions stating ‘these workshops are in my opinion a way of testing our assumptions especially the creation of these tools’. She commented that the designers did their best to synthesise the information gained in the previous workshops and assumed they had come up with appropriate design concepts, however she realised ‘in the end the PD workshops are the real test, since you do not know how the participants are going to respond to your ideas’. She saw that in the past designers produced designs for the Foundation without knowing the staff and the organisational issues at hand or the eventual users of the information materials.
In retrospect, the Asthmate folder may have appeared a fully resolved design with little scope for development, possibly making the Foundation staff feel redundant. The designer of the Asthmate folder did not concentrate on an unfinished, unofficial design standard, as she was confident of her design being accepted. In searching the literature for evidence of this in the research of others, Stempfle and Badke-Schaub indicate that design teams spend ten per cent of their time on the ‘goal space’ and the remaining ninety per cent on the ‘solution space’.\textsuperscript{607} In another case in a PD project, seeking input from young girls through a website, the researchers made a website to resemble a virtual stable and even generated typographical errors in the pages to make it appear ‘unofficial’.\textsuperscript{608} The findings from the Asthmate activity indicates the urge of graphic designers to produce a quality artefact for clients as seen in Figure 69, spending time on polishing a design proposition in preference to designing a mediation activity where the design proposition is unfinished.

There was a clash of interests between the participants in this activity where the designer wanted to discuss the merit of the Asthmate folder and the Foundation staff, after quickly dismissing the folder idea, wanted to move on to addressing teenage end-users. One staff member said ‘we need to design something cool for teenagers’. The other staff member suggested the use of marketing on iPod skins as an effective way to reach teenagers. The design’s rejection may have been because it targeted the Foundation staff themselves. This finding is consistent with the significant finding in the SASI Clean study where the childcare workers also searched for alternative end-users to design for rather than designing for themselves.

**Bubble Day Out: Who owns the idea?**
The Foundation staff were supportive of the bubble day out concept. All participants freely engaged with the concept discussing with enthusiasm the photo and image options the designer had provided as shown in Figure 70. The Foundation staff chose a photo of a person in a bubble to represent a person with asthma. One Foundation staff claimed that the sentiment of someone trapped in a bubble was representative of the feeling of a lack of air that an asthma sufferer feels. This indicated to the designer that she had provided an appropriate choice of images. All participants discussed the use of performers and music to draw in younger end-users. There was constructive discussion to decide the time of the year and day that this event would take place and promotional items such as balloons and badges with positive messages for teenagers were suggested. The Foundation staff felt it was a useful resource for others, which may explain why it was a successful concept design activity.
The idea of a bubble day out was successful but the process of engaging with the activity created anxiety between participants as to who owned the idea. The designer wanted to introduce the idea as hers, reverting to the position of designer as expert. The Foundation staff took over the activity and the recording process leaving the designer as an observer (as seen in Figure 71). Initially, the designer reported disappointment at her lack of involvement and the tension with the Foundation staff this caused. However, the activity was understood and completed and was engaging for the Foundation staff. This shows a crossing over of the designer as insider to outsider in the process of
At the same time, the Foundation staff moved from beginning as outsiders to the design activity to being insiders at the end of the process.

In searching for the research of others where designers and end-users demonstrated a transfer between being an insider and an outsider, I found Visser, van der Lugt and Stappers’ trial of an interactive tool they called ‘The Personal Card Set’. This study aimed to study the qualities of engagement between end-user and designer participants during the idea generation phase of a design project. The card set invited end-user and designer participants to record their thoughts on the cards. Their results showed that the designers spent time organising the cards, especially looking for similarities across them, feeling no need to add their insights on the cards, whereas the end-users were highly engaged in annotating the cards. I interpret this behaviour as the designers acting as outsiders, seeing their job of having designed the cards as complete. The designers in my Asthma Foundation Study displayed similar behaviour traits. The designer observed the Foundation staff interacting with her concept. The bubble day out concept failed to foster joint ownership of ideas between the Foundation staff and the designer. It worked in the sense that the Foundation staff took the idea on board and connected with the concept activities. At the conclusion of my PD research, the Foundation contracted the design team to develop the bubble day out concept further, 609. Visser, van der Lugt & Stappers, ‘Sharing User Experiences in the Product Innovation Process’.
outside the scope of my research, to use as a fundraiser the following year, suggesting a successful outcome for the PD process.

**Dear Designer Diary: More time to design please**
The dear designer diary concept design was engaging for all participants in this group. The Foundation staff appreciated the different options of photos and text and things to do to add to the diary available in the envelopes (Figure 72). When the Foundation staff presented the completed dear designer diary to the whole group one commented that the diary would help future designers target information appropriately to future end-users. Another commented that the diary would be useful as it was an in-depth account of the Asthma Foundation’s end-users, which made the designer feel proud that the activity had been understood and was useful.
In the dear designer diary activity the participants did not want to stop the activities and expressed disappointment that they did not get to finish all the personas. The designer of the activity planned to spend five minutes developing each persona page in the booklet, but the participants became engrossed in the first persona and the designer had to move things along commenting:

We shall come back to this one again … the 9-year-old boy one went faster than the first one and then the 16-year-old one went even faster. But the fastest one was the 83-year-old man, when the facilitator gave the signal to end the activity, it was amazing how they [the Foundation staff] came up with the whole persona-scenario … so quickly … Suddenly, everything was clear to them.

Figure 73 shows the elderly man and teenage persona photo options and their use in the diary.
Initially the designer felt apprehensive about running this activity, reflecting, ‘I thought I would probably need to work hard to gain the confidence of my group’. Initial trepidation to embark in a PD process was found in a case study conducted by Hanington, whose students reported ‘exhilaration at the results that emerge from dynamic and inspiring research sessions’. 610 Hanington claims when this revelation occurs, it helps to replace negative stereotypes of conducting research with exciting new methods, showing designers the value that can be gained from participatory creative methods. 611 In my research, the designer of the dear designer diary activity commented in the end that she felt ‘it went better than expected’ and said ‘I was happy with the activity’, reflecting the sentiments of Hanington’s students.

A possible reason for the success of this activity is the high level of input required from all participants (Figure 74). The designer felt that the ideas and information gathered from Foundation staff’s contribution was invaluable for designing printed and electronic information about asthma and as a resource

for the organisation to keep. In contrast to the Asthmate folder, which appeared resolved from the beginning, the dear designer diary was a package with a variety of design options and in this way encouraged participation.

Figure 74. Participants engaging with the dear designer diary.

Smart Number Key Tag: Discussion with a purpose
The Foundation staff responded positively to the designer’s presentation of the idea of the smart number key tag concept design (Figure 75). The Foundation staff liked the idea of a smart number and they reviewed research on other smart numbers with interest commenting on how amusing the numbers were, like 13beer for CUB. They chose 1800 4 Breath from the envelopes provided since they wanted to have a 1800 number as this was recognised as a free number (Figure 76). The Foundation staff’s knowledge of how end-users contact the organisation demonstrated to the designer of this activity that the first point of contact was the phone, confirming the appropriateness of the idea.
The smart number key tag concept activity created a positive sense of engagement. The concept design was organised in a manner that was accessible and created the conditions for all participants freely and equally to engage with design. The case report notes indicate that ‘the group remained relaxed and focused’ on the activity. The designer of this activity commented that ‘it was successful because it was a tailored activity with enough scope to
add ideas yet enough limitations so it could not get off track’. The case report notes go on to indicate that, ‘the designer prompted the Foundation staff to create a tangible design, displaying impatience at any discussion without a purpose’. The tight structure of the activity appeared to be beneficial, creating a positive response. Workshop Three concluded with a presentation of the refined concept design idea to the whole group to see if those devising the design showed more commitment to it than those working on other ideas (Figure 77). Here, I found the group who worked on the idea cohesive in their explanation of their activity and outcomes.

The four concept design activities provided insights into how PD influences graphic designers. In conventional graphic design, the designer responds to a client brief that may or may not include information on the target audience for design. The findings of my research shows that regardless of the concept design, end-users are clear about their preferences. The designers were outcome driven, but the end-users focused on project context issues. The type of activity or tool used did not change, whether participants judged ideas favourably or not. The end-user participants appeared to prefer some activities, but were not swayed by the concept designs displaying a high level of polish or finesse, much to the dismay of the designers. Instead, they insisted on the outcomes being relevant for their purposes.
With case study research the aim is not to provide absolute answers, but rather tentative inferences. There are a variety of possible factors that could have influenced the engagement between the end-user and designer participants, such as hierarchy, personality and group dynamics. It is possible that the level of engagement and acceptance of each of the four concept designs discussed here hinged on whether the design idea was for the Foundation staff or for alternative end-users. One explanation for the success of the dear designer diary is because the Foundation staff enjoyed collaborating with the designers, designing scenarios and personas of others rather than designing scenarios for themselves. It is possible that the failure of the Asthmate folder was because it was an idea for the Foundation staff themselves.

**Verbal and Visual Games: ‘But I cannot draw!’**

The Asthma Foundation study trialled verbal and visual games based on an extensive theoretical literature on design and language games that promote such games for designers to facilitate interchange between end-user and designer knowledge.\(^{612}\) PD has been influenced by the discussion about language games from the fields of ethnography and post-structural philosophy.\(^{613}\) The benefits of playing games to transfer knowledge and understand other people is demonstrated by the adage stated by Plato (427 BC - 347 BC), ‘You can learn more about a person in an hour of play than in a year of conversation’.\(^{614}\) The storytelling advantages of a game are described by Ivey and Sanders as ‘an effective method of prompting social interaction by


generating acquaintance through storytelling’. In Workshop One, I devised the icebreaker game to be playful based on Ehn’s recommendation that, ‘It must be playful so all participants have fun in the process’. In language games between designers and end-users, Ehn states that the ‘designer becomes the teacher’ of the language game system enabling all participants to play and understand the game.

The icebreaker game in Workshop One generated discussion and sharing of ideas. One reluctant drawer complained, ‘But I cannot draw’; another commented, ‘I won a prize for drawing in primary school’ and another joked, ‘I failed kindergarten drawing three times’. Participants teased each other that the quality of their drawings made guessing the original word impossible. There were comments asking other participants not to be too critical when interpreting their drawing. One participant commented it was like being in a ‘remedial drawing class’. There was concern about the idea of drawing but overall the need to draw was met with joking, laughter and good humour. The icebreaker game created a relaxed atmosphere for sharing participant knowledge, breaking down perceived status barriers between the Foundation staff and the designers. While playing the verbal and visual games, the professional status of the designers did not come into play. The icebreaker game created familiarity between the end-user and designer participants, making the serious work of the workshop seem less confronting.

When the words and drawings were shared, participants expressed relief that others identified their drawings (Figure 78). For Sanders, graphic design today is about people designing together, the main challenge for graphic designers being the development of innovative tools to enable people to articulate ‘those ideas and feelings that are often so difficult to express in words’. In the icebreaker game, in an effort to create a visual message that was understandable, one Foundation staff commented that she would have to

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616. Ehn, ‘Scandinavian Design’, p. 64.
‘rethink her word so that she had something she could draw’. This shows the challenge for Foundation staff to express ideas visually.

Figure 78. Verbal and visual game relaxed atmosphere.

The Foundation staff members’ high level of design awareness surprised the designers. In my PD activities, the staff commented freely and authoritatively on poor choices of typeface, colour and imagery and provided important information on the usefulness or redundancy of individual pieces of information, validating their presence in the design process. Sanders argues that end-users are not in the habit of using or expressing their creativity, creating a situation where designers think end-users are not creative at all.619 The Foundation staff made well-informed comments about design such as, ‘You can hardly read it’ and ‘It is badly designed’. A Foundation staff member reflected that a designer can ‘nail it’ especially if they have a long-standing relationship with the client. Another criticised their designers in the past when ‘they get caught up in making it “look pretty”, instead of focusing on the practicality of the information’. Another commented on the value of the PD process as, ‘if designers want to get it right they need more time to get inside our heads’. One Foundation staff said she is a creative person and enjoyed working with the designers as, ‘their imagination helps to stretch mine even

619. Sanders, ‘From User-Centered to Participatory Design Approaches’, p. 5.
further’, reflecting Cunningham’s claim that in design, end-users react positively to students as they view them as having fresh creative insights.\textsuperscript{620} In the SASI Clean case the staff expected the designers to be creative. One worker was worried that, ‘I would not be very creative or have any good ideas’ another stated, ‘I dreaded having to draw’. Sanders argues that for end-users to express their latent creativity designers need to provide activities that facilitate creativity, as she claims everyone is creative.\textsuperscript{621} Another worker thought, ‘The designers would come up with ideas and we would just say yes or no’ and ‘I thought we would have an input, but our ideas would not be taken notice of’. Another wrote, ‘The final decisions would be with the designers’. This makes apparent the conventional divided roles and positions of designers and end-users or clients.

In the icebreaker game, when asked to brainstorm words about information, the words that designers and the Foundation staff came up with were from different perspectives. The designers thought of words such as, ‘brochure’ and ‘website’ and the Foundation staff suggested words such as ‘accurate’, ‘consistency’, ‘knowledge’ and ‘power’. Three Foundation staff wrote the word ‘consistency’ and drew similar images of their meaning of this word (Figure 79). For the Foundation staff, ‘consistency’ meant that everything needed to be the same and when one thing is different it stands out in a negative way. The designers learned that the Foundation staff felt consistency was important and that they had similar perceptions of what the word consistency meant. The case report notes indicate, ‘It was clear the staff were on the same wavelength’. This game provided the designers with fast direct access to diagrammatic ideas of how the Foundation thought about information delivery.

\textsuperscript{620} Cunningham, ‘Voices from the Field’, p. 388. \textsuperscript{621} Sanders, ‘Collective Creativity’, p. 5.
The Foundation staff saw that the designers had superior drawing skills, but this did not always lead to a clear understanding of what a drawn image represented. In these instances, intuition got it wrong and further conversations were required to share meanings and render a clear message. One designer had the task of drawing a Foundation staff’s word ‘quick access’. This designer drew a joey in her kangaroo mother’s pouch. When guessing the meaning, the Foundation staff confused the kangaroo with a rabbit. The designer explained that a kangaroo has a pouch giving the mother ‘quick access’ to her joey. This shows the designer’s skill in drawing complex imagery and desire to use metaphors when expressing ideas. At the same time, this example shows the difficulty of representing concepts visually and having them understood. Tomes, Oates and Armstrong argue that designers enable end-users to articulate what they want in visual terms and that verbal and visual games offer designers an insight into the tacit knowledge of end-users. They argue that verbal and visual games are a way for designers to draw on a repertoire of previously negotiated acceptable forms of visual reference that serve as a private dictionary of translation between the verbal and the visual. This icebreaker activity prompted the Foundation staff to reflect for the first time about how their current information is perceived and whether it is understood by their end-users. This challenged the designers to realise the importance of checking design concepts before proceeding.

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In Workshop Two I devised a further verbal and visual activity called the persona and scenario activity. I asked the participants to sketch or write a summary of their lengthy scenario and persona concepts, motivated by Jansen, Croonen and de Stadler’s research that it is important to make a persona as real as possible. In comparison to the icebreaker game where the Foundation staff were initially reluctant to draw, in the persona and scenario activity the majority of participants without hesitation included pictures of their persona with the text, showing that they felt a freedom to visualise their ideas without encouragement this time (as seen in Figure 80). Figure 81 shows a summary page written and drawn by one of the Foundation staff where this participant wrote lengthy amounts of text to begin with, but when asked to summarise the information on one page for all to see, then produced drawings with few words. Figure 82 shows the Foundation staffs’ representation of their relationship to their work context, depicting their readiness to diagram information. One explanation for this is that the Foundation staff were becoming comfortable with the idea of drawing after the experience of the icebreaker game.

Figure 80. Example of a scenario and persona summary page, Jack aged 76.

624. Jansen, Croonen & de Stadler, “‘Take John, for Instance’”, p. 194.
In Workshop Three a third verbal and visual game was trialled. In the Asthmate mix and match card game the group readily came to a consensus about which symbols matched which words, such as an image of a cigarette and the word smoking (pictured in Figure 83). Before the mix and match card game, the Foundation staff had a strong negative reaction to the Asthmate folder activity. During the card game the Foundation staff stood up and
became physically active in the game indicating a high level of engagement (as seen in Figure 83). The Foundation staff found the game enjoyable, as there was laughter while playing the game. However, once the game stopped, the Foundation staff reverted to being critical of the designers’ idea of the Asthmate folder. They appeared to suspend their displeasure at the Asthmate folder while playing the game. Strong personality barriers were also overcome while playing the card game. This finding of mine is supported by Brandt, Messeter and Binder who argue that, ‘In the playful dramaturgy of design games politics of negotiation are postponed. Instead, a level ground of co-creation is nurtured, making both designers and users true participants in what can be called a participatory inquiry’. \[625\] The Foundation staff reported to the whole group in the final presentation that they did not like the Asthmate folder concept nor enjoy the card game, even though they had evidently enjoyed playing the game.

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Identifying Emotional Triggers to Asthma

Designers are challenged to understand the actual context for information delivery when involved in PD. One of the aims for the Asthma Foundation was to reduce the number of pieces of information they used in their work in asthma information. The site visits and information audit interview uncovered a duplication of information. At first, the PD activities sought to develop appropriate personas for the Foundation to continue to categorise the information by age and gender. At the beginning of the persona and scenario activity, the group was asked to brainstorm all the Foundation’s end-users and ways to categorise asthma information. The following categories were
identified: carers for people with asthma; schools; health professionals; children services; the community; sporting industry; zoos (or other places that have a large community participation); and children with and without asthma. There was also a discussion about the importance of asthma triggers to information categorisation, for example, pollen, exercise or smoking. This information was predictable.

The idea of categorising asthma information around emotional triggers was discovered through an analysis of the patterns that emerged in the persona and scenario activity. This activity showed that the emotional state of people with asthma was more important than their age or gender when deciding how to categorise asthma sufferers. We repeatedly heard about the helpless child, the embarrassed teenager, the panicky student, the distressed mother and the frightened senior. One Foundation staff described the helpless child persona as Dhillon, aged 3:

Dhillon is playing away from the house in a sand box. He has asthma. Little Dhillon loves to play outside on a sunny day. The sandbox is definitely the best spot … sand … sand … more sand. My sand box is special; I can make so many tunnels and go so many places … A child’s imagination is one to admire. How I wish little Dhillon would carry a bum bag with his reliever and action plan. Too often he plays far from the house – a farm is good, but can be dangerous for this little tyke.

The teenager persona ‘David’, aged 16, who is too embarrassed to carry a puffer, was described by a Foundation staff as:

David has had asthma all his life. Has not told his friends he has asthma. He has an asthma attack at a skate park. His friends think he is joking around. He does not have his reliever medication on him. Wouldn’t it be great if all teenagers were educated in school about Asthma First Aid and did not make fun of people with asthma. Wouldn’t it be great if puffers were so small, but still effective so that teenagers would not be embarrassed to carry them and were
available in an attractive range of surface graphics, such as with football imagery, so that it becomes more of a cool device rather than medical device.

One Foundation staff was concerned about an elderly man persona he called ‘Fred’. The staff spoke of the fear in these people and recorded him as:

Fred Age: 83. Short of breath, used to smoke, does not understand what is happening to him, scared of not being able to get his breath, lives alone, wears glasses, uses a walking stick. Fred wakes at night coughing. How do I find out what’s wrong with me? I do not understand all this new technology. Someone told me to ‘giggle it’. Where can I get information? Wouldn’t it be great if Fred had access to up-to-date information or if his doctor gave him a correct diagnosis that would dramatically improve Fred’s quality of life. Then Fred wouldn’t be frightened of dying because he could not breathe (Figure 84).

The identification of the emotional response of fear to asthma, especially in elderly people gave the designers an insight to an appropriate direction for information materials in the future.

![Figure 84. Recording the persona of Fred, the frightened asthma sufferer.](image-url)
To confirm the finding that emotion was a key aspect for the end-user participants in categorising asthma information material, I looked across all the activities in the Asthma Foundation study and found similar outcomes. Initially the designers thought that creating a persona of an asthma sufferer based on age and gender was the way to categorise asthma information. However, one of the Foundation staff argued that the ultimate test of the effectiveness of the Foundation’s information was whether it reached end-users in extreme situations. He came up with the idea of an isolated ‘frightened man on a boat’ without a computer who has an asthma episode. At different points in the workshops, the Foundation staff challenged the designers to question whether their design propositions would help ‘the frightened man on a boat’. In the dear designer diary activity, personas and scenarios were developed as a distillation of the participants’ experience of working with people with asthma. The personas in this diary were again represented as the embarrassed teenager who no longer wants to discuss or properly manage their asthma, the frightened, elderly man in a remote rural location experiencing breathlessness with only a telephone for contact with the outside world. The combination of PD activities showed the designers the value of end-user tacit knowledge and the lack of appropriate design proposals when designed in isolation from end-users.

**PD influence on Designers**

Throughout the workshops the designers reflected on how the PD process influenced their role as graphic designers. At an early point in Workshop One a designer suggested that, ‘Maybe the end-users could be divided into Generations X, Y and Boomers because we know that these generations are so distinct in their approaches to life’. However, the designers realised that this suggestion in the end would have been inappropriate. One designer reflected after the workshops, ‘PD is a useful tool to make sure we designers stay on track as to what are the end-user needs. It is more about touching base with the main purpose of any design, rather than the end-user designing the outcome.’ This shows the designer was initially fearful of losing control. She realised that identifying the essence of the project is paramount for appropriate design outcomes. Another designer reflected that usually when
working with a client there is a set goal and a series of parameters put in place for achieving that goal, however PD is different. She commented:

Here it was a living brief. The outcomes and criteria are changing as the project moves along. We have a tendency to get carried away with our ideas, even if they are not ideal for the end-user. These exercises act as a reality check for us designers. PD is a great strategy for the design project to stay on track. It is quite open ended and constantly evolving. The real problems emerged which I guess would not if it were a conventional design process.

The importance of identifying the right problem and not jumping to design outcomes that are irrelevant is acknowledged by Freidman who argues the designer becomes ‘a critic whose post-solution analysis considers whether the right problem has been solved’. The reflections of the designers in my study show the expectation of designers that PD’s main focus is to help end-users design outcomes, but the designers claimed that a key benefit of PD is that it identifies the ‘real problem’ of the project at hand.

Discussion

When designers approach design as an intuitive creative act, for Tomes, Oats and Armstrong it is not surprising there are difficulties in establishing a common understanding. The Foundation staff were divided in their opinion of the value of working with designers. They commented positively on the creativity and fresh insights of graphic designers they had worked with in the past developing information materials, but criticised the tendency of designers to ignore important criteria to pursue an individual creative agenda, leading to seriously flawed outcomes such as a fridge magnet describing the key steps in asthma first aid with unreadable type. Intuitive solutions did not work in this case.

The use of sketches is an important part of the design process and one of the main ways that graphic designers access their intuition. Ulusoy entreats

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graphic designers to use intuitive drawing to generate ideas, a step represented as simultaneous with decision-making. One of the hurdles in translating design knowledge to end-user participants is the division that lies between verbal and visual skills. One view is that design is a right brain process in that the designer is ‘a mute genius’, or ‘a doer not a talker’. There is broad agreement in the literature that design is an act of individual creation to which verbalisation and logical analysis are seen as only peripherally relevant, but a combination of verbal and visual elements is argued to be preferable. For Cross, sketches are half formed ideas that enable the act of discovery. As external expressions of internal mental processes, they exist to be criticised rather than admired. In my research I encouraged sketches to be part of the process to translate the design concepts into understandable ideas. In my research the verbal and visual game activities influenced the designers by challenging their skills in sketching.

The ability to articulate verbal meanings in visual terms is a core skill for designers. Tomes, Oates and Armstrong claim that graphic designers mainly use and require visual skills, where clients and other stakeholders use verbal or linguistic skills, questioning whether end-user and designer participants can understand each other and design together. The icebreaker visual verbal game refutes this concern as all participants drew and wrote together equally and learned from each other. Reid and Reed argue that PD may impede the very activity it is supposed to facilitate, causing designers to tune off from end-users’ perspectives and end-users to assume a prominent role in managing common ground. In their research, compared with speech-only discourse, design discourse accompanied by freehand sketching was associated with reduced collaboration and shared understanding where the end-user dominated the flow of conversation and decided on the final outcomes. I did not find this to be the case in my research. The skills were

631. Cross, ‘Natural Intelligence in Design’, p. 34.
different between participants, but the collaboration was equal among all participants.

In studies of non-hierarchical design teams, research shows it is not the identification of specific design goals, but status that influenced final design directions. Walton argues that managing the perceived status of group members is important. He highlights how facilitation influences the decision process of groups in the consensus building process. In Walton’s study, high status individuals had the biggest influence on what was produced or decided, while middle and low status contributors played lesser roles and the mix of disciplines and expertise did not matter nearly as much as the perceptions of a person’s power in an organisation. Walton argues that high status individuals are elevated to that position because they reflect a company’s design strategy. In my research the outcomes make apparent the value of the verbal and visual game in breaking down personality and status barriers. Johansson and Woodilla claim that if status barriers are overcome then transferring knowledge between participants is more likely to occur. In my research, verbal and visual games were a way of breaking down status barriers in an enjoyable, relaxed environment. The games challenged the designers’ conventional method of intuition problem solving demonstrating that end-users do not always understand their sketches or metaphors and that end-users have a completely different image in their mind of the problem at hand. The games enabled fast access to expert knowledge in a learning-by-doing activity.

Verbal and visual games highlighted the challenge of conceptualisation through text and image, an undertaking intrinsic to graphic designers’ work. Overall relationships and negotiations are integral to the design process so the skills of verbal and visual translation need to also be recognised as integral to design. The verbal and visual games played in my research demonstrated that recording via text and image is achievable for end-user and designer

participants and that representations and meanings are challenged and can be misunderstood.

Theories of PD suggest that success in design depends on the quality of information gained from people about their needs and preferences. Hanington claims design requires innovative design tools and methods that allow end-users to contribute their knowledge and creative ideas directly to the design process in ways that are integral to design.\(^{640}\) Jordan argues the key to success in design is an in-depth and holistic understanding of people—their needs, their hopes, their fears, their aspirations and their dreams.\(^{641}\) For Jordan in today’s Dream Economy, success in the marketplace is not only about meeting people’s practical needs, but also their aspirations and need for a positive emotional experience.\(^{642}\)

Authors such as Bielenberg recognise that the profession of graphic design is concerned with a connection between a message and end-users.\(^{643}\) He claims that, ‘Conflict often exists when you combine the intoxication of craft, exposure to and interest in cutting-edge design with the engineering of a client-driven message to a client-defined audience’.\(^{644}\) He argues that the responsibility of the designer is to craft an appropriate and effective visual language given the objectives of the project.\(^{645}\) He claims that simplistic judgments such as, ‘I like it or I do not like it’, which is a typical method for choosing the appropriateness of a design direction to date, can be replaced with a focus on an emotional connection with end-users.\(^{646}\)

Evidence is mounting about the importance of emotional states in accessing and understanding designed information materials in areas such as health communication. Lee, Hwang, Hawkins and Pingree demonstrate that there are psychological factors beyond the control of the designer that determine

\(^{640}\) Hanington, ‘Methods in the Making’.
\(^{642}\) Jordan, p. 5.
\(^{644}\) Bielenberg.
\(^{645}\) Bielenberg, p. 183.
\(^{646}\) Bielenberg, p. 183.
how the public perceive the usefulness of public health information campaigns. They argue that previous research has focused on the effect of health campaigns on an individual’s attitude and behaviour where campaigns target people as passive receivers of information and health messages. Their research on the factors influencing the willingness of people with cancer to access information suggests that people actively choose or avoid information where negative emotions influence people’s information-seeking behaviour and receptivity to health messages. In the Asthma Foundation study, emotional responses to asthma were found to be important to the Asthma Foundation staff and the designers. Lee and his co-authors confirm that research is required to examine how particular emotions such as sadness, fear and anxiety influence information accessing behaviour, specific negative emotions possibly influencing people to behave in a certain way. Jacobson argues for the value of participatory research especially because of its pragmatism. Participation in the workshops provoked the designers to focus on the end-users emotional states rather than the designed end product or the information itself.

Chapter Summary and Conclusion

Chapter Six reported on the Asthma Foundation study and the PD activities undertaken, addressing my research question from the perspective of how PD influences the designer participants in graphic design. The four concept designs created by the designers aimed to explore the influence of PD on the designers as they focused on designing activities to develop concepts rather than designing final graphic design outcomes. The dear designer diary concept allowed for engagement and new ideas to be incorporated right to the end of the design process. The Asthmate folder concept displayed a high level of design sophistication from the outset, possibly distancing the end-user from the co-designing process. In consideration of the key outcome in the SASI Clean study that end-user participants resist designing for themselves after

being exposed to information, a possible explanation for the rejection of the Asthmate folder is because it was a design artefact aimed at the Foundation staff themselves; alternatively it could have been unsuitable to their needs. The verbal and visual game trialled was effective in breaking down perceived status barriers between all participants, building a trusting relationship, while creating mutual enjoyment in the process.

My research findings show that designer participants are challenged right to the end to stay focused on relevant ideas for the project at hand as underlying project assumptions were challenged. New ways of defining the Asthma Foundation project were made visible in this study. The segmentation of asthma sufferers, according to feelings of anxiety, distress, embarrassment, fear or shock was a new approach for the Asthma Foundation of Victoria, which previously used divisions, according to age, gender and asthma triggers as a basis for the development of information brochures. In particular, the state of the embarrassed teenager, the frightened elderly man and the distressed mother became evident, which had not been identified using conventional graphic design processes. This outcome is noteworthy as it challenges the designer’s role as intuitive problem solver, highlighting the value of PD to make visible appropriate outcomes rather than working in a vacuum, guessing end-user preferences.

The specific methods used in the discovery phase of a PD process influence the outcome of the information gained and the final direction of the design proposals and lead to the designed process staying on track, which is an acknowledged problem for conventional graphic design process. My research shows that PD aids the discovery of important tacit information where it contributed to designing appropriate information campaign solutions, which were not possible to make visible without end-user participation. In light of this, I contend that PD information design projects are suited to discovery of overall issues and mapping out of concept design proposals rather than to one off design solutions.
CHAPTER 7
THE INFLUENCE OF PARTICIPATORY DESIGN ACROSS THE STUDIES

Chapter Seven analyses both the SASI Clean and the Asthma Foundation studies to establish how PD influences both end-user and designer participants in activities across the studies, assessing which activities promote or hinder engagement. Tightly scripted, small group activities promoted high levels of end-user engagement, which was in contrast to loosely structured whole group activities, which produced low levels. Focusing on positive design strategies promoted end-user dialogue in contrast to the ranking of ideas commonly found in conventional design practice, which I found blocked conversation. Hands-on activities promoted engagement where end-users contributed valuable project ideas in contrast to technology-based activities, which prompted limited conversation. PD activities prompted the end-users into local action in that they reorganised their information materials in between workshops. This chapter discusses the finding that flexibility is important for designers in PD as is the role of facilitator precluding the opportunity to be a sole expert in the design process.

Tightly Scripted Activities Distract End-Users
The Asthma Foundation activity, where the participants co-created an information audit poster, demonstrated that the intimate setting of the small group activity prompted end-users to express frank opinions. In this activity, all participants were focused on sifting through pieces of information to find especially liked or disliked items (Figure 85). The Foundation staff would not speak up in whole group discussion yet they spoke loud enough for everyone to hear when broken into small groups in this activity. One Foundation staff commented; ‘People really like this’ and another said, ‘It is a useful resource, but it is a matter of storage and remembering it is there’. In this activity, staff identified confusion over whether the Foundation’s main role was raising money, raising the organisation’s profile or raising public awareness of
This activity highlighted the duplication of information, the harmful effect of staff turnover and computer technology problems. The freedom to discuss negative issues of the Asthma Foundation was in contrast to the whole group ideas review activity where there was reluctance to criticise the Foundation’s information materials.

The SASI Clean activity, where the participants aimed to record the cleaning procedures of their childcare centres, demonstrated the value of engaging end-user participants with a tightly scripted activity to allow ideas to flourish. Recording ideas on prepared sheets at first appeared unproductive. The notes indicate:

The participants were not on track and did not seem to be getting anywhere. The designers needed to have a strong sense of where things are going to keep the momentum up even in this focused task. The activity of writing things down was hard for the childcare workers to sustain. The small group found it hard to keep the discussion on the information delivery system; they talked about how to change attitudes and processes in their centres with regard to cleaning.
On reflection this was a pivotal activity where the key idea of the relief worker card system was proposed for the SASI Clean study. The notes record:

There was lots of banter until the facilitator asked the group to consider which ideas they really liked. This was the card system for relief workers that could be fanned out to select information. In a discussion about what could go on the cards, they decided things like hand washing techniques. The childcare workers discussed the problem of information for relief workers who come into centres for a day, where orientation is difficult. They agreed that relief workers do not know what to do in relation to nappy changing, hand washing, wearing or not wearing gloves.

The tightly structured act of filling in prepared sheets made the end-users comfortable to raise important ideas. When discussing the idea of the relief worker card system, the robust discussion went over time, suggesting the discovery of an important idea. The end-user participants focused on providing specific instructions to record cleaning principles, which allowed them to think about the overarching issues.

In the SASI Clean activity, recording childcare cleaning procedures, I tried swapping the role of writing on the prepared sheets, but the notes record, ‘It was better to use the designers as notetakers to allow end-users free thinking and talking time’. My findings confirm the claims made by Jones, Stanton and Harrison in an investigation of a tool to assist brainstorming called ‘PIT’. 652 Their structured method aimed to improve the ability of groups to produce ideas after initial ideas have ‘run dry’, where a trained person records the ideas, freeing others’ ideas. 653 However, Jones, Stanton and Harrison’s research demonstrates that overuse of structured methods may inhibit the quantity of ideas produced, warning that ‘over-structuring’ may cause participants to feel like they are working on a chore. 654 My findings are in contrast to Jones, Stanton and Harrison’s research, showing that, through the

art of distraction, structured activities enhanced ideas to surface and allowed for in depth conversation to flow over the top of the activity (Figure 86).

![Figure 86. Participants distracted filling in prepared sheets.](image)

In both studies, I found that in whole group activities participants were reluctant to offer ideas. I offered prompts in both cases to draw people out, but the SASI Clean study notes record ‘Discussion was initially tentative’ and the ‘Designers sat and watched intently, but did not contribute’. In the Asthma Foundation brainstorming activity, I found that asking open-ended questions or confirmation of direction, made end-users feel uncomfortable. The Asthma Foundation case notes record, ‘The discussion was hesitant’.

One argument for employing groups rather than individuals is to produce a variety and volume of ideas, but Perttula, Krause and Sipilä show that research from social psychology is unanimous that the pooled performance of individuals outweighs the performance of a group. Perttula, Krause and Sipilä identify intrapersonal processes as causing productivity loss in idea generating groups and that working collaboratively in groups causes designers to use mediocre techniques for idea generation. They found in

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656. Perttula, Krause & Sipilä, p. 127.
group settings only one person speaks at a time, participants are reluctance to contribute ideas to avoid hostile evaluation from others and people don’t contribute ideas because they think their ideas are not required. Perttula, Krause and Sipilä speculate that one way to increase group productivity is to set up a sense of group rivalry or belongingness. Their research shows that individuals who share ideas momentarily with others produce more ideas than those who work individually, but idea exchange does not increase the variety of ideas produced. This research goes some way to explaining why the whole group activities in my research produced limited ideas.

Creativity theory stresses the value of turning the mind to other things to allow creative ideas to emerge, de Bono highlighting how activities such as daydreaming, walking or driving allow the mind to freely wander. For de Bono, gaining insight is more effective where available information is creatively restructured through activities such as lateral thinking, it being difficult to transcend a typical way of seeing unless one can escape the restrictions of pattern thinking. Clemensen, Larsen, Kyng and Kirkevold argue that playful and creative interaction in a group of participants releases important knowledge in all participants, enabling them to combine their opinions productively and solve problems. Perry-Smith and Shalley argue that multi-disciplinary small groups work to unlock ideas by giving participants confidence to speak out. My research confirms these authors’ argument that small groups free end-users’ creative ideas. The tightly structured purposeful tasks were non-threatening for the end-users and hence easy to sustain. All participants were keen to work with tightly scripted activities even when asked to stop. In both studies the end-users worked quickly and diligently. My research suggests that tightly structured activities produced quality engagement between end-user and designer participants by distracting them. Tightly structured activities moved the end-users beyond

659. Perttula, Krause & Sipilä, p. 130.
660. de Bono, Lateral Thinking, p. 11.
661. de Bono, Lateral Thinking, p. 11.
their usual, uncritical approach, releasing their opinions and triggering insight, whereas in whole group activities participants were reluctant to offer opinions and ideas.

**End-Users Prefer Positive Feedback over Ranking Ideas**

Across both my case studies, end-users showed a preference for positive feedback rather than ranking ideas. Frascara depicts graphic design as an opportunistic and synthetic activity; designers quickly frame and rank a variety of design propositions to identify promising directions, rapid conceptualisation and problem solving being a product of graphic designers’ role in developing a saleable culture in a commercial world, on time and on budget. Designers can rapidly propose and sift potential ideas because they do not have an emotional attachment to the design context. In my research, the designer technique of ranking was perceived as confrontational whereas discussion was more conducive to forming a consensus towards good ideas.

In the SASI Clean mood board ranking activity, all participants were asked to place coloured dots on the images they had previously placed on the boards. Green dots represented promising ideas and red dots represented less favourable ideas, effectively judging the ideas. Figure 87 shows the participants hesitating to place dots on the mood boards. The childcare workers needed reassurance, extra clarification and prompting before they would rank ideas. The notes indicate, ‘Slowly they stood up and started applying dots and looked to each other for confirmation of their opinions. The designers stood back and watched’.

In this activity, the childcare workers only used green dots representing positive ideas. They did not use red dots as they refused to criticise someone else’s image choice. One childcare worker commented, ‘I was reluctant to say negative things about the centre in which I work. I felt I needed to say only positive things.’ Another childcare worker commented that it did not feel right to criticise others’ ideas. In design practice and design education designers are taught the technique of ranking and use it frequently. As one designer said, ‘Get used to it, we do it all the time’.

In the Asthma Foundation future scenario activity, I asked the Foundation staff to rate the best ten ideas emerging from the activity. I asked staff to put colour-coded dots next to the ideas indicating favourite and least favourite ideas. The notes indicate, ‘No dots evaluating ideas were put down, so a designer jumped in to write down the nominated ten best ideas on paper’. The Foundation staff were comfortable having a further discussion where someone else takes responsibility for noting the best ideas rather than be self-responsible for rating ideas. The designers took the responsibility to identify and rank ideas. Here the ranking activity shows that end-users are not comfortable with it as a means to identify promising and weak ideas.

In the Asthma Foundation card ranking activity the end-users were asked to rank issues from previous discussions using a set of cards (Figure 88). The
designers actively prompted people to interact with the cards, but the
Foundation staff were tentative in contributing to ranking the ideas. Figure 89
shows a designer holding a card and the Foundation staff sitting and
observing. Photos documenting the activity show the Foundation staff on one
side of the table with arms folded, sitting back, not willing to engage (Figure
90). The Foundation staff questioned whether the designers had taken words
such as ‘disorganised’ and ‘not current’ out of context. One Foundation staff
called for positive comments to balance the negativity and quickly contributed
positive examples such as: ‘Our brochures are very clear, they are age grouped
and targeted’, ‘Our brochures are presented in an attractive and appealing
way’, ‘There is no issue with information being current’ and ‘Our information
is factual and evidence-based and reviewed by experts’. After this discussion
the Foundation staff ranked the cards listing the following as important,
although the order of importance was not agreed on: relationships between
partners, training of employees and IT problems. The discussion diverted to
the important issues, with strong disagreement over the issue of the reliability
of IT and other infrastructure in the organisation. There was consternation
over whether several things could be equally important.

Figure 88. Asthma Foundation cards ready for sorting and ranking.
The Foundation’s staff were defensive and negative when focusing on the ranking cards, which they saw as painting an inaccurate, negative picture of the Foundation’s information materials, even though they accurately reported their previous comments. The ranking activity was overturned by the Foundation staff who resolved to change track and discuss the positive aspects of their information, which proved to be effective in filtering out weak ideas, suggesting that participants will arrive at good ideas in good time. Similarly, in the SASI Clean mood board ranking activity, participants broke into an extended discussion of cleaning methods and techniques, preferring to talk about cleaning issues and their centres than rank ideas. The reluctance to rank ideas and the preference to create a positive list of the Foundation’s attributes demonstrates the participants’ desire to work on new ideas rather than rework the ideas suggested in a previous activity.
I found evidence of end-users’ reluctance to rank ideas through reworking previous work in the SASI Clean mood board activity. The materials I gave the participants to work with included photos, magazine images, coloured paper, scissors, Blu-tack and glue. I prompted the participants to use Blu-tack so that things could be moved around and for ideas to be prioritised. However, the childcare workers used glue to affix their choices firmly in place on the boards, leaving no room for movement or refinement of ideas as planned. I imagined that once all the images were selected and placed with Blu-tack on the board the group would then remove, change or add images if something was wrong or missing to make a more accurate account of the topic, but this did not occur as the childcare staff felt they had chosen their images carefully and were reluctant to rank images where some images would be judged as being more important than others. Another example of the childcare staff’s desire to work only with the positive was in the making a mascot activity, where the participants were invited to make a good and a bad mascot to represent the SASI Clean principles. In both groups the staff decided to make a good mascot and not a bad one.

My research found that the end-user participants preferred new activities rather than fine-tuning completed activities. One explanation for the resistance to ranking activities is that end-users do not like to rework ideas from a previous activity. When end-users engage in PD they want to be part of a creative work and to produce creative design ideas. The hard work of revising, refining and developing ideas was not as enjoyable and not seen as creative work. In neither case did the end-users want to rank or review their own ideas. Perhaps a ranking activity of others’ ideas would work. Chuang and Chen’s work on ranking activities finds that a ‘divide-and-conquer method’ of sorting images was more efficient than a ‘hierarchical sorting method’, but a hierarchical sorting method has a higher likelihood of expressing the actual opinions of participants because participants are able to discuss the details of the images after they have been grouped by similarity.665 This goes some way to explaining why graphic designers prefer to use the

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hierarchical sorting method, but it does not explain end-user resistance to ranking activities which occurred in my research.

My claim that ranking is not preferred by end-users as it meant reworking past activities, has been investigated by Valkenburg and Dorst who found that when working in multidisciplined teams, important ideas surface in between the stages of design. 666 Valkenburg and Dorst’s study suggests that design teams work within four stages of the design process: naming, framing, moving and reflecting. 667 Through observation of team design behaviour they found that interesting moments were immediately noted in between each of the four design stages. 668 The time spent on each stage was not important as all the interesting moments occurred when the team made a transition between stages. They argue that for team designing to be effective, team members need to support each other in answering questions that arise and in picking up lines of thought from each other to build on. 669 Rust also suggests that future activities need to start with an immediate reaction to concepts rather than reasoned discussions. 670 Similarly, van der Lugt discusses Goldschmidt’s system called ‘linkography’, which records design moves and the links among them, indicating that an effective problem solving process includes a high ratio of links between design moves. 671 These studies show that interesting things occur at the transition between design stages, going some way to explaining why the end-users in the SASI Clean and the Asthma Foundation studies did not want to rank ideas. This may have seemed like a backwards step rather than a forward move. The findings from my research suggest that channelling the experiences of the past activities into the next phase of ideation is preferred in PD.

I found that framing and ranking ideas met with opposition from end-users who prefer to discuss positive ideas and let weaker ideas disappear naturally. In the SASI Clean mood board ranking activity, the notes indicate, ‘The designers became disconnected from the process. The staff began to mill

667. Valkenburg & Dorst, p. 266.
668. Valkenburg & Dorst, p. 249.
669. Valkenburg & Dorst, p. 249.
670. Rust, 'Unstated Contributions', p. 75.
around and chat with each other and one by one left the design studio for the bathroom’. In the Asthma Foundation card ranking activity I also noted general disengagement and at one point the notes indicate, ‘One of the Foundation staff lost focus and walked out of the room’. These were the only two times across the six workshops where end-user participants left the room, demonstrating the strong urge of the end-user participants to disengage from the PD process when asked to rank ideas. Across my studies, the end-user participants became detached and defensive with the PD process when they were directly asked questions and asked to rank ideas.

**Hands-On Activities Promote End-User Engagement**

My research found that hands-on activities such as cut and paste creations making posters or mascots, using familiar items such as magazine images, recycled materials, coloured paper and pens, made the end-users feel comfortable and free to participate. In contrast, the technology based activities in my research, distanced end-users and halted conversation and ideas.

The hands-on activities showed high levels of engagement. In the SASI Clean mood board activity involving hands-on cut and paste materials the case report notes, ‘The childcare workers got straight down to working with the visual material. They did not labour over their choices of imagery. The childcare staff felt comfortable doing this activity’. There was laughing about the type of imagery chosen to represent certain ideas and discussion about what to include on the boards (Figure 91). The notes go on to indicate, ‘There was free chatter, as the childcare workers cut and pasted’. When asked how the activity was proceeding they said, ‘We are pretending we are children’, making apparent the enjoyable nature of this activity. Unsolicited, the childcare workers expressed the opinion, ‘That was fun’ revealing the positive sense of engagement created in this activity.
The SASI Clean mascot activity produced similar positive and engaging responses while participants were busy with hands-on materials. Figure 92 shows the recycled and household items to create the mascots. One childcare worker found this activity amusing and engaging. They commented the children in the centres would love this activity. They all liked the idea of creating the mascot, as one childcare worker said the activity was enjoyable and ‘child friendly’, another commented, ‘It turned out better than I expected’ and another said, ‘It is brilliant to see the outcome’. The case report shows, ‘All worked hard with little discussion to begin with. The good guy was made with things that do not look evil for noses, mouth and eyes.’ Figure 93 depicts the two final good guy mascots created by the two groups. The designers further developed the idea of a mascot into SASI Clean symbols at the completion of the workshops, which was an idea to be realised and repeatedly used by SASI Clean in marketing material. Figure 94 shows the final designed butterfly symbol with loose line work and bright colours built upon the freshness of the mascots.
Figure 92. SASI Clean mascot activity using recycled materials.

Figure 93. SASI Clean final mascots using recycled materials.
The Asthma Foundation information audit poster activity also used hands-on materials, producing lively discussion (Figure 95). Cut and paste activities were a non-threatening way of expressing creativity for the end-users. My research demonstrates that hands-on activities were engaging and productive as end-users enjoyed expressing their creativity. The designers also expressed their pleasure in taking part in the hands-on craft of making things, as today’s graphic designers do not have much opportunity to do hands-on creative exploration since they work mainly on computers.
In response to the hands-on activities trialled in the workshops one of the Foundation staff claimed, ‘The only way to get good open lines of communication between end-users and designers is through face-to-face contact rather than over email or through the computer’. She enjoyed the fact that the PD workshops involved more hands-on interaction than she expected which facilitated the inclusion of the Asthma Foundation staff ideas.

To contrast the hands-on activities, I also trialled technology based activities in both studies. The SASI Clean laptop presentation is an example of a technology based activity where the case report indicates that, ‘The childcare workers watched intently, commenting quietly to each other and did not engage or offer any comments’ (Figure 96). One commented later that she did not follow what was being presented. This shows that the typical method used by designers to present design options did not create a spirit of participation and did not encourage ownership of ideas. The use of technology to recapitulate ideas in the workshops was not favourably received and that it formed a barrier between end-users and designers.
A further example of an activity based on technology is the SASI Clean journey presentation. I had the SASI Clean childcare workers present design ideas to the client using a computer and a large screen (Figure 97). The designers operated the computers and video projector. The childcare workers were initially hesitant and one of the designers gave them encouragement to present. The more promising reaction in this screen presentation may have been because I forced the issue of ownership of the technology and the activity. This may demonstrate that ownership of the ideas helps with the use of technology as opposed to it being seen as designers’ equipment and a designer presentation. However, in this activity there was little engagement. Again, the findings showed that the use of technology did not encourage involvement and added little of benefit to the commitment of the project.
Hands-on activities are recognised as promoting imaginative design propositions from all participants. A study highlighting the enjoyable aspects of hands-on activities confirming the findings of my research is Tiantafyllakos, Palaigeorgiou and Tsoukalas’ research where computer literate students and designers were involved in the design of computer interactive applications. Their findings uncovered that, ‘The low-tech prototyping was without a doubt the most enjoyable part of the design sessions, as students left their seats to design the interface of the application’. Clemensen, Larsen, Kung and Kirkevold claim that physical surroundings facilitating a relaxed and undisturbed environment are a prerequisite for creativeness and interaction. They argue that it is an advantage if the participants are not in their normal environment and are not disturbed by colleagues and phones.

My research tested both environments, the designers’ studio and the workers’ headquarter training room and showed that it was the activity rather than the environment that facilitated creativeness and interaction. My research showed that cycles of progress and regress distinguish PD, pitching activities between

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675. Clemensen, Larsen, Kyng & Kirkevold, p. 129.
work and play as in these hands-on activities, being important to sustaining the participation process until the way forward for design becomes clear.

**Participatory Design Encourages End-User Local Action**

A combination of activities in the Asthma Foundation study created the conditions for the Foundation staff to rethink aspects of their information materials that had not occurred to them earlier. The information audit poster activity caused discussion about the amount of information in their head office and the information audit activity highlighted for them the duplication of their brochures and the need to rethink their information messages in an organised manner. Figure 98 shows the information brochures collected for the audit and a designer and a Foundation worker recording thoughts about each brochure.

![Figure 98. Asthma Foundation information audit activity.](image)

One of the unintended outcomes of the PD process in my research was that one Foundation staff member took the initiative to reorganise their storeroom radically. This shows that the staff took ownership of their own information problems after engaging with the PD workshop activities. These encouraged two staff to tidy up, which is something they stated they had wanted to do for a while. From my initial site visit, I photographed all the rooms in their offices where information was stored. My first impressions were that for a small organisation with not much funding, mainly relying on public fundraising, I was surprised by how much information material they had printed. They had more than they needed. The boxes of information were everywhere, there was
a small room stacked from floor to ceiling on four sides with boxes of brochures, there were information sheets and brochures in another room, ready for the telephone helpline to use (Figure 99). There was a large room with tables covered in brochures and mailroom boxes stacked on the floor with blue Asthma Foundation bags, being compiled as give away information bags as seen in Figure 100. The Foundation staff apologised to us for the state of this room.

Figure 99. Asthma Foundation mass of information material.

Figure 100. Asthma Foundation lunchroom before the PD workshops.

After the workshops and getting to know their core values, the designers realised that the Asthma Foundation was committed to accurate reliable
information. The Foundation wanted to be the first point of call and have everything a person would need on asthma information. These values translated to a worksite where every corner and wall was filled with information materials. For the designers this reflected the SASI Clean childcare centres’ information filled walls.

In the first workshop the designers were careful to hold their judgements and perceptions to themselves, not to appear critical of this mass of information. They wanted to streamline the information from the beginning. In Workshop One, the designers conducted an activity to create two posters about the existing information situation, materials using printed photos of our site visit, actual asthma brochures and other found material on asthma. The Asthma Foundation staff mainly chose photos of the designers’ site visit to place on the poster and using Post-it notes they commented on the situation with notes; ‘This is overwhelming’, ‘Is this how the ultimate end-users feels’, ‘Too much information’. Figure 101 shows the final posters with Post-it notes recording the workers thoughts about their work environment.

All the initial thoughts the designers had about the overwhelming information and crowded rooms with boxes, the staff felt too. While the designers did not want to go in and force their impressions on the Foundation staff about the problem at hand, they offered it quickly and it reflected the designers’ own
impressions exactly. The store room that was full of information boxes they explained was meant to be their tea room and their training room and one staff expressed frustration about the information boxes having taken over their lives. Another staff commented, ‘Why cannot we have an office looking like an office rather than a storage room?’ ‘It is a fire hazard and an OHS risk in the corridors’; ‘It is like opening up a can of worms’; and ‘It is a death trap with all of the boxes in the fire exit – this being used for storage is unacceptable’. In another activity to identify what the overall aim of the information material they were producing was one staff said, ‘If no-one died of asthma, that is improved morbidity and mortality, this would be the best result for the information’. However, by trying so hard to cover all bases for external audiences, the staff identified the risks to themselves as end-users of this mass of information.

This situation demonstrates the serious consequences of information overload. At the beginning of Workshop Two, one of the Foundation staff took me aside and asked me to come to the lunchroom and photograph it again as she had cleared it out. The transformation was evident. The clutter and the information strewn everywhere was gone. The tables and chairs were neat and ready for use and the boxes were fewer and neatly stacked on the edge as shown in Figure 102. I did not expect the staff to transform the room; this was a side benefit of the PD activities. Here the behaviour of the end-users was influenced by being prompted into local action.
Flexibility Challenges Graphic Designers

My research showed that the need to be flexible in PD activities was important to its success and this challenged the designers’ conventional way of working. PD has been criticised as being costly and for taking too much time.\footnote{Stempfle & Badke-Schaub, ‘Thinking in Design Teams’, p. 495.} Economic constraints, time pressures and teamwork factors are issues that designers need to address in their daily work.\footnote{Stempfle & Badke-Schaub, p. 495.} My research shows that across both cases flexibility in approach was a pressing practical issue above time and money factors. My research showed instances where activities needed to change course or be cancelled altogether. My case report is organised under the headings ‘planned activities’, ‘actual activities’, ‘reflection on changed activities’ and ‘suggestions for next time’, demonstrating the flexibility required by the facilitator of the activities in each workshop.

In the Asthma Foundation study, the first workshop was delayed fifteen minutes as participants arrived late because of traffic congestion. Losing 15 minutes cut out scope for the first icebreaker activity. We did not have access to the room beforehand, so activities had to be portable and convenient to set up. In both case studies, two end-user participants missed one of the

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure102}
\caption{Asthma Foundation lunchroom after the PD workshops.}
\end{figure}
workshops. My research found that the workshop activities required flexibility on the part of the designers and the facilitator, allowing for frequent changes and disruptions because of external constraints.

In both case studies limited resources was a key concern of the end-users. The cost of producing proposed ideas from the PD activities was raised in each of the six workshops. In the Asthma Foundation study one of the staff said, ‘This is all very well but what about resources and limitations?’ In the Asthma Foundation study, an iPod skin application was proposed and perceived as feasible regardless of cost because of potential sponsorship opportunities. The idea of a sports-branded asthma puffer also provided sponsorship opportunities to counter any cost concerns. In the SASI Clean study at one point the staff laughed at the designers for being so unrealistic in suggesting high technology based information propositions when there would be no resources forthcoming for such ideas. Figure 103 shows one designer’s unrealistic website concept.

![Figure 103. SASI Clean website concept.](image)

The industry consultant observing the Asthma Foundation study process commented on how time consuming the PD process was. He expressed concern how spending this amount of time on idea generation and discovery
phases of design project could not be done in a standard commercial context. He was constantly focused on the design outcomes, stating:

Everyone in the process [end-users and designers] could do with a constant reminder of the need to understand tangible outcomes. Equally the process needs to be given the opportunity to deliver real outcomes from here on for all involved and we have to evaluate it on the right measurement criteria, which is how best any solution provides information to help people manage their lives, make money, or most importantly save lives.

Research that takes a different position from that of the industry consultants’ in my research is Savage, Miles, Moore and Miles’ study in the field of engineering that demonstrates how by adding a cost constraint to a design brief fewer designs are produced. In their study, participants asked, ‘how can I solve the task by using one piece of material’ instead of asking, ‘which design will work and how can I make it the most economical?’ They show that an optimal design solution is not achieved by removing external constraints such as time and cost factors. Their research shows that to achieve a creative design result it is necessary to keep the cost and task inherent constraints to a minimum. My research showed that repeatedly the cost associated with each proposed design solution was discussed and formed barriers to progress for the designers. Clemensen, Larsen, Kyng and Kirkevold claim that in multidisciplinary teams, ideas are ‘processed’ more quickly than in the conventional design process, where designers work intuitively and alone consequently creating better outcomes. In relation to my research the issue of working quickly and staying on track was important for the industry designer observing the Asthma Foundation study; however it was not important for the participants in all the workshops. The participants enjoyed the time taken to co-design ideas and did not concern themselves with working quickly.

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Among those who have discussed the issue of flexibility are Sanders and Stempfle and Badke-Schaub. They argue PD requires facilitators to be flexible and spontaneous in whatever methods they use and to have the courage to change course quickly if the situation requires it. Sanders claims facilitators need to improvise activities and if serendipitous discoveries are made during research tasks, they need to follow them. Stempfle and Badke-Schaub argue that flexibility comes from experience enabling designers to become like Schön’s ideal reflective practitioners. Kensing and Bloomberg point out the disadvantages of PD projects that take place in “‘greenhouse’ settings where projects are shielded from the harsher realities of organizational life”, claiming they need to survive the commercial world of limited resources, conflict and time constraints. My research shows that flexibility for the designers was important to the smooth running of the PD workshops. One explanation for flexibility being a key concern in my studies is that both studies centred on the idea generation stages of design rather than design production stages where deadlines and cost limitations may have been more pressing.

**Graphic Designers as Facilitators**

Across both studies PD activities challenged the expected roles of the designer participants. Designing a brochure, report or manual using conventional processes creates a divided role between designers and clients, where end-users are not even considered. In the SASI Clean study the designers met with the client to scope the SASI Clean manual in between the PD workshops. The designers asked for final text before beginning the design stages so they would know the parameters of the document design in relation to how many pages, how many sections and what the sections would be called. The client stated that she did not have final text and that there would never be final text for the SASI Clean manual as the information had to be different for every centre and centre staff were to write their own information. This caused the

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683. Sanders, ‘Converging Perspectives’, p. 54.
designers frustration, challenging their notion of traditional graphic design where the client is expected to produce final text and a clear design brief. Determining the content, creating the information in text form and ensuring its accuracy is the expertise of the client, who delivers the content to the designer who is responsible for its creative layout, design and production. The PD approach to the design of the SASI Clean manual blurred the roles of who was expert, showing that the designers were not experienced or competent in acting as facilitators.

During the PD workshops, the content of the SASI Clean manual was discussed with the childcare workers where the client was frustrated, commenting:

It is clear to me that what the childcare workers want is a quick reference for their procedures and protocols. These MUST be done as templates in the manual as every centre will use different products with different names, safety warnings or other specific details. Lastly and most importantly, I cannot write their procedures for them. The SASI Clean manual will provide guidelines, resources and scientific evidence to assist them, but the centres must write their own procedures.

Both the designers and client were frustrated with the conventional process of designing. The designers felt they could not work without a clear brief and prepared content. The client felt pushed to determine information that she could not finalise as she was committed to a PD approach. The designers had to step in and act as facilitators of the SASI Clean manual information, reflecting Kocsis’ notion of the designer as ‘cultural translator’. Sui argues that designers are not able to make decisions for end-users, recommending instead designers allow gaps in their designs for end-users to fill in. My research demonstrates the value of designers taking on the role of facilitator in identifying a problem between the client, designer and end-user to help to

create the conditions for conversation about how to design a manual with collaboration between all participants.

Without PD, the designers admitted they would have pushed through the barriers the client was presenting and remained focused on an outcome and possibly designed an inadequate SASI Clean manual from the client and end-users’ point of view. One of the main focuses of PD is that the process is equally important to the outcome and because of this, the notion of an expert solution proposed by an expert designer becomes irrelevant.\textsuperscript{688} Using the PD process the client clarified in her mind that the point of the SASI Clean manual was that the text needed to be written by the childcare staff themselves. It was agreed that the design of the manual needed to be in a template form for individual sets of information. One of the challenges in my research was for the designers to accept that a PD brief is different from a conventional graphic design brief. The idea of designing a template for the childcare workers to create their own information that would be constantly updated, left the designers feeling out of control and worried that the end product would be messy, unruly and unreadable. One worker feared that with poor quality materials and little design and layout skills, she in an uncontrolled environment would not have the skills to create a quality message that is understandable and memorable. This confirms Large’s claim that designers view any input into design by end-users as unproductive and leading to the watering down of creative propositions.\textsuperscript{689}

In preparation for the SASI Clean workshops, the designers collected images for the mood boards. The images included photos of the site visits, magazine cleaning images and Internet photos relating to cleaning. The designers printed the Internet photos at A4 size and in duplicate copies. The site visit photos they printed at a smaller size and only one copy. This demonstrates that the designers perceived their own Internet-found images more important than the childcare site visit photos. They were more comfortable in their world of stylish representational symbolic imagery rather than the realness of the childcares’ actual imagery. When all the collected images were placed randomly in front of the childcare workers, the workers chose magazine

\textsuperscript{689} Large, ‘Communication Among all People, Everywhere’, p. 90.
images to place on the mood board ignoring the Internet-found images (Figure 104). At the end of the workshop, four childcare workers asked the designers if they could keep the untouched site visit photos. In the Asthma Foundation study information audit poster activity, the Foundation staff also chose their own brochure material in preference to designer Internet-found imagery to affix to the poster as seen in Figure 105. This demonstrates the difficulty for designers in PD to relinquish conventional ways of working, which privilege designer images rather than end-user local context images. In my research, this immediately established divisions between participants, hampering facilitation.

![Figure 104. Mood board detail showing magazine image choice.](image-url)
The PD literature considers whose role it is to propose ideas and who makes the decisions in PD. Across both studies, I uncovered instances of participants attributing an idea to someone else. In the SASI Clean study, one of the childcare workers expressed the opinion that the relief worker card system looked great, praising the designer. The designer then congratulated the childcare worker, clarifying that the card system was the idea of the childcare worker. In the Asthma Foundation study, the designer who worked on the bubble day out concept was opposed to the Foundation staff owning the bubble day out idea that she considered her own. Figure 106 shows the range of materials chosen by the designer for this activity. She commented ‘Asking what the [end-users] requirements are is different from letting them design it’. She expressed frustration at the power struggle over ownership of the idea.
Another designer in the Asthma Foundation study said, ‘It makes sense to get the end-users’ perspective on an outcome, but at the end of the day, it is up to us designers to give shape to any idea. That is our area of expertise’. This shows an entrenched view of designer as expert, suggesting that the view of designer as facilitator will take time to filter through design thinking. This designer went on to say, ‘In my experience, I think the client is the “God” in the design process. The client knows their organisation and end-users better than anyone else’. In the SASI Clean study one of the childcare workers expressed an interest in seeing how the designers would further their ideas, stating that it was amusing to have power over the designers and tell them what to do. A Foundation staff member also reflected this position, stating that they were used to working with their current designer ‘where I directly tell them what I want and how I want it to look’. However, a designer in the Asthma Foundation study demonstrated a divided view of the role of the designer as she states, ‘First of all, designers should be open and efficient in extracting everything from the client before getting on with designing’. This demonstrates that even after the PD process, she remained attached to the view that end-users are informants for designers, rather than collaborators.

A facilitation role shifts the emphasis in graphic design from visual matters to human factors. It also means sharing control of design with end-users, the new creative task for graphic designers being the development of design tools that mediate between end-users’ contextual knowledge and their own visual expertise and production knowledge. Here, according to Spinuzzi the design
process becomes a forum for negotiating different design options, replacing
the usual subject-object relationship of designing for an audience by the
subject-subject relationship of designing with end-users.\(^{690}\) Frascara describes
the future graphic designer as a guide, advisor or coordinator, who supports
end-users and decision-makers to achieve what is required through their
original analysis, creativity, realism and experience in working with people.\(^{691}\)
For Frascara, ‘Visual communication is more an interdiscipline than a
discipline’, suggesting the need for new principles and methods to
accommodate hybrid disciplinary frameworks.\(^{692}\)

My research shows that PD activities changed the conventional role and self-
perception of the designer and dissolved the distance between expert and end-
user participants in the design process. In the SASI Clean study before
Workshop One, one designer commented that they expected their role in the
PD workshops ‘to be a part of a project that will make an impact on the
environment’. The words ‘part of’ are important as it shows the designer’s
awareness that there are a variety of people making up a project and not only
the designers who will be thinking about solving the problem. PD
practitioners share the view that every participant in a PD project is an expert
in what they do, as according to Sanoff all participants’ voices have a right to
be heard; and that design ideas arise in collaboration with participants from
different backgrounds.\(^{693}\)

In both studies where the design teams initially doubted the worth of the PD
process, by the third and final workshops they had became excited by the
possibilities of the facilitation role and the scope for understanding the real
context for design. One designer admitted that without this engagement, any
designs produced, no matter how aesthetically and conceptually innovative,
would have been irrelevant. The complementary benefit of PD is that
knowledge of design spreads throughout societies, demystifying the design
process and gaining respect for the work of the designer.\(^{694}\)

691. Frascara (ed), User-Centred Graphic Design, p. 3.
CONCLUSIONS

The aim of my research was to apply participatory design to graphic design in order to understand how both end-user and designer participants are influenced by PD. My research is the first exploration of this influence on participants in graphic design and leads academic research in this area, trialling techniques for engagement suggested in related design fields. It is also unique as it is the only study in participatory design to use a two-case study model. This model has been used in disciplines such as education, psychology and business studies, but not previously in PD. The documentation of a variety of activities across six PD workshops provides significant insights into how PD influences both end-user and designer participants.

PD emerged from debates and practices as a unique form of UCD, proposing that end-users and designers act as equals in all phases of design. PD seeks to redress the tendency of designers to act for others. It aims to change the situation in which people are constructs of the design rather than active participants in the design. This aim depends on the reliability of participants as representatives of the end-users for design since this may affect the credibility of their knowledge in respect of use. Arguments for the ethical and pragmatic benefits of PD are compelling, but the task of including the creative ideas and tacit knowledge of end-users in the graphic design process is not straightforward.

Since the early 1990s, interest in the value of participation for end-users has been overshadowed in the PD literature by discussion of the designer’s role, the nature of design tools and the influence of participation on designed outcomes. My research focused on the behaviour and actions of end-user and designer participants while working on a real-world graphic design project. In particular my research considered the differences between intended and actual end-
users as Redström highlights the important need to distinguish between the two.695

In Chapter Two I argued that design debate holds that end-user participation in the design process aligns designs with end-users’ needs and perspectives, challenging the notion of the graphic designer’s established role as communication expert or artist, as argued in Chapter One. In Chapter Three, I showed that sharing the creative process with end-users challenges the status quo of the graphic design occupation, as designers fear becoming irrelevant and consider that to include the views of others risks mediocre design.696 I demonstrated that PD has been applied in fields such as human-computer interaction, product design and urban planning, where a considerable body of knowledge on principles and methods for end-user participation exists in the literature, but graphic designers lack relevant case studies in PD to confidently apply PD methods in their practice. As I stated in the introduction, my research answers Frascara’s call for further case studies to be executed in graphic design by adding two case studies to the field of PD in graphic design.

The lack of previous case studies in the area of PD in graphic design made my research complex. Having only a limited number of relevant previous PD case studies in graphic design on which to build a research design meant borrowing theory and approaches from related design disciplines and applying these to graphic design, where considerable flexibility in approach was required. The overall aim of my research has been achieved to the extent that I have documented two case studies in PD applied to graphic design projects and my research extends knowledge and understanding of how PD influences participants in a graphic design setting.

Influences on End-User Participants

In Chapter Five, I examined my research question from the perspective of how PD influenced the end-user participants in the SASI Clean study. My research showed that the end-users developed ownership of and commitment to the SASI Clean information even before the design outcomes were complete. Once the information became embedded in the minds of the childcare workers they did not want to design further information to be directed at themselves. The childcare workers nominated imaginary end-users for design, adopting the role of designer, using designers’ language and behaviour and in effect blending with the designers to propose alternative end-users for design—relief workers, parents and children—rather than design for themselves. In the Asthma Foundation study the workers preferred to design for asthma sufferers — rather than themselves. The end-users in my studies embraced a regular designer role of intuitively proposing designs for imaginary end-users.

Perhaps the idea of co-designing has a different value and orientation for end-users and designers. Graphic design outcomes may need to be based on direct knowledge of the end-users they seek to persuade, inform, or educate. This raises issues concerning the authority, representation and embodiment of knowledge in PD projects, when information and behaviour change are the aims.

These issues may be one reason why the uptake of PD has been slow in graphic design. In design fields where a tangible product is the outcome of design, prospective end-users can imagine themselves owning and using a product. However, in graphic design projects that seek to communicate a message or a body of information, my research shows that designing for oneself does not really work and a secondary end-user is required.

All terms for lay participants in the PD process — ‘non-designers’, ‘end-users’ or ‘audience’ — marginalise this group of people and represent them as outsiders to design. As facilitator of the PD process, I
concentrated on positioning all participants as equal and especially on positioning the end-user participants as experts. However, this did not satisfy the end-user participants and it became clear to me that they wanted to act as designers. In hindsight, further work could have been done to merge the roles of the participants, rather than viewing them as two separate camps from the outset.

My first study reveals a significant new perspective on the challenges of designing with end-users in graphic design. I conclude that PD influenced them in significant and unexpected ways, causing them to shift their engagement to designing for alternative imaginary end-users. My research raises questions about whether end-user participants remain representative of the end-users from whom they are drawn.

**Influences on Designer Participants**

In Chapter Six, I examined how PD influenced the designer participants. The Asthma Foundation saw health educators and designers audit information materials and prepare design strategies on asthma risk and management communications. I devised a series of PD activities to examine the designers’ role as facilitators, designing mediation activities rather than designing outcomes. Initially, the designers felt ‘bogged down, lost and irrelevant’ as they struggled to share the design space with the end-user participants. The designers expressed reservations about the PD processes, one commenting, ‘In the end it is our role to design the outcomes’ uncovering the strong preference of designers to remain in control of the design process. Eventually, however, the designers felt exhilarated by the PD process and the work of creating activities for co-creation, rather than jumping straight to design as in conventional graphic design. The designers admitted that they had gained considerable knowledge about the Asthma Foundation staff and the context for design, realising that normally they design with no knowledge of their end-users, researching the client via the Internet, in isolation from actual end-users.
My research showed that PD influenced the designers to face the project at hand directly, without having the opportunity to avoid the key issues for the Foundation staff. New ways of defining the Asthma Foundation information context were made visible, in that emotional responses to asthma information were identified as important rather than demographic segmentation. The PD activities uncovered the emotional state of the embarrassed teenager, the frightened elderly man and the distressed mother, which had not been recognised by past Asthma Foundation graphic designers. This finding is significant as it challenges the designer’s use of intuition to propose design propositions, highlighting how PD influences the designer participants to stay focused on the appropriate outcomes.

In Chapter Seven I discussed how activities promoted or hindered engagement between end-user and designer participants. Tightly scripted, small group activities and hands-on, cut and paste activities prompted free flowing conversation and end-user creativity. Other activities commonly found in conventional design practices, such as, ranking of ideas, blocked collaboration. Flexibility was shown to be important for designers to ensure engagement in PD workshops.

**Limitations of the Research**

My research represents participatory processes as a promising addition to graphic design practice, though within limits. Case study is a context specific method meaning the findings may not be generalisable for practitioners in alternative settings and projects. The individual characteristics of each case may mean that the findings are not representative of any PD program. Factors including the people involved, location, duration, order of activities and the style of the facilitator each influence the findings of the research. The use of Masters graphic design students from Swinburne University of Technology’s Design Centre with only limited industry experience may have influenced the findings. All the students were younger than the end-user participants, with implications for group dynamics in relation to who is perceived as a leader in the PD process. The use of experienced
designers might have produced different outcomes, although the facilitators and design managers supervising the students did have previous industry experience.

If prior studies existed, cross comparison of findings would be possible. Whether the findings would hold for professional designers in industry is an important issue for further studies. In the SASI Clean study the representativeness of the childcare workers is also an issue. All were female; there being no male childcare workers in the centres attached to the SASI Clean study. In the Asthma Foundation study there were organisational issues and staff conflict, which could have compromised their level of participation and influenced the findings.

As outlined in the introduction, the scope of my research involved the generative stages of design, including client discovery, concept design and the development of design proposals. My research did not include design development, refinement and production of proposed design concepts. Later stage interviews could have provided insights as to how the end-user participants perceived the design outcomes but this was outside the scope of my research. More cases would have provided further insights into trends of participatory graphic design. With more cases, further cross-case analysis could have been undertaken for comparison of the findings. It was also difficult to establish the character and number of the PD activities to develop. They were developed out of the nature of the design task but they could have been different, thereby providing another result.

**Further Research**

My research highlighted a number of areas that deserve further investigation, as issues remain unresolved. There are still issues to be understood about the different perspectives and values end-users and designers bring to the PD process. One area of future research is to test the graphic design outcomes from a PD process compared with a client driven process to see if end-users perceive them differently. Testing this in a large-scale PD project in graphic design would provide further
insights into how the PD process influences end-users, participants and design outcomes. End-user and designer evaluation of final designs would provide additional insight into the effectiveness of the PD process. The basis for objective testing is a study in its own right and could be the subject of future research.

Other ideas for further research include understanding how multiple stakeholders can simultaneously contribute to the PD process and to investigate if those closest to the PD process view the design outcomes differently from those further away from the act of participation. Also future research is required to establish whether PD is suitable for mass end-users and broad contexts or whether it suits niche end-users in local contexts. My research involved two stable groups of participants across two cycles of three workshops. Future testing of PD could involve a variety of participants from a range of participatory interventions to see whether this influences end-user participants’ preference to design for someone else rather than themselves.

It would be beneficial for building knowledge about participatory graphic design to conduct a study into the dynamics of each PD activity undertaken in my research, for example, taking one activity and repeating it across further industry projects. Alternatively, further research studies could involve taking the idea of mediation activities and trialling the same activity across multiple small groups. It is anticipated that these kinds of future research investigations would foster a robust conversation in the graphic design community about the implications of PD, ensuring that graphic design is abreast of developments concerning engaging end-users in design work.

An idea for further research that is not put forward in the PD literature is whether end-users themselves could have a part in proposing the PD activities rather than the designers devising them in isolation from end-users. This was outside the scope of my research but is a gap in the literature for investigation in the future.
How the Research Changes Knowledge of Participatory Design

The contribution that my research makes to knowledge is the claim that PD’s aim to involve people in the design of things that influence them is complex in graphic design because of the shifting involvement of end-user participants. Although graphic design has specific features as an occupation, my findings show that end-user participants did not behave as expected in a participatory graphic design projects. I anticipated that the childcare workers would develop information and communication strategies for themselves, making them suitable for implementation across the Australian childcare setting. However, my research shows them inventing alternative end-users for design other than themselves after being exposed to the information at hand. Children, parents and relief workers were their preferred end-users, suggesting that when end-user participants become involved in graphic design they are transferred to the ‘inside’ of the process and no longer stand ‘outside’ it as an end-user. The input of contextual information and design ideas by the childcare workers involved no imperative to facilitate the perspectives of those outside the design process, suggesting that PD replicates the unbalanced territoriality of competing designer or end-user investments in conventional design.

Before my research it was not known how PD influences end-user and designer participants in graphic design. Drucker and McVarish argue that graphic designers in the future will design activities that create the opportunity for co-creation as well as designed outcomes. Others like Reid and Reed and Walton speculate on how PD will influence the graphic designer’s status. They worry that designers will lose their expert status. Writers including Drucker and McVarish, Forlizzi and Lebben and Nini point to the need for further research into end-user engagement in graphic design. The few documented cases of PD in graphic design stress the PD process in graphic design from the

699. Drucker & McVarish, Graphic Design History; Forlizzi & Lebben, ‘From Formalism to Social Significance in Communication Design’; Frasca, Communication Design; Nini, ‘Sharpening One’s Axe’.
perspectives of the benefits of including end-users in the designed outcomes and the changing role of the designer. None of the graphic design literature discusses the influence of PD on end-user participants and the trajectory of design choices.

The founders of PD argue that end-users have a right to be part of the design and decision-making process and to design artefacts that suit themselves. Even the language ‘end-user needs and preferences’ confirms that PD was originally for end-users to design outcomes to suit their own needs and preferences. Original PD advocates argued that end-users were important to the design process as they held tacit knowledge, where the designers were relegated to technical experts to support the end-users in realising designs that they wanted. A main claim of PD is that it remedies design’s conventional exclusion of people from decisions that affect them. This assumes, however, that the identities and role of end-user and designer participants remains distinct and steady throughout the design process.

Diagrams in the introduction to the thesis characterised the nature of end-user and designer interaction in the graphic design, UCD and PD literature (Figures 1, 2 and 3). Drawing on my research findings, Figure 107 represents the influence of PD on the participants in graphic design, visualising the contribution my research has made to the fields of graphic design, UCD and PD. I show that, as expected, interaction begins in the design exploration phase, with end-user and designer participants sharing knowledge and skills. This reflects the interaction between end-users and designers in PD in the design strategy phase in Figure 3. In the new diagram, in Figure 107, end-user participants cross the divide and join with the designers, no longer sharing distinct knowledge, but rather acting as one force in the design strategy and


702. Bravo.
review phases. Together, the end-user participants with the designer participants form a hybrid end-user designer proposing an artefact for an imagined end-user. In part, this reflects Figure 1, where the designer proposes designs for an imagined end-user in the design strategy and design review phases. The difference in Figure 107 is that the end-users and designers act as a united entity. Another difference is that the design artefact in Figure 1 is designed for an actual end-user, even though this end-user was not involved in the design process. In Figure 107 the final design artefact has been designed for an imagined end-user, rather than for the actual end-users as was expected.

**Participatory Design in Graphic Design**

End-User  Designer  Imagined End-User

Exploring Ideas  

Design Strategy  

Design Review  

Design Artefact

*Figure 107. The influence of PD on participants in graphic design.*
I propose that PD applied to graphic design will not lead to designers losing their occupational status or become invisible as feared. By embracing PD, graphic designers rather embrace a facilitation role, transforming their creative skill into the design of mediation activities. The benefits of this are that the design outcomes produced in a PD setting promise to be more useful and appropriate for end-users. If designers accept they are not the only experts in respect of the communication task, they may find that embracing a facilitation role introduces a new dimension of creativity into design, the development of effective design activities empowering end-user participants to release their own creativity and problem solving capacity.

My research challenges the assumption that PD is about designing with end-users rather than for them when applied to graphic design. My research found that the role of the end-user participants changed after they had worked on the information at hand, making the design of outcomes for themselves in relation to the information available irrelevant. The end-users in my research preferred to design for others rather than act as representative end-users themselves, assuming the role typical of graphic designers. My research questions the assumed authenticity of end-user participants in respect to their role and status as end-users in the design process.

I conclude that participation in graphic design is not straightforward, as end-user participants strive to design with designers and for imaginary end-users at the same time. No other study in PD reports this tendency, which is a contribution to the extent that it contests the implicit role of end-user participants as representatives of alternative end-users, rendering my research as an original contribution to the field of PD in graphic design. My findings are an important addition to previous work in highlighting the complexity of designing with end-users in graphic design.
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APPENDIX: ETHICS DOCUMENTATION
SASI Clean Ethics Application Approval

24/04/2007

Dear Carolyn

SUHREC Project 0607/153 Participatory design tools and processes for the development of a guide to safe and sustainable cleaning
Approved Duration To 30/12/2007

Ethical review of the above project was carried out on behalf of Swinburne’s Human Research Ethics Committee (SUHREC) by a SUHREC SubCommittee (SHESC3) on Friday 20 April 2007.

I am pleased to advise that Ethics Clearance has been given for the project as submitted in line with standard conditions here outlined:

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the current National Statement on Ethical Conduct in Research Involving Humans and with respect to secure data use, retention and disposal.

- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.

- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued
ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project.

- A duly authorised external or internal audit of the project can be undertaken at any time.

Please contact me if you have any queries or concerns about on-going ethics clearance. The SUHREC project number should be cited in communication.

In its discussion, the Subcommittee noted that the proposed consent form text was well written/adapted and could be noted as exemplary.

Sharman Feinberg
Secretary, SHESC3, Research Administrator
Faculty of Business and Enterprise, Swinburne University
Phone: (03) 9214 860
SASI Clean Informed Consent Statement

Title of Project: Participatory graphic design tools and processes for the development of a safe and sustainable cleaning guide

Investigators: Dr Carolyn Barnes and Simone Taffe

Description of Research:
Rarely today are audiences asked to serve as partners in the design of information. This is the alternative approach being explored in this research, which is being undertaken to provide evidence for a Doctor of Philosophy (PhD) study into participatory graphic design. As a person with daily responsibility for keeping surfaces clean in a childcare centre, the study seeks your participation in the design of a low harm cleaning manual. The research is being conducted within the larger Safe and Sustainable Indoor Cleaning Project (SASI Clean), an initiative funded by Sustainability Victoria. In addressing the barriers to the adoption of low harm cleaning practices in Victorian childcare centres, SASI Clean represents an ideal industry context to test participatory graphic design.

Description of Research Activity:
If you agree to participate you take part in three design workshops, each three hours long including breaks. The workshop will involve eleven childcare workers and five design students. You will work in various teams on a variety of activities, using materials like coloured paper, images cut from magazines and newspapers, pens and pencils, Post-it notes, scissors and glue to develop ideas about:

- different cleaning products and practices;
- the spread of infection;
- reducing or eliminating the use of chemical cleaning agents;
- the challenges in the constant daily cleaning of surfaces in childcare centres;
- the difficulties for childcare workers in using information in their day to day work;
- the form an effective SASI Clean manual might take.

A notetaker will record general observations of the workshops. The design concepts produced during the workshops will be retained and photographed afterwards.
You will be paid $100 per workshop to compensate you for your contribution to the design work.

The workshops will take place on the following dates:

**Workshop 1**  Exploring Ideas  Sat 23 June 2007  2-5pm  
**Workshop 2**  Design Strategy  Sat 28 July 2007  2-5pm  
**Workshop 3**  Design Review  Sat 18 Aug 2007  2-5pm

**Publication/Output:**
Design activities in the workshops and the designs produced will be referred to within a PhD thesis. Publication of my research in academic journals and for conference presentations is also intended. You will not be photographed during the design workshops or identified in any publication. Only images of the design concepts will be reproduced. Your ideas will contribute to the design of a SASI Clean manual, to be used in childcare centres throughout Victoria.

**Security of Data:**
- During the study all identifiable data will be kept in secure, locked conditions at the Faculty of Design.
- Any identifying data will be kept in a locked filing cabinet at the Faculty of Design for five years after publication of the study, after which it will be destroyed.

**Please Note:**
If you have any concerns or complaints about the conduct of this project contact; Research Ethics Officer, Office of Research & Graduate Studies (H68), Swinburne University of Technology, PO Box 218, Hawthorn Vic 3122 Telephone 9215 5218 or +61 3 9214 5218 or resethics@swin.edu.au
SASI Clean Signed Consent Form

**Title of Project:** Participatory graphic design tools and processes for the development of a safe and sustainable cleaning guide

**Investigators:** Dr Carolyn Barnes and Simone Taffe

1. I consent to participate in the project named above. I have been provided with a copy of the project consent information statement and this consent form and any questions I have asked have been answered to my satisfaction.

2. Please circle your response to the following:
   - I consent to participating in the design workshops. Yes No
   - I agree to the materials that I produce in teamwork during the workshops being retained and photographed. Yes No
   - I agree to ideas I have developed in teamwork during the workshops being developed by designers to produce prototype designs for a SASI Clean manual. Yes No

3. I acknowledge that:
   - My participation is voluntary and that I am free to withdraw from the project at any time without explanation;
   - The project is for the purpose of research and not for profit;
   - I will not be identified in the publication of data from the workshops.

By signing this document you agree to participate in this project.

Name of Participant………………………………………………………………………………

Signature……………………………………………………………………Date………………
Dear Simone,

I am writing in regard to the SASI Cleaning Project. The centre fully endorses the project and is happy to assist in sourcing suitable volunteers for the Participatory Design Workshops.

I am aware that the volunteers will be paid $100 per person for a three hour workshop to be held at Swinburne University of Technology, 144 High Street, Prahran on Saturday afternoons in April, May and June. I understand that the volunteers will be required to attend all three sessions and will be paid $300 in total for these sessions.

I can be contacted on 9362 2224 or at debbiec@gowrie-melbourne.com.au if you require further information.

Yours truly,

Debbie Cole
Manager – Children’s Program

Simone Taffe
Senior Lecturer
Faculty of Design
Swinburne University of Technology
144 High Street Prahran VIC 3181

Thursday 8th March 2007
Asthma Foundation Ethics Application Approval

27/08/2008

Dear Carolyn and Simone

SUHREC Project 2008/043 Participatory design tools and processes for the development of asthma information

Dr Carolyn Barnes and Ms Simone Taffe
Approved Duration: 26/08/2008 to 15/08/2009

I refer to the ethical review of the above project protocol undertaken on behalf of Swinburne’s Human Research Ethics Committee (SUHREC) by a SUHREC Subcommittee (SHESC4). Your responses to the review as emailed on 26 August 2008 were put to a delegate of the Subcommittee for consideration and found acceptable. I also acknowledge receipt of evidence of authority to involve the Asthma Foundation in the way proposed. (However, it is recommended that the phrase "the particulars of which have been explained to me" in the consent form should be omitted given the consent information statement is meant to provide sufficient information.)

I am pleased to advise that the project (as submitted to date) has approval to proceed in line with standard on-going ethics clearance conditions here outlined.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the National Statement on Ethical Conduct in Human Research and with respect to secure data use, retention and disposal.

- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief
investigator/supervisor requires timely notification and SUHREC endorsement.

- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project.

- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact me if you have any queries about on-going ethics clearance. The SUHREC project number should be quoted in communication.

Best wishes for the project.

Yours sincerely

Keith Wilkins
Secretary, SHESC4

*******************************************

Keith Wilkins
Research Ethics Officer
Swinburne Research (H68)
Swinburne University of Technology, PO Box 218
HAWTHORN VIC 3122
Tel +61 3 9214 5218, Fax +61 3 9214 5267
Asthma Foundation Ethics Application Modification Approval

16/10/08

Dear Carolyn and Simone

SUHREC Project 2008/043 Participatory design tools and processes for the development of asthma information

Dr Carolyn Barnes and Ms Simone Taffe
Approved Duration: 26/08/2008 to 15/08/2009 [Project Modified October 2008]

I refer to your request, as emailed on 13 October 2008, to modify the above project protocol to include an additional participant group. The request was put to a delegate of the relevant SUHREC Subcommittee for consideration and, I am pleased to advise, approved in line with standard on-ethics clearance conditions previously communicated and reprinted below.

Please contact me if you have any queries about on-going ethics clearance. The SUHREC project number should be quoted in communication.

Best wishes for the continuing project.

Yours sincerely

Keith Wilkins
Secretary, SHESC4
Asthma Design Workshops: Project Consent Information Statement

Title of Project: Participatory design tools and processes for the development of asthma information.

Investigators: Dr Carolyn Barnes, Simone Taffe.

Description of research:
Rarely today are audiences asked to serve as partners in the design of information. This is the alternative approach being explored in this research, which is being undertaken to provide evidence for a Doctor of Philosophy (PhD) study into participatory communication design. As a person who works either directly or indirectly with The Asthma Foundation (Victoria), the study seeks your participation in the development of new information materials about asthma. The research specifically addresses the forms and means of delivering asthma information. The research is being conducted with final year communication design students from Swinburne University of Technology, in conjunction with The Asthma Foundation (Victoria). It represents an important real-world context to test participatory communication design.

Description of research activity:
If you agree to participate you will take part in three design workshops, each two hours long. The workshops will involve up to fifteen people who work with asthma information and five design students. You will work in teams on a variety of activities, using materials like coloured paper, images cut from magazines and newspapers, pens and pencils, post-it notes, scissors and glue to develop ideas about:

- Your attitudes to existing forms of asthma information and the ways in which it is delivered;
- The circumstances in which you understand end-users would consult and use information about asthma;
- The forms effective asthma information might take.

Two note takers will record general observations of the workshops. The design concepts produced during the workshops will be retained and photographed afterwards.

Workshop 1 Exploring Ideas Wed 29 Oct 10.30am-12.30pm
Workshop 2 Design Strategy Wed 19 Nov 10.30am-12.30pm
Workshop 3 Design Review Wed 3 Dec 10.30am-12.30pm

The workshops will be held at The Asthma Foundation (Victoria).

Publication/Output
Design activities in the workshops will be referred to within a PhD thesis. Publication of the research in academic journals and for conference presentations is also intended. You will not be identified in any publication of the research. Only images of the design concepts and design process will be reproduced.

Security of data
- During the study all identifiable data will be kept in secure, locked conditions at Swinburne Design. Any identifying data will be kept in a locked filing cabinet at Swinburne Design for five years after publication of the study, after which it will be destroyed.

Please Note: If you have any concerns or complaints about the conduct of this project contact:
Research Ethics Officer, Office of Research & Graduate Studies (H68), Swinburne University of Technology, PO Box 218, Hawthorn Vic 3122
Telephone 9215 5218 or +61 3 9214 5218 or resethics@swin.edu.au
Asthma Design Workshops: Signed Consent Form

Title of Project: Participatory design tools and processes for the development of asthma information.
Investigators: Dr Carolyn Barnes, Simone Taffe.

The workshops will take place on the following dates:
Workshop 1 Exploring Ideas   Wed 29 Oct  10.30am -12.30pm
Workshop 2 Design Strategy   Wed 19 Nov  10.30am -12.30pm
Workshop 3 Design Review     Wed 3 Dec   10.30am -12.30pm
To be held at The Asthma Foundation (Victoria).

1. I consent to participate in the project named above, the particulars of which have been explained to me. I have been provided with a copy of the project consent information statement and this consent form and any questions I have asked have been answered to my satisfaction.

2. Please circle your response to the following:
   a. I consent to participating in the design workshops. Yes  No
   b. I agree to the materials produced through team work during the workshops being retained and photographed. Yes  No
   c. I agree to ideas produced in team work during the workshops being developed by designers as prototype designs for an asthma information campaign. Yes  No

3. I acknowledge that:
   a. My participation is voluntary and that I am free to withdraw from the project at any time without explanation;
   b. The project is for the purpose of research and not for profit;
   c. I will not be identified in the publication of data from the workshops.

By signing this document you agree to participate in this project.

NAME OF PARTICIPANT ........................................................................................................................................

SIGNATURE ..............................................................................................................DATE ..........................
Ethical Statement

I certify that the treatment of human subjects as required by the Swinburne Research Ethics Committee for the thesis entitled, ‘Shifting Involvement: Case studies of participatory design in graphic design’, submitted for the degree of Doctor of Philosophy were properly met.

I verify that all conditions pertaining to the ethics clearance have been properly met. CD-ROMs and hard copies with all material in relation to this ethics clearance have been submitted to the Head of Research, Faculty of Design, Swinburne University of Technology and have been securely stored in the faculty according to the regulations. Furthermore, I acknowledge that where required annual and final reports have been submitted.

Name: Simone Taffe

Signed:

Date:


**Conference Presentations**
