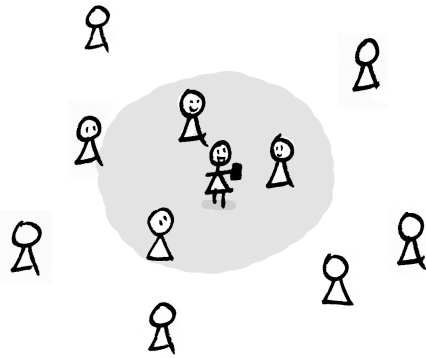


The Changing Nature of Participation in Design:



A practice-based study of social
technologies in early design research

Penny Hagen

A thesis submitted for the degree of Doctor of Philosophy in Computing Sciences

April 2011

Interaction Design and Human Practice Laboratory

School of Software

Faculty of Engineering and Information Technology

University of Technology, Sydney

Certificate of Authorship/Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Candidate

Acknowledgements

This thesis was produced on the land of the Cadigal people of the Eora Nation. The Cadigal people are the traditional custodians of this land and I would like to acknowledge the living culture and pay my respect to elders past and present.

Of all the rewards that come from the adventure of doing a PhD thesis the greatest is to be able to write this letter of thanks to the so many people around the world who have enabled this journey to take place and, most importantly, for it to come to completion.

Firstly to my partner Geof who could not have been more supportive and patient, even as we passed many faux deadlines. My love and thanks also to our little x who brought a special perspective to the last sprint. Huge love and thanks to my parents, sister, brother-in-law and ‘newpew’ whose little faces on Skype bought me so much love and support.

My eternal gratitude to my supervisor Toni Robertson. After much searching on my behalf she provided me with a philosophical and political home as well as endless support, enthusiasm and insight into not just my research but also life more generally. There have been many times when I have been in awe of her understanding of being in the world and her influence on my thinking about design has been spread wide and far through our practice-based research partnership. Deep thanks also to my two co-supervisors Tim Mansfield and Lian Loke for their insights, support and perception-widening perspectives. I was very lucky also to have the services of Chris Gaul my co-sketcher and illustrator and Thomasin Litchfield who kindly proofread this thesis. I am particularly grateful for the financial support provided by the University of Technology, Sydney to complete this thesis and the additional support and resources of the IDHuP lab and HCTD.

It is through the generosity, trust and openness to new ideas by Dave Gravina and the team at Digital Eskimo that this thesis was able to take its form. Thank you. I am also deeply indebted to the participants and clients who made this research possible and who allowed me this space to learn, grow and share. Much thanks and respect also to Natalie Rowland and Grant Young for their invaluable input, support and willingness to explore and experiment, as well as researchers Minna Isomursu, Pirjo Näkki and Andrea Botero

Cabrera whose generosity with their own research greatly facilitated the development of my own.

A highlight of doing something like a PhD thesis is the people you meet, connect and share with along the way, like the gorgeous IDHuP crew, especially Kirsten Sadler, Julia Prior, Mel Kan, Lizzie Muller, Dean Hargreaves and Susan Hansen and last but not least, Astrid Twenebowa Larssen who kept me sane on more than one occasion, sports drink or beer in hand. Also, the fabulous early Interaction Design book club members Carly Harper, Keir Smith, Greg Turner, Alastair Weakley and Daniel Heckenberg who spurred me on early in the journey. Thanks also to dear friends Lucy Bowey and Paul Murphy for gifts and support at critical moments and Michelle Gilmore for chats, laughs and beers (and for not following through on our agreement), and to all the other generous researchers and practitioners from the design community who have so willingly shared friendship, conversations, tips and words of encouragement.

This journey started a long time ago and has been possible only because of the work of other inspirational researchers, practitioners and people leading the way. There are two people in particular whose energy and perception motivated me well over ten years ago to pursue a particular kind of design position and who deserve my thanks: Fiona Jack who opened my eyes to design beyond consumption at a point at which I was about to walk away from the apparent monstrosity of the profession and Richard Fahey without whose unique cigarette-smoking whisky-flavoured styles I would not have made it through my first degree, let alone my second.

There are so many friends, family members, colleagues, participants, clients, researchers, tweeps, acquaintances and strangers whose words, thoughts, support and understanding have been critical to getting me to this point. To all of you, thank you so much. It really is finished this time.

Table of Contents

1	Exploring Social Technologies and Participation in Early Design.....	1
1.1	Research Background	4
1.1.1	The Changing Focus of Design.....	4
1.1.2	The Use of Social Technologies as Tools for Design.....	5
1.1.3	Social Technologies as an Emerging Subject for Design	6
1.1.4	Methods for Early and Generative Design Research	7
1.2	Research Context.....	7
1.2.1	Practice-based Context.....	8
1.2.2	Methods in Interaction Design.....	8
1.2.3	A Position on Design	9
1.2.4	Definitions of the Terms	10
1.3	Approach	11
1.3.1	Researching Design.....	11
1.3.2	Research Design	13
1.4	Findings.....	14
1.4.1	Contributions	16
1.4.2	A Note on Technology.....	18
1.4.3	A Note on Presentation.....	18
1.4.4	Chapter Outline	19
2	Perspectives on Design, Research and Participation.....	21
2.1	Doing Design.....	22
2.1.1	Design is Flexible	22
2.1.2	Design is Social.....	23
2.1.3	Design is Political	23
2.1.4	Design is Situated.....	24
2.2	Design and Research.....	24
2.2.1	Phenomenology.....	25
2.2.2	Two Domains of Design.....	27
2.2.3	Developing Designerly Methods	29
2.3	Practice-led Design Research	31
2.3.1	Reflective Practitioner.....	32
2.3.2	A Model for Reflective Practice-led Design Research	33
2.3.3	Rigour in Design Research.....	34
2.4	Participation in Design	35
2.4.1	Participatory Design Methods	36
2.4.2	Participatory Design as an Analytical Frame.....	38
2.5	Summary	38

3	Early Design Research, Self-reporting Methods and Social Technologies:	
	A Review	40
3.1	Early Design Research.....	41
3.2	Self-reporting.....	43
3.2.1	Self-reporting as a Method for Research	44
3.2.2	Diaries.....	46
3.2.3	Probes	48
3.2.4	Co-opting Social Technologies for Self-reporting	51
3.2.5	Considering Participation and Opportunities for Research.....	59
3.3	Challenges for Designing Social Technologies	60
3.3.1	Complex and Variable Contexts of Use	61
3.3.2	The Emergent Nature of Social Technologies	62
3.3.3	New Responsibilities and Concerns for Designers	63
3.4	Seeding: Early Design of Social Technologies	65
3.5	Opportunities for Designing Social Technologies.....	67
3.5.1	Prototyping as 'PD in the Wild'	68
3.5.2	Opportunities for Designing <i>With</i> and <i>For</i> Social Technologies.....	71
3.6	Summary	72
4	The Research Journey.....	73
4.1	Evolution of the Research	74
4.2	Accounting for practice in research design.....	75
4.2.1	Research Design: role of the studies and the relationship between them.....	77
4.2.2	Recruitment	78
4.3	Exploratory Interviews	80
4.3.1	Structure	81
4.3.2	Discussion	82
4.3.3	Impact on Research Design.....	82
4.4	Field Studies.....	83
4.4.1	Data Collection: Prototyping.....	83
4.4.2	Study 1: Mobile Diary Prototypes - Internal Study.....	84
4.4.3	Study 2: Mobile Diary Prototype - Client Study	90
4.4.4	Subsequent Work	94
4.5	Analysis	94
4.5.1	Phase 1 Analysis	95
4.5.2	Phase 2 Analysis	96
4.5.3	Phase 3 Analysis	98
4.6	Reflections and the Rigour of the Research.....	98
4.7	A Note on Action Research.....	104
4.8	Summary	105

5	Designing a Mobile Diary	106
5.1	Designing Mobile Diaries	108
5.1.1	Digital Tools	109
5.1.2	Study Set-up	110
5.2	Analysis	113
5.2.1	Comparing the recording tools.....	113
5.2.2	<i>Doing</i> Mobile Diaries	119
5.2.3	<i>Using</i> Mobile Diaries	123
5.2.4	Iterating the Mobile Diary Tools.....	129
5.3	Summary	130
6	Refining a Mobile Diary	132
6.1	Designing the Mobile Diary	133
6.1.1	Project Context	134
6.1.2	Study Set-Up	135
6.1.3	Digital Tools	136
6.2	Analysis	137
6.2.1	<i>Using</i> the Mobile Diary material	138
6.2.2	The Participant Experience	145
6.2.3	Connecting with Participants through Mobile Diaries	148
6.2.4	Evaluation and Iteration of Tools	150
6.3	Summary	151
7	Mobile Diaries: A Self-reporting Method	153
7.1	The Mobile Diary Platform	154
7.2	Implementing and Evaluating Mobile Diaries in practice.....	157
7.2.1	Project Descriptions	158
7.2.2	Study Set-up and Structure	158
7.2.3	Reflections on Mobile Diaries in Practice	161
7.3	Practical Considerations for Using Mobile Diaries.....	164
7.3.1	Suitability and Limitations	164
7.3.2	Reliability and Technical Constraints	167
7.3.3	A Note on Technology	168
7.4	Summary	169
8	Designing <i>With</i> Social Technologies	170
8.1	Social Technologies as <i>Design Tools</i>	172
8.1.1	Layered representations.....	175
8.1.2	Life on the move	176
8.1.3	In the moment.....	177
8.1.4	Shared windows	179
8.1.5	Continual Interaction.....	180

8.1.6	Co-experience	181
8.1.7	Experimentation.....	182
8.1.8	Moving us ‘even’ closer to users	184
8.2	Ethical and methodological considerations and implications.....	185
8.2.1	Boundaries and norms around ‘public’ participation	186
8.2.2	Aspects of Anonymity.....	187
8.2.3	The responsibility of researchers	189
8.3	Summary	190
9	Designing <i>With</i> and <i>For</i> Social Technologies	192
9.1	Designing social technologies	194
9.2	Seeding social technologies	195
9.2.1	Socialising the Research.....	196
9.2.2	Bridging Existing and Future Practices.....	197
9.2.3	Developing Early Content.....	199
9.2.4	Designing <i>With</i> and <i>For</i> Social Technologies: Opportunities for Seeding Design Through Use	201
9.3	Barriers to Participation.....	203
9.3.1	Managing Participation.....	204
9.3.2	The Value of Participation.....	206
9.3.3	Project Vulnerability and Stability	207
9.3.4	Fear of Participation.....	208
9.4	Summary	209
10	Conclusions, Contributions and Future Work.....	210
10.1	Addressing the Research Questions	211
10.1.1	Sub Question 1	212
10.1.2	Sub Question 2.....	214
10.2	Contributions	215
10.2.1	Impact on the CD Agency	217
10.3	Opportunities for Future Work	218
10.3.1	Concepts and Conditions for Participation.....	218
10.3.2	Participant-led Design of Community Platforms.....	219
10.3.3	Managing Private and Public Participation in Design and Research.....	219
10.3.4	A Role for Participatory Design in Social Technologies	220
10.3.5	Supporting more Practice-led Research	221
10.4	In Closing	221

List of Figures

Figure 1. An overview of the different empirical studies and activities.....	13
Figure 2. A reproduction of Scrivener’s model of reflection in and on design episodes and projects.....	34
Figure 3. Overview of the role of the Exploratory Interviews.....	81
Figure 4. Overview of the first Field Study: Mobile Diary Prototype (1)	86
Figure 5. Discussions and stories being shared during the workshop.....	87
Figure 6. Overview of second Field Study: Mobile Diary Prototype (2)	91
Figure 7. Examples of documentation supporting the analysis of key themes and writing up of studies	100
Figure 8. Key concepts and connections represented through cards and sketches	101
Figure 9. Sketching out key concepts and connections as part of reflection and data analysis.....	101
Figure 10. Mapping research design to Scrivener’s model of practice-led research.....	103
Figure 11. Sketch of the different tools and their technical characteristics	109
Figure 12. Mobile Diary prototype packs.....	111
Figure 13. Instructions on data collection provided to participants.....	112
Figure 14. Reports from different locations from the different participants, using the different reporting tools.	114
Figure 15. KCam video camera	114
Figure 16. Still from KCam 'ride to work' video	115
Figure 17. Spontaneous reports responding to activities and events	125
Figure 18. Documenting home and lifestyle choices.....	126
Figure 19. Self-portraits as 'self-reports'	127
Figure 20. Images without additional contextual information.....	128
Figure 21. Mobile Diary Pack Instructions	135
Figure 22. Reports in response to events during the day.....	139
Figure 23. How decisions get made	140
Figure 24. Sharing personal or reflective moments through the Mobile Diary.....	141
Figure 25. Metaphors for emotions and feelings	142
Figure 26. Mobile Diary reports that included people important to the participant’s description of her world	143
Figure 27. Letters and notes from community members	144
Figure 28. Mapping the participant across the day.....	145
Figure 29. Example of a test diary entry on the Mobile Diary blog.....	157
Figure 30. Description of typical Mobile Diary toolkit.....	160

List of Illustrations

Illustration 1. Key aspects of self-reporting.....	45
Illustration 2. Introducing networked technologies to self-reporting.....	52
Illustration 3. The shape of social technologies emerges over time and through use.....	62
Illustration 4. The role of seeding.....	66
Illustration 5. Focus of the first Mobile Diary prototype study: the experience of the participant.....	89
Illustration 6. Focus of the second Mobile Diary prototype study: the experience of the participant and the design researcher.....	93
Illustration 7. Socialising the research.....	196
Illustration 8. Bridging existing and future practices.....	197
Illustration 9. Developing early content.....	199

List of Tables

Table 1. Summary of the 'reflective sessions' in the first Field Study.....	88
Table 2. Overview of 'reflective sessions' in the second Field Study.....	92
Table 3. Summary of 7 experiential characteristics of self-reporting brought to, or enhanced by, social technologies.....	174

Abstract

Social technologies put a new emphasis on participation. This thesis investigates the impact of social technologies on how we enable, conceive and manage participation in early design. The research questions in this thesis address how, and in what ways, using social technologies as *design tools* can support participation in the early stages of design, and how using such tools creates new opportunities for participation in early design when social technologies themselves are the *subject of design*. It develops and presents concepts and strategies that account for the sharable, social and participatory nature of social technologies and encourages designers to reconsider how notions of participation are currently embedded and framed within existing design methods and models.

The questions are explored through a practice-based investigation into the use of social technologies as self-reporting tools. Over the course of two field studies a self-reporting method, Mobile Diaries, was iteratively designed, evaluated and implemented in a specific commercial design context. The analysis demonstrated that using social technologies as *design tools* enhances the capacity for self-reporting to enable participants to contribute to design from the context of their own lives. This greater integration between the activities of research and everyday life blurs some traditional design research boundaries, with ethical and methodological implications for which we are only beginning to account. In addition, when social technologies are the *subject* of design, using social technologies as design tools creates an experiential connection between the activities of researching, designing and using. This creates new opportunities for participation *through use* early in the design process that blur traditional boundaries between the activities of research, design and use. Barriers to embracing these opportunities in commercial contexts include the assumption that the activities of design and use progress consecutively and the value of early participation in design is largely embodied in the tangible outputs of design research.

This research extends existing knowledge about the nature of participation in design, and how participation can be supported, through three main contributions:

1. The development of Mobile Diaries, a specific self-reporting method beneficial to early design research and suited to commercial use

2. Conceptual tools that reflect the impact of social technologies on self-reporting and draw attention to the new ethical and methodological implications they introduce
3. Strategies to articulate and support experiences and outcomes important to the early design of social technologies in community settings, through the use of social technologies themselves.

This thesis also makes a fourth contribution that is methodological:

4. It is an example of how practice-based design research can be conducted in a commercial context in ways valuable to both practice and research domains.