

Mobile Interactions in Context

A Designerly Way Toward Digital Ecology

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Figure 5.1: from Alexander, C. *The Nature of Order*. Vol. 2: The Process of Creating Life. Copyright © 2002, Center for Environmental Structure Publishing. Used with permission.

Mobile Interactions in Context

A Designerly Way Toward Digital Ecology

Jesper Kjeldskov

Aalborg University

SYNTHESIS LECTURES ON HUMAN-CENTERED INFORMATICS #21

ABSTRACT

Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world

– Albert Einstein

This book presents a contextual approach to designing contemporary interactive mobile computer systems as integral parts of ubiquitous computing environments. Interactive mobile systems, services, and devices have become functional design objects that we care deeply about. Although their look, feel, and features impact our everyday lives as we orchestrate them in concert with a plethora of other computing technologies, these artifacts are not well understood or created through traditional methods of user-centered design and usability engineering. Contrary to more traditional IT artifacts, they constitute holistic user experiences of value and pleasure that require careful attention to the variety, complexity, and dynamics of their usage. Hence, the design of mobile interactions proposed in this book transcends existing approaches by using the ensemble of form and context as its central unit of analysis. As such, it promotes a designerly way of achieving convergence between form and context through a contextually grounded, wholeness sensitive, and continually unfolding process of design.

KEYWORDS

mobile, interaction design, form, context, designerly thinking, wholeness extending, digital ecosystems

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In memory of Steve Howard, friend and mentor

Preface

At the end of 2010, for the first time, more smartphones were being sold worldwide than personal computers, hailing the coming of the “post-PC” era. This enormous uptake of mobile computers has had a huge impact on the way we perceive and use these technologies in our work and private lives. Interactive mobile systems and devices have become functional design objects that we care deeply about the look, feel, and experience of, and that we orchestrate in concert with a plethora of other computing technologies in our everyday lives. If such systems and devices are to be successful, they need to be designed to fit into the greater whole, or digital ecosystem, of other devices, systems, and services that are part of the contextual richness of the world around us. This is not achieved well through traditional methods of user-centered design and usability engineering. Instead, I argue that it calls for designerly approaches to interaction design that help us create desired practice, design for wholes rather than focusing on the parts, and deal with the often ill-defined and changing goals emerging from the process.

As a particularly important source of inspiration for developing such approaches to interaction design, I have always been fascinated by thoughts and practices in the discipline of architecture, especially the practice of embracing a contextual approach. The relationship between interaction design and architecture has been addressed previously by others, but, in my opinion, there is still much to be learned from architectural design on how to think about and do interaction design. Looking at the design of mobile interactions as a continual convergence of form and context is an attempt to provide this designerly approach to thinking and doing interaction design, inspired by thoughts and practices in architecture. Through this approach, I seek to explore the view that most activities are unbounded and situated in dynamic contexts, and that the relationship between context and form is therefore a continually changing one—requiring that design is inherently cyclic, able to deal with emergent and changing goals, and about construction of context as well as form.

This book represents the essence of my recent dissertation for the degree of Doctor of Science (higher doctorate) awarded from Aalborg University in 2013. The dissertation consisted of a longer version of the present manuscript accompanied by 23 selected publications from my research on mobile interaction design between 2001 and 2012. By condensing this work into a shorter format, I am hoping to reach a broader audience of interaction design researchers and practitioners.

My research interest in mobile interaction design began around 2000 when I first started working with application design for the PalmPilot and the potentials of Internet access on mobile devices. Looking for inspiration, I attended the Mobile HCI 2001 workshop in Lille, France. Back then this was a small 1-day meeting, but it was so inspirational that I immediately began writing

on a submission for the next year's event. The resulting paper on “just-in-place Information” became my first publication on mobile interaction design, and its notion of “indexical interaction design” set the foundation for my future collaboration with Steve Howard and Frank Vetere's group at The University of Melbourne, where I was fortunate enough to spend a lot of time over the years that followed. It was during this time that I met Connor Graham, and we compiled our Mobile HCI research methods survey article for the Mobile HCI 2003 conference, and my Danish colleague Mikael B. Skov, and I asked if it was “worth the hassle” to investigate mobile usability in the field. It was also in Australia that I met and worked with Kenton O'Hara on “blended interaction spaces,” leading to new levels of depth and inspiration. And, of course, it was in Melbourne that I met my Australian wife, the lovely Jeni Paay.

Over the years, I have worked particularly closely with Steve, Frank, Mikael, Jeni, and Kenton. Together with Steve and Frank I investigated the use of mobile technologies for mediating close personal relationships (over several bottles of red wine). Mikael and I went from working with evaluation techniques to focusing more on interaction design and studying the broader use of mobile and pervasive technologies in various domestic settings (over several bottles of beer). Together with Jeni, I developed the concept of indexical interaction design further, and began exploring the use of sketching and other general design techniques in mobile interaction design, drawing on her background in architecture, (over several bottles of champagne). Kenton and I took on big challenges and won. These collaborations have all been essential for the thinking presented in this book. It was, however, when Steve spent 6 months in Aalborg in 2005–2006, that the ideas for my Doctor of Science dissertation were formed. Steve and I discussed the need for interaction design research to cast a wider perspective on the orchestration of multiple devices, rather than looking at interactions with individual artifacts, and we discussed alternative approaches to traditional user-centred design for doing this.

Most of my research was developed and carried out at the Department of Computer Science at Aalborg University and the Department of Information Systems at The University of Melbourne, and was funded by the Danish Technical Research Council, The Obel Family Foundation, and Aalborg University's Faculty of Engineering and Science and Department of Computer Science. I wish to thank these institutions for their support and, in particular, thank my primary collaborators and co-authors over the last decade: Jeni Paay, Mikael B. Skov, Steve Howard, Frank Vetere, Connor Graham, Kenton O'Hara, Jon Pearce, and Jan Stage. Very special thanks to Yvonne Rogers, Susanne Bødker, Peter Axel Nielsen, Lars Mathiassen, Steve Howard, Erik Frøkjær, Jeni Paay, Mikael B. Skov, Ivan Aaen, Matt Jones, and Jack Carroll for feedback on earlier drafts of the book and the preceding dissertation, and fruitful discussions of my work. Special thanks to Ellen Christiansen for introducing me to the works of Christopher Alexander, to Marianne Stokholm for engaging discussions on design methods from a designerly perspective, and to Diane Cerra and everyone at Morgan & Claypool Publishers. I also thank my colleagues at Aalborg University's Department of

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Finally, I thank my wife Jeni for giving me the space needed for thinking and writing.

Jesper Kjeldskov

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