Designing *with* people in sustainability and behaviour change research

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Workshop abstract

This full-day workshop is for designers and researchers working at intersections of sustainability and ‘behaviour change’—two major current themes across product, service and architectural design and human-computer interaction. While technology is important, *people* (‘users’) are key to the environmental and social challenges of design in everyday life. Understanding people—and the contexts and social practices of living and working—is crucial. Without these insights, work on sustainability risks being based on assumptions about human behaviour and decision-making which may not capitalise on the opportunities design offers.

The workshop aims to explore methods for *involving* and *including* people better in design research for sustainability and behaviour change—designing *with* people. These include ethnographic methods, participatory design and co-creation, prototyping, probes and provocations, and integrating qualitative and quantitative data. Aspects distinguishing sustainability and energy research from general user research will be discussed—how can specialist knowledge best be used?

Through group exercises, presentations and re-enactments, workshop participants will share methods, ideas, stories 'from the field' and needs and possibilities arising from ongoing and future projects. Over the day, we’ll collect these insights in a structured ‘canvas’ format, matching needs, methods and case studies with potentially applicable behavioural design techniques. This will be published online as a guide for researchers, but also to inform others working on sustainability and behaviour change—including in a policy context—of the potential value of design research in this area.

The workshop is facilitated by researchers from Sweden, Germany and the UK, working on people-centred design, behaviour and sustainability.

Background

Sustainability and behaviour change are major topics in design research and practice, covering interaction, product, service and architectural design, while intersecting with environmental science, HCI, behavioural economics, and even government policy.

Common approaches involve technological development driving changes in user behaviour, for example feedback systems and displays intended to influence householders or employees to reduce their energy or other resource use (e.g. Froehlich et al, 2010; Selvefors et al, 2013; Kluckner et al, 2013; Wilson et al, 2013; van Dam, 2013). Designers’ involvement can also come more strategically, on a wider systemic or infrastructure scale (Brass & Bowden, 2008), particularly in the built environment (Hagbert et al, 2013) and in service design, shifting the focus from the design of the product to design of the service unit in need (Liedtke et al, 2013a), including shifts towards collaborative consumption (Leismann et al, 2013).
A wide range of design techniques and strategies may be applicable, drawing on multiple psychological and social science disciplines (Daee & Boks, 2013; Lidman & Renström, 2011; Lilley, 2009; Lockton et al, 2013a; Niedderer, 2013; Laschke et al, 2011), but choosing which techniques are most relevant necessarily requires some insight into the people who are the ‘subjects’ of the design process—the people whose behaviour designers are seeking to influence.

From understanding people to designing with people

As design becomes “an intervention into multiple and interpenetrating technical, material and social systems” (Mazé & Redström, 2008), it is clearer that people (whether or not we refer to them as ‘users’) are key to design which addresses the environmental and social challenges of technology in everyday life. We need to understand people, cultural contexts, the social practices (Wilhite, 2013) of living and working, individual welfare (Liedtke et al, 2013b), people’s diversity, and the ‘ecology’ of how products, services and environments are used (Forlizzi, 2007), before we can hope to develop frameworks for ‘behaviour change’ around sustainability.

In a 2010 paper on ‘mapping the landscape of sustainable HCI’, DiSalvo et al note a distinction between seeing “users as the problem” and “solving users’ problems” in approaches to design for sustainable behaviour. Each approach—characterised as part of a spectrum—can be exemplified by particular projects and interventions which frame the bounds of the ‘problem’ in different ways (Dorst and Cross, 2001), with correspondingly different kinds of designed responses.

While DiSalvo et al (2010) write with particular reference to human-computer interaction, the distinction they draw can be seen to apply to the wider scope of design for sustainable behaviour, encompassing products, services and system design, physical as well as digital. Indeed, these different ways of approaching ‘people’ as part of framing work on behaviour change can arguably also be found in work for other areas of intended social benefit, in social design (Tromp, 2013), behavioural economics (Thaler & Sunstein, 2008) and even in governmental initiatives (Cabinet Office, 2011).

The challenge becomes one of framing problems in ways that match the real contexts of people’s lives—and research is needed to frame problems appropriately. For example, while much work on reducing domestic energy use focuses on redesigning heating system interfaces, insights from research with householders can offer opportunities for novel products and services meeting thermal comfort needs in different, less resource-intensive ways (Renström & Rahe, 2013).

Participatory and co-design methods, designing with people rather than simply for people (Myerson & Lee, 2011), offer ways to “solve users’ problems” with direct input from people themselves—helping people to design their own behaviour change.

But how can these methods best be applied in context of sustainability, where people are part of large, complex systems around energy generation, resource supply and disposal, and land use? How best can we include and involve people in design processes for these domains, while making the best use of specialist knowledge and expertise in environmental science and technological development? How can we integrate quantitative ‘Big Data’ data from energy monitors (for example) or other sensing technologies, with qualitative insights from ethnography or other user research (Wang, 2013), in ways that inform the design process?

The workshop structure

In this workshop we aim to bring together designers and researchers working at the intersection of sustainability and ‘behaviour change’, to explore methods for involving and including people better in our research. This workshop coincides with the launch of the DRS’s Sustainability SIG at the 2014 conference, and we hope that there will be participants with a range of interests, experience and specialisms.
The kinds of methods covered will include ethnographic methods, participatory design and co-creation, prototyping, probes and provocations, and integrating qualitative and quantitative data, viewed through the lens of sustainability—how can these methods be applied when studying energy or water use, waste generation, transportation choices, and so on?

We’ll run the day with a series of group exercises, presentations from all participants (see below) and re-enactments of particular methods—sharing methods (and the specifics of carrying them out, including the use of artefacts, prototypes, provocations, and different kinds of workshops). Some new versions of established methods will also be explored. The idea is that participants will share ideas, ‘war stories’ from the field, lessons learned about what works and what doesn’t (and why), and the needs and possibilities arising from ongoing and future projects. We will seek to link particular design techniques and strategies to research methods, building on Daae & Boks (2013).

We will also look at the different settings in which this kind of research takes place, from in-home studies (e.g. Renström & Rahe, 2013; Lockton et al 2013b) to Living Labs and similar facilities (Liedtke et al, 2012; Scott et al, 2012; Romero et al, 2013; de Jong et al, 2008) to workplaces (e.g. Lockton et al 2014) to public space (e.g. Wever et al, 2010). How do different settings affect which research methods are the most appropriate?

**Outputs**

The insights generated over the course of the day will be collected in a structured ‘canvas’ format (inspired by Osterwalder & Pigneur, 2009), matching needs, methods and case studies with potentially applicable behavioural design techniques. We will publish this online, after the workshop, as a guide for researchers, and an evolving, open repository for knowledge and experience in this area, making use of the organisers’ association with the pan-European SusLabNWE project (http://suslab.eu) to increase dissemination.

We will also aim to use this to inform others working on sustainability and behaviour change—including in a policy context—of the value of design research in this area. All workshop participants will be co-authors on this guide, with their contributions recognised.

**Participants’ contributions, and practical requirements**

We would like you, as participants, to present examples from your own research and practice—stories, ideas, needs and the kinds of details which will help others to understand and learn from your experiences. We’ll ask you to prepare some notes beforehand in a particular (structured, but not onerous) format, which will help with some of the activities on the day. We’ll post more details nearer the time on a dedicated web page about the workshop, to be hosted at http://suslab.rca.ac.uk/designing-with-people [not yet live]. You are of course welcome to produce a paper for the workshop, to accompany your presentation, but this is not required. These can be published alongside the methods guide, after the workshop.

In terms of practical requirements, no special facilities are needed beyond a projector, tables and workshop materials such as paper, flipcharts and pens, and some basic modelling materials, which the organisers will bring.

**References**


Daae, JZ & Boks, C (2013). A classification of when to apply different user research methods to support design for sustainable behaviour. *ERSCP-EMSU 2013*, Istanbul, 4th-7th June 2013


Lockton, D, Harrison, D, Stanton, NA (2013a) Exploring design patterns for sustainable behaviour. The Design Journal 16(4), 431-459


Myerson, J & Lee, Y (2011). Designing for the people, with the people and by the people. Design Activism and Social Change Conference, Barcelona


Seljevors, A, Karlsson, M, Rahe, U (2013). What’s in it for the user? Effects and perceived user benefits of online interactive energy feedback ERSCP-EMSU 2013, Istanbul, 4th-7th June 2013


Dan Lockton
Dan Lockton, PhD, is a Senior Associate at the Helen Hamlyn Centre for Design, Royal College of Art, London. He specialises in links between design and behaviour, and the public understanding of everyday systems, particularly around the social and environmental impacts of technology. Dan is working on SusLabNWE, a European project on domestic energy use, and Creative Citizens, a UK project on co-designing technology with community groups. Dan was previously a research fellow at WMG, University of Warwick, and a research assistant at Brunel University, on CarbonCulture, a project on reducing workplace CO2 emissions through a digital engagement platform. Dan’s PhD at Brunel University, Design with Intent, involved developing a toolkit for the emerging field of ‘design for behaviour change’. He is a committee member for the new Design Research Society Sustainability SIG.

Flora Bowden
Flora Bowden, MArch, is a Research Associate for SustainRCA, a new cross-departmental centre for sustainability at the Royal College of Art, London, working on the pan-European SusLabNWE project on domestic energy use. She completed her Master of Architecture in Urban Design at the Bartlett School of Architecture in 2009. Flora is interested in issues of time and space, place and change, and how we perceive and engage with change over time. She is interested in analysing uses of space, in mapping and visualising movements and patterns, and seeks to combine this with a deep understanding of social and cultural contexts, to explore how environments shape and are shaped by inhabitants and events.

Sara Renström
Sara Renström, MSc in Industrial Design Engineering, is a doctoral student at Chalmers University of Technology, Sweden. In her work, Renström takes a keen interest in the interplay between people and the artefacts we use in everyday life and especially how the characteristics of the interplay influence the environmental impact of use. To encourage more sustainable lifestyles, Renström explores how people can be enabled to fulfil their needs in less resource intensive ways without influencing their experienced quality of life negatively. In a current research project carried out in collaboration with the leading energy company in Western Sweden, Renström has studied how people interact with district heating system and other heating artefacts to explore how these systems and artefacts can be re-designed. The aim is to enable a variety of energy efficient ways for people to achieve positive thermal experiences in everyday life. Diaries, probes, generative techniques, prototypes, and trigger-products are examples of methods used in the project to learn from people’s practices and to involve people in the re-design process.

Anneli Selvefors
Anneli Selvefors, MSc in Industrial Design Engineering, is a doctoral student at Chalmers University of Technology studying sustainable behaviour and energy conservation behaviours in particular. Currently, Selvefors focuses on energy use in households and study people’s behaviour in relation to their everyday goals to find opportunities for solutions that could encourage decreased energy use. The undertaken research projects aim to inspire solutions enabling and encouraging people to engage in energy conservation behaviour that makes sense to them. The research is carried out in the borderline between technical development and behavioural science in close cooperation with industry. One of the undertaken projects resulted in the web-based portal Eliq Online, which combines energy feedback and social communication to increase people’s understanding of their energy use. The portal also enables people to find relevant ways of reducing their consumption without renouncing their everyday goals and quality of life.

Pernilla Hagbert
Pernilla Hagbert holds a M.Arch in Design for Sustainable Development. Pernilla is currently a Doctoral Student within Homes for Tomorrow, a trans-disciplinary Formas funded strong research environment at Chalmers University of Technology, supporting the development of our future homes in a global era with new technologies, materials and spatial structures which radically reduce resource and energy intensity. With previous experience in sustainable planning and design, including design/build processes for constructing affordable housing, Pernilla’s work more specifically examines the concept of home in light of and with regards to a global resource perspective, with the purpose to provide knowledge relevant to
the creation of [more] holistic sustainable living environments. The research undertaken revolves around perceptions and potential misconceptions of sustainability in contemporary housing development, examining discourses within policy, the housing market, academia and among residents. By exploring various perspectives within the housing sector through qualitative studies, the work aims to contribute to the reconceptualization of what home and a sustainable housing is in the future, beyond technological innovations and the current housing market.

**Carolin Baedeker**

Dipl.-Geogr. Carolin Baedeker. Studies of Geography at the University of Cologne. From 1998-2000 freelancer and since 2000 research fellow at the Wuppertal Institute for Climate, Environment and Energy. Since 2006 Co-Director of the research group „Sustainable Production and Consumption“ at the Wuppertal Institute for Climate, Environment and Energy. From 2000-2006 managing director of the Club of Wuppertal e.V. - Forum for sustainable middle-sized companies, since 2007 member of the board. Dissertation project: Regional Sustainability Networks – A Multi-scale Analysis of Learning Partnerships between Schools and Businesses (finished in October 2011). Professional expertise: sustainable livinglab research, user-centred management approaches, lifestyle research, social milieu-approaches; communication, education and qualification for sustainability; co-operation, networks and dialogue of SCP; instruments for the sustainable development in companies; concepts, instruments and policy approaches of sustainable consumption.

**Najine Ameli**