

Newcastle University e-prints

Date deposited: 8th October 2012

Version of file: Author final

Peer Review Status: Peer reviewed

Citation for item:

Lindsay S, Taylor N, Olivier P. [Opportunistic Engagement by Designing on the Street](#). In: *ACM annual conference extended abstracts on Human Factors in Computing Systems (CHI EA)*. 2012, Austin, Texas: ACM Press.

Further information on publisher website:

<http://dl.acm.org>

Publisher's copyright statement:

© ACM, 2012. This is the author's version of the work. It is posted here by permission of ACM for your personal use. Not for redistribution. The definitive version was published at:

<http://doi.acm.org/10.1145/2212776.2223697>

The definitive version of this article is available at:

<http://dx.doi.org/10.1145/2212776.2223697>

Always use the definitive version when citing.

Use Policy:

The full-text may be used and/or reproduced and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not for profit purposes provided that:

- A full bibliographic reference is made to the original source
- A link is made to the metadata record in Newcastle E-prints
- The full text is not changed in any way.

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Robinson Library, University of Newcastle upon Tyne, Newcastle upon Tyne. NE1 7RU. Tel. 0191 222 6000

Opportunistic Engagement by Designing on the Street

Stephen Lindsay

Culture Lab
School of Computing Science
Newcastle University, UK
stephen.lindsay@ncl.ac.uk

Nick Taylor

Culture Lab
School of Computing Science
Newcastle University, UK
nick.taylor@ncl.ac.uk

Patrick Olivier

Culture Lab
School of Computing Science
Newcastle University, UK
patrick.olivier@ncl.ac.uk

Abstract

Lightweight, opportunistic participatory design exercises in public spaces have the potential to collect large volumes of candid feedback and insights from members of the public. We motivate the need for 'designing on the street' in terms of the time and resource requirements of traditional participatory design methods, and begin the process of unpicking the conditions for success and practical requirements. We demonstrate through a pilot study that opportunistic participatory design can be a useful tool for addressing design challenges in everyday settings, where most people have some familiarity with the design area.

Keywords

Participatory design; public engagement.

ACM Classification Keywords

H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous;

Introduction

Although traditional participatory design sessions have proven to be extremely valuable when designing new technologies, some of our experiences designing for domestic environments have been frustrating. We have found that organising design sessions can be time-

consuming, as participants need to be found and convenient sessions organised, requiring considerable effort relative to the volume of input that can be generated. In addition, potential participants can be discouraged by the time commitment required or would simply never consider taking part in a study.

Originally, participatory design was envisioned as a way to work with actual end users who hold expertise and experience in the activities at hand, but outside of the workplace anyone on the street could potentially have valuable insights into certain design involving everyday activities. Bødker [2] argued that when moving our focus from workplace tasks to more experiential, non-workplace interactions, we need to be willing to re-evaluate our methods. Following this thinking, we present our experiences and reflections on a study in which we used snap feedback elicited through short design discussions with members of the public. Our approach involved the display of design materials in a vacant retail space around which we invited passersby to take part in short discussions about the project aims and initial designs.

Such approaches have been used by a number of previous projects. For example, projects have used town hall-style meetings [1], demonstrated prototypes and gathered feedback at public events that attract large and varied audiences [4][6], or utilised crowdsourced feedback through social media [5]. However, while this is by no means a new approach, little consideration has previously been given to the specific affordances of the method itself. In this paper, we begin the process of examining the intrinsic qualities of this approach. We discuss the potential complementary strengths of designing on the street in

relation to traditional participatory design approaches, the roles that it might play in the design process, and practical issues that need to be addressed.

Pilot Study: The Safe Home Living Project

Our interest in opportunistic participatory design arose from issues encountered when attempting to recruit participants for the Safe Home Living (SHEL) project. Our role in SHEL was to evaluate and revise initial design proposals for a website that displayed real-time information about the activity of an elderly family member or friend, based on an existing set of in-home infrared sensors. The sensors were deployed in the homes of potentially vulnerable older adults living alone. The website displayed real-time information about their in-home activity to nominated family or friends, who, although concerned for their wellbeing, would not consider themselves to be the older people's caregivers.

Motivation

Despite having access to a large research participant pool including many older people and our success in recruiting participants to trial the system in their homes, we found it difficult to recruit younger adult participants willing to take part in traditional design sessions to discuss the monitoring website and visualisation designs. Conversation with participants that dropped out prior to these two-hour workshops revealed that many were unwilling to commit the time that travel and participation required. Indeed, a design goal of SHEL was to help time- and resource-stretched people who needed to balance checking on their older relatives with full time jobs and family commitments. Notably, as they were not full-time caregivers and their relatives did not have specific medical conditions, no



Figure 1. A participatory design environment was created inside a vacant retail space.

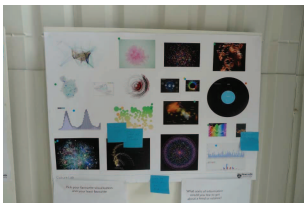
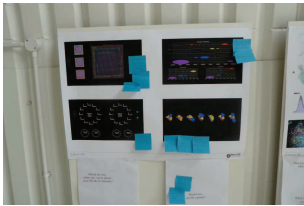


Figure 2. Participants were shown posters displaying existing visualisations (top) and a variety of possible visualisations (bottom).

common forum existed for these people, such as a group meeting or clinical centre, which are traditional sources of participants for assistive technology design projects. Our conclusion was that recruitment methods for traditional participatory design approaches, centred on accessing people through these common forums, were not ideal for working with this varied and widespread group.

Consequently, we sought to be more opportunistic in the way we approached potential participants and employ methods that required—and were perceived to require—a lower level of commitment on their part. For example, intercept interviews involve administering on-the-spot questionnaires in the street. While these are most typically used for polling and market research, we have attempted to harness this type of approach in a design process by taking advantage of a small, city centre retail space used by our institution as an off-campus exhibition space (Figure 1). By creating a participatory design environment in the retail space and inviting members of the public to enter and discuss the project, we hoped to elicit feedback from participants based on their first impressions with no need to commit to lengthy meetings.

Method

A process of opportunistic participatory design was trialled for two hours a day during lunch breaks for five consecutive weekdays. Potential participants were invited into the space as they walked past and offered refreshments in return for taking part in an interview lasting 10-15 minutes. Those who agreed to participate were asked if they had an older relative or friend living alone who they had any safety concerns about, to help ground the discussion in their real experiences. They

were given an overview of the SHEL system and shown a set of sensors, then asked to comment on the aesthetic and functional aspects of its design and provide their impressions of how useful the system might be to them or to their relatives.

Our main interest was not in the sensors themselves, but in designing visualisations of the relative's activity around their home. The facilitator explained that the system could produce visualisations and participants were shown a large poster with four existing visualisations from the system (Figure 2). Using a typical workshop practice, they were asked to use green coloured stickers to indicate aesthetically pleasing visuals and blue stickers to indicate informative visuals. The facilitator discussed their choices and encouraged them to write down their reasoning on sticky notes and place them on the images. This was intended to encourage *asynchronous dialogue* between participants by allowing later participants to respond to the comments made in earlier sessions, compensating for the lack of direct interaction between different participants.

The participants were then asked to look at another large poster featuring a wide selection of data visualisation styles drawn from the web. They were again asked to select the most visually attractive ones and those that they thought might represent a day's activity. These choices were again indicated with stickers and responses were posted on sticky notes. Finally, the participants were asked if they could think of any specific type of information they would like to have access to that would reassure them that their relative was safe.



Figure 3. Participants entered the space both individually and in groups.

Taking advantage of the lightweight nature of the process, we intended to dynamically reconfigure the design environment and protocol between individual interactions with participants. This would ensure that the process remained agile and responsive to the characteristics exhibited in the participants' feedback and insights from our interactions.

Observations and Findings

During the pilot study, we made a number of early observations that we believe indicate potential benefits and uses of the approach, as well as practical considerations that need further consideration.

Engaging Passersby

Over a single hour, we observed 70 people passing the location, with the number peaking between 12:30 and 13:30 each day as people took their lunch breaks. As the space occupied a route between offices and nearby eateries, we observed many of the same individuals each day. Given each interview lasted up to 15 minutes, we could theoretically have conducted 40 interviews over the five days, but we were able to recruit 15 participants, who came into the site either on their own or in groups of two or three (Figure 3).

This is a modest number for ten hours, but in our experience, recruiting, arranging venues, arranging materials, and planning traditional participatory design exercises takes a similar amount of time. We also believe that this number could be greatly improved upon. The location of the space was not ideal, as it was mostly passed by busy professionals on their lunch breaks who did not have time to stop and speak to us. They also represented a relatively narrow demographic, albeit very different to the one we typically engaged

with in design. We envisage this approach being utilised on busy shopping streets where a more diverse audience could be reached, perhaps during weekends when people might have more time to spare.

The physical characteristics of the space also impacted our success, such as typical walking routes and aspects of the space that might discourage people from entering. Ideally, we would wish participants to enter the space of their own volition, but we had to directly encourage potential participants to enter. Being approached on the street is often considered to be a nuisance, and we would hope to avoid this. Marketing literature notes that "atmospherics" such as A-frame billboards, flags and potted plants can help to entice people [3] and that the internal fixtures (carpeting, lighting, etc.) can also play an important role [7].

Characterising Design Insights

The feedback received from our participants was characterised by its spontaneity and candidness, which we believe to be a result of the very brief nature of the engagements. This meant that participants were quick to raise their most pertinent or pressing thoughts on the issues, often volunteering thoughts on a topic before we reached that part of the questioning. For example, participants who were concerned by the privacy implications of the system would raise these concerns before they were questioned directly about the issue.

This feedback was surprisingly pertinent, demonstrating that members of the public were more than capable of understanding and contributing to the design and research process when engaged spontaneously. The candid nature of the comments was also interesting, as

participants did not hesitate to criticise the designs presented. Many freely suggested that their relatives would never consider using such a system, for example. Eliciting this type of negative feedback during participatory design sessions can often be difficult, but is extremely important for identifying potential issues.

The large volume and variety of feedback allowed us to map out the design space and identify factors affecting the design. For example, while designing our visualisations of activity we had been mindful of the trade-off between aesthetic appeal and the level of information conveyed. Some participants commented that showing too much information created a potential for unpleasant experiences. By contrast, other participants noted that if the visualisations did not represent enough data or were too abstract they felt they were pointless. Another example of this was mapping the variety of circumstances in which people felt the system would be useful, such as after having an accident or another “close call”.

The feedback encouraged us to challenge our existing ideas and consider new avenues for exploration. Participants were extremely candid and did not hesitate to criticise ideas and designs while suggesting alternative functionality that they would prefer. For example, some participants commented on wanting to use the system to monitor if their relative was carrying a fall alarm. In retrospect, this is a reasonably obvious application that had not previously been considered.

Dynamic Reconfiguration

The low-fidelity nature of the process allowed us to make adjustments in response to our experiences with each individual or group. For example, the verbal

introduction to the system was refined to place an emphasis on “reassurance” rather than “safety”, as participants were sceptical of such a system’s ability to keep vulnerable people safe. Although any design approach might be piloted and modified in this way, we see this as an inherent, ongoing characteristic and potential benefit of the approach. This allowed us to quickly refine the language, materials and other aspects of the sessions without expending resources conducting long participatory design sessions, while at the same time collecting usable design input.

Quickly finding new ways to support participants’ ability to contribute proved particularly valuable. We soon found it advantageous for the facilitator to create the sticky notes, based on the remarks from the participants, and place them on the posters after they left rather than requiring participants to write these notes themselves. This placed the focus of the interaction on dialogue with the participant and lowered the amount of effort required on their part. By contrast, the participants were happy to use coloured stickers to indicate preferences and introduced the use of red stickers to indicate designs they particularly disliked, which was a more lightweight task that was easier to engage with.

Asynchronous Dialogue

Participants paid little attention to notes written by others during the first days of the trial. However, by the end of the week the volume of notes appeared to have reached a critical mass and started commanding much more attention from new participants. At this later stage, participants began to engage with comments by using coloured stickers to indicate agreement with specific notes rather than generate new

comments. Some participants also began to question earlier comments, mainly mentioning that they wanted to better understand the reasoning behind them. This highlights a need to find ways to further support asynchronous interaction. For example, making recordings to be played to later participants might help to convey the reasoning behind sticky note comments. We feel that this is an important challenge to address, which might allow us to combine benefits of this approach with the valuable discussions made possible by having many participants together.

Summary and Future Work

Based on our initial attempts to explore issues around opportunistic participatory design, we believe that designing on the street is a potentially viable means of gathering quick, varied feedback on design areas with which the general public is likely to have experience. While our primary intended benefit of gaining a greater volume of input proved not to be the case in this pilot study (although we believe this can be improved upon), we instead found that the candidness of the responses and the ability to rapidly reconfigure our interviews most useful. Consequently, we expect that this approach could be particularly effective during the early stages of the design process. Researchers and designers might use the approach to scope a design space and seed more extended participatory design engagements. Further research is required to refine the methods used to engage members of the public, as well

as exploring its roles in a wider participatory design processes.

References

- [1] Arnold, M., Gibbs, M. and Wright, P. Intranets and the creation of local community: 'Yes, an intranet is all very well, but do we still get free beer and a barbeque?'. In *Proc. C&T 2003*, Kluwer (2003), 185–204.
- [2] Bødker, S. When second wave HCI meets third wave challenges. *Proc. NordiCHI 2006*, ACM Press (2006), 1–8.
- [3] Cornelius, B., Natteir, M. and Faure, C. How storefront displays influence retail store image. *Journal of Retailing and Consumer Services* 17, 2 (2010), 143–151.
- [4] DiSalvo, C., Nourbakhsh, I., Holstius, D., Akin, A. and Louw, M. The Neighborhood Networks project: a case study of critical engagement and creative expression through participatory design. In *Proc. PDC 2008*, ACM Press (2008), 41–50.
- [5] Hagen, P. and Robertson, T. Dissolving boundaries: social technologies and participation in design. In *Proc. OZCHI 2009*, ACM Press (2009), 129–136.
- [6] Taylor, N. and Cheverst, K. Creating a rural community display with local engagement. *Proc. DIS 2010*, ACM Press (2010), 218–227.
- [7] Turley, R. and Millman, J. Atmospheric effects on shopping: experimental evidence. *Journal of Business Research* 49, 2 (2000), 193–211.