

## User and context centred design methodology for location based services

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### Abstract

If any product or service is to be usable, then the user and the usage have to be part of the design process right from the start. Different users have different needs – and unless your target group really is 20 year old students it is important to include a range of different users in the work. Looking at mobile usage of location based services it becomes clear that the context of use is equally important. Using a service while cycling, walking, driving a car or sitting on the train will have major impacts on your ability to interact with this service. Unfortunately, no single technique will fit all needs and situations when it comes to understanding contextual user requirements. Below we describe two practical examples from the early stages of the design process which illustrate the use of interviews, focus groups, diaries, user design workshops and a type of study we call a “mobile oracle” study. These studies have been described in [1-3].

In the first study we used a combination of focus group discussions, diary studies and a user design workshop. The focus group discussion was held both in a stationary setting (sitting around a table) and in a mobile setting (walking, discussing and also testing existing mobile services). This activity was followed by a one week diary study where the users were asked to note travel related activities. Finally the users met at the Department of Design Sciences for a design workshop where they were asked to put together lo-fi models of services they wanted and after this demonstrate the functionality of the designed services through a demonstration walk. The results of this study showed that a more longitudinal study design consisting of a linked sequence combining a focus group discussion, a contextual test/interview, a diary study and a user workshop where users design low-fi versions of potential services can be a useful tool for the exploration of the user requirements for non-visual interaction designs intended for mobile navigation services.

In the second study we used an approach where a human impersonated a potential mobile service (the so called “oracle”). The user was asked to perform a shopping task, and ask the “oracle” for help when they felt this was needed in order to complete the task. The tool, which we call the “Mobile Oracle” has been tested in a recent user test in an explorative shopping scenario, and was seen to work well for sighted, visually impaired and elderly users. The individual questions were seen to provide rich and detailed input for the design process while the overall categories resulting from a grouping of these questions agree well with known requirements confirming the validity of the approach.

The above studies illustrate the fruitfulness a combination of techniques to gain an appropriate understanding of the user and the context. The outcome of these and other studies within the HaptiMap project ([www.haptimap.org](http://www.haptimap.org)) has generated the “User Study Guidelines” published on the project website. The guidelines provide an overview of several different techniques and provide suggestions for how to combine these.

1. [Magnusson, C., Anastassova, M., Tollmar, K., Pielot, M., Rasmus-Gröhn, K., Roselier, S., The Mobile Oracle – an on Demand Wizard of Oz Tool, MobileHCI 2009, 15-18 September, 2009, Bonn, Germany (Workshop: Mobile Living Labs '09: Methods and Tools for Evaluation in the Wild).
2. Magnusson, C., Anastassova, M., Tollmar, K., Pielot, M., Rasmus-Gröhn, K., Roselier, S., The Mobile Oracle – a Tool for Early User Involvement, MobileHCI 2009, 15-18 September, 2009, Bonn, Germany
3. Magnusson, C., Rasmus-Gröhn, K., Tollmar, K., Stigmar, H., Exploring user requirements for non-visual mobile navigation systems, Interact 2009, Uppsala, Sweden.