

# **Bridging Observation and Design in Concept Development for Mobile Services**

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Developers of new mobile services have a very creative and challenging work given the technological possibilities and the uncertainty of acceptance of new services. Traditional ways of collecting information from people for the design may fall short when no focus is provided on particular activities or use context. To discuss the importance of finding new approaches to inspire design and collect requirements we present a technique SPES (Situating and Participative Enactment of Scenarios) developed to engage people and bridge observation and design.

*Participatory Design, Concept Design, Mobile Services*

## **Introduction and Background**

Recent developments in the information and communication technologies are creating the possibility to develop radically new services especially in the areas of mobile communication. Some examples are the 3G (third generation) wireless networks that will make it possible to retrieve multimedia content on small handheld terminals, or Bluetooth a short-range radio network that will enable interconnectivity of electronic products.

Being confronted with the challenge of doing concept design for mobile services, we encountered several interesting issues [5]. Firstly new mobile communication services are likely to be increasingly bond to the context of user activities. The context of use in the case of nomadic user is mutable and the current development of systems and devices is also focusing on context aware applications. When developing ideas and searching for needs, the design may adopt ethnographic approaches as observation or contextual inquiry. These approaches seem to be appropriate when a concept is already defined. Moreover, they are likely to produce a vast amount of material that makes it difficult to discern relevant contextual information. One approach for iterative and evolutionary design close to context, is people participation in very early stages of design. Participatory Design has been developed and applied exclusively for technology change in the workplace in in-house project rather than product development. However, Internet, email, and mobile phone hint that mobile services and devices will be used for both personal things and work. A prior question is what kind of existing or new

activities can new mobile services support, and how do we go about involving users in the design. As these new technologies are used seamlessly in our everyday life and not only in the workplace what is the meaning and the modus of user participation?

These issues indicate that concept design of new mobile services could benefit from investigating new techniques that address the situatedness of activities and its context, and that promote a renewed participation of people in the concept design phase.

### ***Related Work***

The objective of the research that resulted in the SPES technique started off to solve these two issues. People could contribute to the design for several reasons. SPES aims at putting people into the condition of contributing in a valuable way. According to [8], users cannot fully articulate feedback on future non-existent products. To collect personally experiential and relevant user feedback Salvator and Sato [8] use dramatic vignettes in a technique called Focus Troupe. The users experience as audience the dramatic performance, which stages the product as a prop in a particular situation. The participatory design research provide us also with inspiring examples, in [6], mock-ups as representations of the future system, work situation descriptions, and future use scenarios are used in exploratory workshop for the simulation of future use. Other examples are role playing games with toys [4] participatory techniques to analyze and design work with office equipment: CARD considers work and systems at macroscopic and PICTIVE at a microscopic level [6]. SPES has its foundation in these techniques of the participatory design tradition and in ethnographic methods like shadowing [7].

### ***Bridging observation to design***

The context of people's activities could influence and inspire the concept design. How do we deal with the complexity of context when designing for mobile services? Dahlbom and Ljungberg [1] suggest a great deal of ethnographic work for development projects in mobile informatics. However they recognize that these projects are uninterested in too careful descriptions. Goodwin and Duranti [2] that study context from a language perspective, recognize that the task of capturing the context of activities is very complex: "not only the internal structure of context, but the prior question of what is to count as context at a particular moment, is capable of dynamic reformulation as local frames of relevance change." Current HCI design approaches are evolutionary iterating phases of observation, implementation and testing. SPES aims at collecting and discerning relevant contextual information, by applying a hybrid form of investigation between observation and testing.

### **SPES - Situated Participative Enactment of Scenarios**

In SPES the designer follows a member of the user group during daily activities. This person is provided with a very simple mock-up of a future device, the mock-up is called

the magic thing to help the imagination and not restrict the mind of people to current electronic devices. The magic thing is used to envision ideas of services and product features. The designer and the person taking part in the SPES session, act out use scenarios as interesting situations arise. Seven participants were involved in ten different SPES sessions. This work resulted in nineteen scenarios out of around 46 hours of shadowing.

## ***Objectives of SPES***

With SPES we aim at:

- Take into account real life circumstances as they arise,
- Helping the users articulate their point of view and contribute with creative ideas,
- Dialoguing with users about scenarios in their natural settings,
- Trying out the idea through enactment as opposed to merely talking or storyboarding it.
- The designer after having experienced the scenario and the situation is able to discern relevant contextual information and create realistic scenarios.

SPES is applied after brief information gathering activities like a photo diary of 24 photographs maintained by the user for one week, and an interview. After this the designers have some understanding of the users and are able to organize the SPES sessions. A suitable occasion is selected together with the user. According to the activities of the user the designer prepares some future scenarios and ideas as well as a mock-up. Each session can last from four to eight hours. The session unfolds during the ordinary activities of the user. Interesting situations or incidents trigger the enactment of scenarios, which envision future services. The idea can be proposed either by the designer or by the user. In the former case, during the incident or immediately afterwards, the designer suggesting an idea for the scenario, invites the user to take the mock-up in his hand. In other cases, the user may take the initiative and start the enactment. The user is shadowed in two or more sessions to let concepts and mock-ups evolve.

The designer is equipped with a digital camera, a diary to record user activities and take drawings about the user mobility. The user is equipped, in addition to his/her things, with a simple mock-up, the magic thing, that represents a future device and is invited to carry it around everywhere.

## ***Steps***

Preparation

- Photo Diaries and Interviews
- Analyze material from user studies
- Find a suitable time for the SPES session

- Prepare some scenarios and ideas
- Develop a Mock-up for the user

#### Equipment

- The designer: a digital camera, a diary, tape recorder.
- The user a simple mock-up that represents a future device and is invited to carry it around everywhere

#### Session

- Offer the mock-up to the user
- Follow the actress during the activity
- Let situations and incidents inspire you both
- Suggest and act out ideas in the situations
- Record with pictures, notes, tape the acting

#### After the session

- Extract scenarios from the SPES session
- Include as much contextual information as possible
- Let the concept and Mock-up evolve

#### ITERATE

### **Examples**



The exchange students meet sometimes in the bus (20 min.) to the campus. During breakfast Thomas envisioned a system that would allow him to notify through the magic device his preference for the bus and check the preferences of the rest of the group.



Diana is visiting Helsinki as a tourist. She uses the magic thing as a shopping assistant to keep track of type and price of trousers in different shops. The shopping assistant also remembers the location of the shops.



Diana enters in a post office and has to take a number for the cue. There are several buttons to push for the numbers according to the service. Beside each button there is an explanation in Finnish, Diana scans the words with her magic thing, which are translated into Italian.



Sergey took the mock-up in his hand between the two reading points in the experiments. He remembered that in the Australian Open there was probably a tennis game going on that he was interested in.

### ***Concept and Mock-up Evolution***



Diana suggests a wearable device.



Diana wears the magic thing (mock-up) on her wrist



Diana hides the wearable version in the disco



Matteo wants the magic thing hooked on the bike. In the campus he can check if there are friends in the cafeteria while he is speeding past it.

## Limitations

In SPES the pairing of designers and users is crucial and has been tried only between peers the designer followed students and employees of both sexes and the age ranged between 19 and 30 years old. The SPES session were organized carefully trying to take advantage of particularly interesting days. SPES requires several skills from the designer: Sensibility and understanding are necessary not to put the users in uncomfortable situations, and Social and dramaturgical skills are important to encourage the user enactment. Although we are trying to observe authentic situations and reactions, the presence of the designer procures a disturbance, which alters the context at physical, social and organizational level.

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