

Empowering End Users in Design of Mobile Technology Using Role Play as a Method: Reflections on the Role-Play Conduction

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Abstract. Role play as a method has several qualities that make it a profound candidate as a technique to understand user needs for mobile devices and services. However, making role-play participants act is a recognized but little discussed problem in relation to using role-play in design. This paper focuses on the how the role-play facilitator can arrange for the necessary conditions for making role-play participants act out realistic and relevant scenarios. The paper contributes with reflections on the role-play facilitator's conduction of role plays, by applying and discussing a general framework for role-play conduction on seven role play design workshops carried out in the period 2001 – 2005. The framework on role play conduction originally developed by the psychologist Yardley-Matwiejczuk [1], and has previously not been applied to role-play design workshops.

Keywords: Role play, user involvement.

1 Introduction

We are surrounded by technology in our leisure and at work, and mobile devices such as laptops and cell phones are replacing stationary technology in our society. However, many HCI methodologies for user involvement have evolved through the years to design desktop computers. The conventional techniques must be adapted and supplemented with new practice to address the specific challenged related to design of mobile devices [2-4]. For example, Kjeldskov and Stage varied the degree of physical activity in a usability test of a mobile system, and found that increased physical activity resulted in increased subjective workload [2]. Po and associates found that heuristic evaluations conducted in the field revealed some unique problems not identified in a context-free heuristic evaluation or heuristic walkthrough [4]. And Hagen and colleagues addressed methodological responses in the traditions of HCI and CSCW to the challenges of understanding the use of mobile technology [3].

Role play as a method has several qualities that make it a profound candidate as a technique to understand user needs for mobile devices and services. Dramatized

scenarios create a situated embodied context for the technology, which enhances the participants' ability to envision needs and use of technology in specific situations. A role play can be stopped and started several times during a session, making it possible to play with different ideas of solutions, and can be conducted where it is impossible to carry out observation studies.

The objective of this paper is to provide insight to HCI practitioners on how to engage end users in design of mobile devices and services by using role play with low-fidelity prototyping as a method.

The paper contributes with reflections on the role-play facilitator's conduction of role plays, by applying and discussing a general framework for role-play conduction on seven role play design workshops carried out in the period 2001 – 2005. Our role-play workshops consisted of two parts: improvisation of scenarios and "designing on the spot" with low-fidelity prototypes. This paper focuses on understanding the first part of our workshops, the necessary conditions for making role-play participants act out realistic and relevant scenarios. The framework on role play conduction originally developed by the psychologist Yardley-Matwiejczuk [1], and has previously not been applied to role-play design workshops.

2 Background

2.1 Role Play as a Method for Involving Users

During the last decade, several researchers have explicitly stated that they have conducted role play sessions to engage users in design, e.g. [5-8]. Iacucci, Kuutti and Ranta brought in role-playing games with toys and situated and participative enactment of scenarios (SPES) as ways to make prospective users active in early concept development of mobile services and devices in the spirit of participatory design. In the role-playing games users acted themselves through a toy character with a magic mobile device [9]. Binder made simple "props" and organized user sessions with users in their own environment, with the goal of creating collaborative spaces between users and designers [6]. In later work by Iacucci and associates, the authors described how they used performances to develop scenarios [9], to communicate and test ideas, and to explore design options [10]. Brandt and Grunnet [7] used drama with props to introduce a bodily dimension into the design process, which help designers to work physically as well as intellectually. Bødker, Nielsen and Petersen worked with the development of design tools to stimulate idea generation in collaborative situations involving designers, engineers, software developers, users and usability professionals, where role-play was used as part of a larger design approach [8].

In these studies the degree of user involvement has varied from users expressing their ideas when watching designers' role-plays [7] to users improvising freely in the field [6]. There are numerous variations in how role-play has been used in design, and the usage can be described by heterogeneity at best.

And even though role play has been used regularly engage users in the last decades, it has not been used frequently. Role-play as a method has a great potential to add value to IT system and product development [11]. However, it is not a common part of system development practices yet. Why do not system developers use role-play as a method?

There may be several answers to this question, including cost concerns and lack of knowledge about the method. However, one key reason is probably tied to the role-play facilitator's jobs. Similarly to other user-centred methods which are dependent on leadership, a role-play session is not done by itself. It must be directed and facilitated, and the skills necessary to do this job must be learnt. In this paper the role-play "facilitator" is defined as the person or the people who are in charge of leading the role-play conduction in a design workshop. The facilitators have a large impact on the validity and the reliability of the scenarios and the outcomes of a role-play workshop. Thus leadership is critical.

2.2 Problems of Making Role-Play Participants Act

In an earlier presentation of lessons learnt on role-play as a system development method, we concluded that leading a role-play workshop is a relatively straightforward task [12]. Behind the conclusion was an assumption that facilitating role-play design workshops was something everybody can learn, just as paper prototyping and usability testing can be learnt. However, in that conclusion, we as researchers and role-play facilitators might have been biased by our previous experience with role-play. Both the other facilitator (DS) and myself (GS) had built up knowledge on role-play over years through experience with amateur theatre, and this understanding is not easy to grasp for someone unfamiliar with role-play. When we had conducted the first role-play design workshops and arranged the second one, we felt that it was very easy to make our role-play workshop participants enact everyday scenes. Unfortunately this might not be the rule in every project.

The problem of leading role-play workshops and making role-play participants act is recognized to a certain degree in the literature [12-14]. However, explicit discussions about the facilitator's roles are lacking. Oulasvirta and associates [14] exclaimed that "acting out was observed to be frustrating and causing costly preparations. It was speculated, however, that acting could be useful in the long run when participants can get used to the method" [14, p. 132]. Similarly, Strømberg et al. [13] described how "none of the users were enthusiastic about acting, so we ended up just talking the scenario through" [13, p. 204]. In our first workshop, *exploring the use of PDAs in hospitals*, we discovered that we as academics had problems acting health care personnel [12], and as solution to the problem, we hired an external theatre instructor to take hand of the drama in our first workshops. Similarly, Rodriguez et al. [15] stated that "practicing and managing a role-play session was seen as a critical step both for facilitators and participants who did not have previous experience with these kind of activities. Therefore, the assistance of a role-play facilitator was requested for the development of the performance session" [15]. The problems of making role-play participants act confirm the importance of the role-play facilitator's role.

3 Description of Our Role-Play Workshops

This paper is based on retrospective reflections of seven role play design workshop carried out in the period 2001 – 2005 [11, 12]. The iterative process of transforming role-play into a design method is earlier described in [12], and an evaluation of the approach as seen through the eyes of system developers is given in [11].

The role-play workshop format was developed through an iteration of seven workshops, with a total of 68 participants. The goal of the iterative process was to create an optimal structure for a workshop where role-play and low-fidelity prototyping are central for active user involvement in an early system development phases.

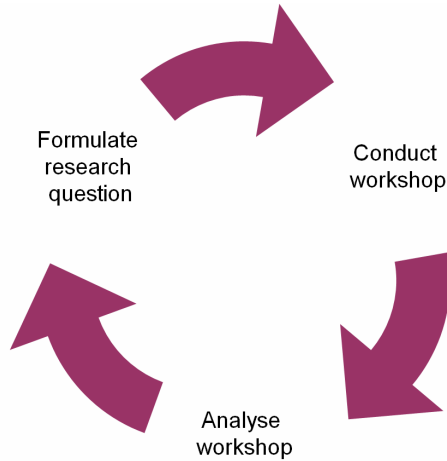


Fig. 1. Iterative development of role-play as design method

For each workshop we formulated a research question, which was implemented in the workshop and subsequently analyzed (figure 1). The analysis triggered the next research question, which again was used to guide the conduction of the next workshop.

The research questions asked in this iterative process were:

- How can role play be used to explore the potential of PDAs in hospitals?
- How can real users (nurses) be involved in a role play workshop?
- How can drama be useful in a application domain not related to health care (Petrol Service Station)
- What type of role should a system developer have in a workshop?
- What added value can field data have as input in a workshop?
- How can a role play workshop help system developers to think creatively about new concepts?
- Is it possible to teach interaction designers to conduct role-play workshops?

The role play sessions consisted of two main parts: 1) Characterization of typical work- or leisure scenarios with role play, and 2) Improvisation of ideas about new technologies and services with low fidelity prototypes as props.

The following example gives an impression on how the participants worked with developing ideas in one of our later workshops. The example is a transcription of a dialog from a workshop with nurses working on ideas about electronic patient journals.

The participants have had a brainstorming session around different possible scenarios, and have agreed to work on a scenario about a woman with breathing problems, and a possible heart problem. The example is taken from the point in time when the participants started to develop the details of their scenario. The participants have decided which nurse should have which role, but the details around the scenario are not clear. The facilitator tries to help the participants get started by asking them discuss some of the details around the main plot. What happens is that the participants started to improvise the scenario through acting. The ease by which the participants identified themselves with the roles and naturally started to act was representative for our role plays

3.1 An Illustrative Example: “Breathing Problem”

FACILITATOR: You have to think about what reality is like and what is common. In a way you are average nurses and average patients. So, what would an average patient be called? How old? Is it a female or male?

NURSE 1: Eva Antonsen

NURSE 2: About 50 years old

NURSE 3: at least 50

NURSE 2: but not too old

NURSE 1: The patients are mostly men, but since I am a woman, I need a woman’s name.

FACILITATOR: And you have problems breathing?

NURSE 1 (*Breaths heavily*): Yes, I have big problems with breathing when I came to the hospital. I cannot breathe! Ugh!

NURSE 2: Have you been short-winded for a long time?

NURSE 1: I have been like this the last few months.

NURSE 2 (*looking at the facilitator*): We are starting to role-play already!

NURSE 1: Well, it has been like this lately, particularly the last months. During the last week it has been increasingly worse, and tonight I had to sit in my bed to be able to breathe.

NURSE 2: Have you experienced something similar during the last half a year?

NURSE 1: No, not as bad as this.

NURSE 2: Are you feeling well besides the breathing?

NURSE 1: Well, I am smoking, and I have a little asthma

As seen in this example the role-play participant started acting as if they were the persons in the role. The acting came natural without much help from the facilitator. How did this happen?

In our work on trying out new elements in the workshops, observing the effect and reflecting on the next steps [12], our main discoveries of how to make role-play participants act can be summarized as follows:

- The role play workshop participants must act themselves or take a role character they are very familiar with.
- The scenarios to be acted must be grounded in the participants' experiences.
- The participants must specify the details of the scenarios, such as time-of-day, place, participants and main plot.

The next section presents a general framework for role-play conduction that are useful to understand the ease by which our role-play participants acted naturally, and also explains our main lessons learnt on how to make role-play participants act.

4 The Yardley-Matwiejczuk Framework for Role-Play Conduction

To understand our experiences with the role-play part, we found the framework for role-play conduction developed by the psychologist Yardley-Matwiejczuk useful [1].

Yardley-Matwiejczuk developed a conceptual framework based on an extensive review of different uses and discussions on role-play in research, education and therapy. In her analysis, Yardley-Matwiejczuk defines role-play in a set of 8 characteristics, and provides three important principles for conduction of role-play sessions. These principles are in focus in this paper. According to Yardley-Matwiejczuk, the role-play conductor's instructions influence the participants' experience of the reality of the role-play. The role play conductor is here defined as the role-play facilitator. The principles of *particularization*, *personalization* and *presencing* are the facilitator's keys, and the attention to these principles is important for the role-play success.

4.1 Particularization, Presencing and Personalization

Particularization is defining all objects in the role-play (thus saying that a chair for example is a car), so that "all these objects are brought into awareness in order that they may be known" [1, p. 94]. This means that all objects in the role-play are made explicitly know to the participants. If an object is used as a prop in the play, all involved have to know the meaning of the object as it is used. This term is related to the attention to details in theatres: Every requisite on a stage is there for a purpose. If the prop has no purpose it should not be there. According to Yardley-Matwiejczuk, the role-play can turn to become very stereotypic if it is not particularized.

Presencing is the second key role-play induction principle proposed by Yardley-Matwiejczuk. This term is strongly related to and can be considered as an extension of the concept of particularization. In Yardley-Matwiejczuk view the particularized objects must be made present and actual in the role-plays: "so that they are perceived as 'out-there' (part of the situation or 'other person') or 'within-here' (part of the 'self')" [1, p. 95]. For the facilitator this means that he or she must use the language to emphasize that what happens in the role-play happens in present time. Instead of saying "imagine that this is the waiting room, and act as if you are waiting for the physician", the scene is made actual by saying "this *is* a waiting room, and you *are* waiting for the physician". With particularization an object is identified, and by presencing it is made familiar and actual to the participants.

Personalization is the final key role-play induction principle of importance for the perception of the role-play as realistic and real. This term is related to the degree to which the particularized objects are drawn from the subjects themselves or from the role-play facilitators. By asking the participants themselves to create the physical configuration for a role-play scene, the quality of the participants' engagement in the role-play improves.

However, it can be questioned whether these induction principles are equally important in all types of role-plays and for all types of role characters. Yardley-Matwiejczuk varied the degree of particularization, presencing and personalization in a number of experiments on role-play, and concluded that the detailing of knowledge was most important for people in roles leading the play and of less significance those who were mainly responding to the others' acting [1, p. 163].

Do they apply to our role-play design workshops, where the participants primarily act themselves to create and explore ideas about technology? To answer these questions we looked retrospectively at the seven workshop conducted in the period 2001 – 2005 to investigate the relationship between our main lessons learnt on how to lead role-play design workshops and Yardley-Matwiejczuk's three principles.

5 Application of the Principles of Particularization, Presencing and Particularization to Role-Play Design Workshops

To return to our role-plays, we found that the principles could have been very helpful in our first workshop if they had been known to us.

In our first workshop, a professional drama instructor was engaged to lead the role-play process. She was giving some freedom in how to work with the workshop theme, because we were inexperienced as role-play facilitators. The workshop theme was "to explore ideas for the use of PDAs in hospitals" and the participants were mostly academics with an interest in health informatics. Neither the participants nor the drama instructor had any experience with clinical hospital work, and the theatre instructor relied on her previous experience on leading groups in theatre sport and improvisation when planning the workshop. In the main part of the workshop the participants were asked to improvise short scenes involving system developers and health care professionals. For example, a participant was asked to take the role of a system developer, who was to demonstrate and explain how a mobile Electronic Patient Record system works to the head nurse at a hospital ward. Nurses are usually considered to be very busy in the hospital, and to signify this, the drama instructor asked to person given the role as the nurse to fold some sheets of paper while talking to the system developer. However, the drama exercise turned out to be a superficial performance where the participants did not learn anything new about the technology.

There were several problematic aspects with this short improvisation act, which can be related to the lack of attention to Yardley-Matwiejczuk's three role-play induction principles. First of all, no details were particularized on what the mobile device could do, and in which way it could be helpful for the nurses at the hospital. Thus the person role-playing the system developer had to be creative, and become responsible for improvising the features of the mobile device. This created a pressure for performing. Similarly, the person role-playing the nurse was given the folding exercise to

signify that she was busy, but it was not particularized what the folding signified. The act of busyness resulted in a situation where the person role-playing the system developer had to use all his energy on getting the attention of the person acting the nurse to convince her about the usefulness of the mobile device. The nurse-in-role was given no instructions on why she had agreed to discuss the mobile device with the system developer, and this lack of motivation resulted in a quite ignorant behavior. Because of insufficient details on both the hospital work and the purpose of the meeting, the nurse had no choice but to take a stereotypical role of busy nurse, skeptical to new technology, and not interested in listening to the system developer. The dialogue we had hoped for about possible technological solutions did not occur, and the short role-play became intimidating for both the role-players and the other participants who were observing the scene.

In the second workshop the main participants had background knowledge for their role-play, but the performance nevertheless resulted in overacting and stereotypic behavior in one of the groups. The goal in this workshop was to investigate whether health care personnel could participate and develop ideas about technology in a role-play workshop. One of the two groups in this workshop consisted of three nurses, who chose to role-play a pre-round meeting. Two of the nurses took the role of physicians, and the third nurse role-played herself in her ordinary job. All three nurses were experienced and knowledgeable about their own work, the pre round meeting situation, and the physicians' work. However, due to a lack of particular instructions on who they were to act and how they should act, the two nurses who role-played physicians acted very arrogantly. They were talking to each other, came with irrelevant comments, and seemed not to be particularly interested in listening to what the nurse had to say. Instead of creating an arena for exploring information needs the role-play became a stereotypic demonstration of power relationship between nurses and physicians. This overacting could probably have been avoided by requiring the nurses to play average physicians, and by making their roles particularized and personalized.

However, when we started to state that the participants should act themselves and base their play on everyday experience, we avoided stereotypical acting. The level of detail a person has about his or her own life counter the need to take a stereotypical stance in the play. We followed up on the participants suggestions by asking questions as "what would you do in this situation?" This resulted in situations where our role-play participants had to think of details of their own behavior. This act probably counteracted the desire or need to take a stereotypical role.

The emphasize in our workshop on requesting the participants to act oneself, working with everyday scenarios and making details explicit can be related to Yardley-Matwiejczuk's concepts of particularization and personalization. We did never ask the participant to imagine that they should imagine that they were somewhere else, and our question to facilitate the role play as "How old? Is it a female or male?" can be compared to Yardley-Matwiejczuk's idea about presencing. However, is there a need for these principles?

If role play is used as a design method in a design workshop where the participants are to act themselves, Yardley-Matwiejczuk concepts can be valuable. Yardley-Matwiejczuk's concepts counter stereotypical acting because they function as tools for treating every role-play as unique. By the forcing the participants to work on the details about the setting of the role play and the characters, the role-play participants avoided simplifications and stereotypical behavior.

It is probable that some of the problems in the studies cited in section 2.2 in this paper can be traced to the fact that the participants did not have the necessary knowledge about the details of their characters to improvise naturally. In these workshops the principles of particularization, personalization and presencing would most likely have made the acting more natural.

However, it can be questioned whether these concepts are equally important for all types of role play design workshops. The key answer observed in our workshops is that the role play participants need sufficient information to play their roles. The more distant the role play theme is from the participants' experiences, the more important the principles are. A person who can act by responding to other people's moves may be able to role play a situation without a complete understanding of the setting. But for a person who has to take initiatives in the play, lack of information could result in a situation where the person feels that he/she makes a fool of oneself.

6 Conclusion

Through a retrospective view of a line of workshops conducted from 2001 – 2005 we conclude that particularization, personalization and presencing are useful terms to understand how a workshop leader must help end users with the development and rehearsal of enacted scenarios. We saw several examples of how the lack of attention to these principles in the early the workshops resulted in overacting and stereotypic behavior and the incorporation of would, if not eliminated the problem, have reduced it.

In conclusion, the three concepts from Yardley-Matwiejczuk's framework are useful for HCI practitioners who would like to use role play as method to engage users in discovering needs for new technology, and should be taken into consideration when developing and carrying out such workshops.

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