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# Theatre as an Intermediary between users and CHI Designers

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**Abstract**

We have investigated the possibilities of using theatre, including professional actors, scriptwriters and artistic directors, within requirements gathering, and usability testing, and for communicating the results of such work to the design community, or individual designers. The research on which we will report focuses on older people, but we believe that a consideration of the issues involved in designing for this group highlights many of the challenges found in CHI research more generally, and the techniques can apply to usability testing, and to communicating the findings of such research and testing to designers

**Keywords**

Theatre, Drama, Usability Testing, Requirements Gathering, Ethnography.

**ACM Classification Keywords**

H5 Information interfaces and presentation.

**Creating Empathy with Users**

Successful interface design requires designers both to achieve an empathy with their potential users, and to have access to sufficient relevant human factors knowledge about their needs, wants and abilities. In User Centred Design this is normally taken to mean a

requirement for direct interaction with real users, but this can be both expensive and problematic. There are major challenges in conducting these forms of research and also in communicating results of interface research, usability experiments, and requirements gathering to designers in a form which is both accessible and useful. These are particularly difficult challenges when the user group is not normally represented within the design community, such as when the user population is older and/or disabled people.

### **Design for Older People**

Older people differ from “typical” computer users in terms of experience and of sensory, physical and cognitive characteristics, but obtaining requirements and evaluation data from older people is not straightforward [5]. They can have a negative attitude to new technologies, but also be very positive about the prototypes which are presented to them. If they cannot cope with technology, they tend to blame themselves, and their own incompetence, rather than poor design. Their confidence in their ability to use technology can also be very fragile, and it is important not to put older people in a position which threatens any confidence they may have.

There is a body of research information on the problems that older people face using computers and other digital technologies [e.g. 2], but it has been reported [10] that many designers find academic papers and the like unreadable. Thatcher, [12] pointed out that written accessibility guidelines and standards, are often inappropriately used without a suitable degree of knowledge about the context of older and disabled users. Guidelines need to be complemented by a deeper understanding of the issues, and accessibility

specialists have, in general, failed to produce research results in a form that can be readily used by commercial developers [6]. Also the wide ranging characteristics and functionality of older people, virtually all with multiple minor disabilities, and many with a serious disability, makes it difficult, if not impossible, to find and recruit ‘representative’ user samples for requirements gathering or usability testing [9]. Time and cost constraints on design projects may prevent designers from accessing ‘real’ users, and designers in many cases are forced to rely on their own experience or intuition to guide their assumptions about user characteristics, which may well have little relationship to the actual situation.

Thus, although a large corpus of information exists about the abilities and requirements of older people, much of this is effectively inaccessible to, and thus not used by, designers. Designers also need more ‘soft’ data about users, such as their problems, preferences, lifestyles, and aspirations. Furthermore designers will often need much of this data at the earliest, conceptual stages of design.

Newell and Gregor [9] have recommended that it is necessary to develop a different attitude of mind among designers for whom older people are an unfamiliar user group. The development of effective methods for presenting human factors research findings to designers who need them is a pressing issue within the context of designing for older people. We thus investigated the use of theatre to address the challenge of communicating a straightforward message about the characteristics of older people to designers in such a way as to create the maximum impact.

### **The use of theatre in design for older people**

Theatrical methods are beginning to be used in the context of product design. The use of actors in design development has been reported [11] as a very useful and interesting way of establishing a common, shared context for audience participants. Dishman and others have used actors in unscripted live drama which Dishman calls "informance design" to address design requirements [4].

We wanted to use theatre to encourage dialogue between users and designers, and thus needed a genre which was specifically designed to encourage audience participation, such as Boal's "Forum Theatre" [1]. This was originally developed as street theatre in Brazil where it was used to enable oppressed people to articulate their political concerns. We worked with the Foxtrot Theatre [in Education] Company, which has developed a version of Forum Theatre and use these techniques extensively within professional training for communication skills (e.g. within palliative care, and the training of medical students) and in community consultation (including with seniors). A script writer conducts detailed research in the subject area and then produces a series of short pieces which address the important issues to be discussed within a narrative style and with the emotional content and tension essential to good drama. In general these scripts have a "beginning" and "middle" but no "end". The play is performed to an audience of 'experts' who are encouraged to address the issues of the characters' different motivations and emotions, and to direct the rest of the play. This genre has been found to be very powerful for facilitating dialogue about sensitive issues and, via discussions within the audience and between

the audience and the actors (who stay in role), it can change the mind sets of the audience.

We have used versions these techniques in two research projects which were concerned with designing computer systems to support older people. The first project used the technique in the requirements gathering phase and the second used it to communicate to designers, who were new to the field, some degree of insight into the challenges of designing for older people.

Our "Advanced Sensors for Supportive Environments for the Elderly" project, investigated the applicability and feasibility of automatic monitoring using 'intelligent' visual sensors, and identified the requirements of users of such supportive home environments. On the basis of discussions with the designers and some older people, a script writer produced a series of short scenarios containing "human interest", humor, and dramatic tension as well as illustrating how the system may work, the errors which could occur during its use, and the impacts these errors could have on the users. Videos were then produced of various scenarios using professional actors [8]. In the style of Forum Theatre, the videos contained "stopping points" to allow audience discussion. These videos were played to small groups of older people, and proved to be extremely effective in facilitating discussions on an otherwise novel and therefore unfamiliar technology. The findings of these consultations were very influential in the design and development of the system. This study is significant because the use of drama, to cross boundaries of technical language and knowledge, allowed elderly potential users of a monitoring system

to be involved effectively in the process of design at the pre-prototyping stage.

The UTOPIA (Usable Technology for Older People: Inclusive and Appropriate) project, focused on research into the challenges of developing technology suitable for use by older people, and on raising awareness of these issues within Industry. Within this project we produced the "UTOPIA Trilogy", a series of short video plays addressing problems older people have in using technology. The films were dramatizations of some of the issues the researchers had encountered during the project. Based on real events, conversations and observations, they were the amalgamation of many and are intended to convey older people's experiences with technology and the situations they encounter.

### **Conclusions on the use of theatre in the context of designing for older people**

Evaluations with a variety of audiences including academics, practitioners, software engineers, relevant groups of undergraduates, and older people have established that the videos accurately portray the experiences that many older people have with modern technology. Also 'before and after' questionnaires have provided findings which suggest that viewing and discussing these videos changed the perceptions of both students and more mature designers of IT systems and products [3]. A more qualitative, but independent report by Light [7] states "I found that (the Trilogy) largely does what the team hopes. The audience was appreciative; commenting that it took a holistic approach to the problems associated with technology and had been framed in contexts of use, making it informative and approachable".

These results demonstrate that theatrical techniques can work well both in certain stages of requirements gathering and in raising awareness of design issues. We have shown that the use of theatre (which includes humor and conflict) can be a very powerful method of encouraging dialogue between users and of providing a channel for communication between users of technology and designers. We believe the success of this approach was in large part due firstly to the videos being narrative based. That is, they illustrated how the equipment would work within interesting story lines with all the characteristics of a good narrative - humor, tension, human stories, antagonists and protagonists. Secondly their success lay in the quality of the production, having been produced by theatre and film professionals. The use of film rather than live actors was cost-effective for multiple presentations, but did not allow direct audience-actor interaction. Further research will be designed to include live theatre.

We are now investigating ways in which we can more closely link such theatrical presentations to scientific and demographic data about older users, so that the messages in such presentations can be grounded in scientific data as well as anecdotes, whilst still retaining the impact inherent in the genre.

### **The wider use of theatre in CHI and Usability Engineering.**

On the basis of the success of this technique we are examining the wider role theatre, both video and live, can play as an intermediary between designers and users. This could either replace or augment direct contact between any group of users and designers. We are proposing that we use properly briefed script

writers and actors within our interface research and usability testing.

Examples could include:

- A theatrical performance used to set the scene for a focus group of users (as in the Advanced Sensors project described above),
- A theatrical performance being used to encapsulate the results of usability experiments or ethnographies and to present these results to designers (as with the UTOPIA trilogy),
- A well briefed actor replacing a user within (particularly early) usability testing, and
- A theatrical performance being used to facilitate dialogue between real users and designers.

These techniques may be less appropriate for very detailed requirements gathering or usability studies, but we believe that theatre can have significant advantages where a more holistic approach is called for, particularly when the design is radical or otherwise fundamentally novel, and thus involves new social constructs, and cultural practices.

Script writers and actors are from a different tradition to usability experts or ethnographers, but they have been trained as professional observers of human behavior, with a focus on converting such behavior into interesting engaging stories. They are skilled both in observation and presentation of human behavior. They are taught to distil experiences into essential, typical, and sometimes stereotypical behavior, and present this in an interesting and engaging narrative. They know when to exaggerate for effect, and how to articulate feeling in such a way that it communicates effectively

to the audience. In the words of the theatre they are expert in "suspending disbelief". They know when and how to introduce tension and humor, to keep the audience interested and as an engaging way of feeding important points into the narrative. In contrast to traditional usability laboratories:

- Forum Theatre encourages dialogue between protagonists in the audience (e.g. designers and users) where everyone's views are respected, and between the actor/user and the audience
- The play provides a focus for discussion and the actors form an external focus for conflict between groups. The ego of the actor/user is not involved, and the actor is not dominated by their own emotional baggage. Thus, for example, the designers can attack the actor/users without the ethical dangers of such an attack on a real user, and, within a theatrical context, humor can be used to defuse such conflict.
- The user (or the actor/user) is engaged in a creative activity not just being monitored, which can be very valuable within the design context.
- Actors can be more independent than a single user and can present a more generic picture of the 'user'.
- They can exaggerate as appropriate, particularly in articulating feelings. (In the UTOPIA trilogy an actor swears at the computer, something none of our older volunteers were observed doing, but on viewing the video they said "that is how we really felt").
- Actors can change in response to audience comments (e.g. becoming "older" or more scared, or less dexterous)
- Many usability studies are in practice a role playing exercise, but the use of professionals,

means that role play experts are employed within a structure which is carefully crafted by a script writer.

- Actors' training enables them to be able to "think aloud" in stressful situations (in contrast think-aloud protocol often fails when there is high cognitive load on the users).

When using theatre within focus groups of users:

- The narrative is very effective in keeping the group focused (a particular challenge with older people) and as a vehicle for bringing audiences back to main points without upsetting them, and
- Actors are used to interacting with the audience, and relating to their particular needs and are skilled at "suspending disbelief"
- The creative approach of theatre liberates the users rather than simply eliciting their views.

### Conclusions

Our research to date has successfully used theatre, presented as video performances and with particular focus on older people, for requirements gathering and presenting user concepts to designers. We are developing the techniques of live theatre and wish to encourage dialogue with designers concerning the pros and cons of theatre as an intermediary between users and designers wider design contexts.

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