Physical, Cognitive and Contextual - the Gulf between Older People and Designers Experiences

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CHI 2011, May 7–12, 2011, Vancouver, BC, Canada.
ACM 978-1-4503-0268-5/11/05.

Abstract
We consider Designer Experience (DX) in the context of user experience and explain how we break experience down into its physical, cognitive and contextual aspects. We use this to develop an explanation of the challenges to understanding older users' experiences and look at methods we have employed to increase our understanding. We focus on video creation, its similarity to therapeutic role play and its potential to facilitate DX. We conclude by speculating about the potential role of iterative participatory design in DX, particularly hard challenges to DX in the domain of design with older users and some of DX's possible limitations.

Keywords
Older people, designer experience, participatory design

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Design, Human Factors

The Nature of the Gulf of Experience

Experience is a complex, dynamic and highly subjective phenomenon [1]. It comprises of the physical and cognitive state of the user as they interact with their environment. In the field of HCI interacting with and experiencing technology is referred to as User Experience [4]. In contrast we understand Designer Experience (DX) to be an ideal - the complete immersion in the physical, mental and contextual experience of a future user. Each component of the immersion concept poses its own challenges and limitations to 'experiencing as the user'. We define these components in order to better position our findings from working with older people.

The *physical aspects* of experience encompass both physical (e.g. height, weight and fine motor control) and sensorial characteristics (e.g. vision and hearing). Visual, auditory or other sensorial impairments can be simulated as can physical impairments. For example wearing mobility restricting suits can simulate decreased muscle mass associated with aging [2]. However, characteristics that lie beyond human norms like extreme height or athletic ability are much harder to experience.

The *cognitive aspects* of experience – including a user's attitudes, intentions, emotions, desires and values – are even more challenging to simulate. Taking emotion as an example, we can conceive of a system where designers are deliberately antagonized to simulate irritation with a system. Yet how accurately would this recreate the future user's degree of emotional arousal in the designer?

The *contextual aspect* of experience is a unique combination of social, spatial and temporal factors. Even if simulated in the exact same manner it would allow only the reliving of an already experienced event. This could be close to the original experience but will never be exactly the same.

Simply scratching the conceptual surface of the different aspects of experience highlights the diverse challenges to the DX paradigm. We discuss a selection of these challenges in light of our work designing with older people.

Between Older People and Designers

Several benefits to achieving DX are readily apparent to us after working with older people. The opposite of DX, designers struggling to invent for people with dissimilar experiences of technology to themselves, is the norm in this field [3]. Our previous work has attempted to focus upon the under-addressed needs of older users [5] through sensitive, participatory and empathic design [4]. However, despite employing an approach which strives to create empathic designs there are many gaps in our understanding of future older users' experiences arising from numerous challenges specific to this group.

Gaining some understanding of the differing physical aspects of older people's experiences with technology is a comparatively simple challenge. Unfortunately the first (and often only) step taken towards design for older people is simply 'bigger buttons'. Even if this approach were enough to respect all the differing physical aspects of an older persons experience, it still ignores the cognitive and contextual aspects. Results from our work actually suggest to us the differences in

physical and sensorial abilities are amongst the least important in forming older users' distinct experiences.

As we worked with older people in the participatory design of various systems we were struck by the diversity between them. Although there are some unifying characteristics to them, one of the most interesting aspects of their relationship with technology was how much it differed from person-to-person. We wonder how the DX concept might address this issue. Is DX suitable for designing for diverse groups or can it only target individuals?

The gulf in experience between the designer and the older person was most apparent to us when we were attempting to understand cognitive aspects of their experience. Their attitudes towards technology differed significantly from younger people with priority given to conservative, serious interaction with technology. It was for this reason that the design methodologies we employed focused on the cognitive aspects of experience.

Eliciting Accounts of Experience

Our decision to focus on understanding the cognitive aspects of older users' experiences led us to employ a process that centered on eliciting information from them about their interactions with technology in our design spaces. Our attempts at bridging the gulf of experience began by gathering as much information as possible from older people. After this participatory design techniques were used to produce designs and gain deeper insights into the reasons behind our participants' reactions to technology. This approach entailed close contact and genuine, democratic engagement with the users leading to designers having much greater empathy and respect for them.

The cognitive aspects of experience such as needs, wants and desires seemed moderately suited to being articulated. In other projects though, with people with Parkinson's for example, we have focused upon other aspects of experience. This has resulted in gathering our information by employing different techniques such as ethnography or simple reference to medical literature. This suggests to us that the method for gathering information is heavily dependent upon the aspect of experience.

Whilst our work was not informed by DX one method which we employed stands out on reflection for forcing us to try to think and feel like our future older users. During design workshops we showed participants short, fictional, dialogue driven videos starring older people to illustrate *potential* technological solutions in the design space. Our videos showed two sides to every solution as we attempted to give balance to the characters' reactions to technology. Working with an editor or filmmaker producing these we strived to put ourselves in the user's shoes on two levels. First, we tried to second guess the older characters actions, reactions and internal state within the design domain. Second we evaluated the film against what we felt the reaction of our participants would be. In this way the videos ended up reflecting our understanding of the user.

The technique bears some resemblance to the therapeutic practice of *role play* where people are asked to take someone else's role, which in turn resembles method acting. We suggest a benefit of role play over method acting is the space it provides for

feedback. In therapeutic role play this takes the form of the therapist or patient having the ability to pause the process and 'step out' of the scenario to give a critique of the others performance. In our practice this feedback is much less immediate but comes in the form of older users' feedback during workshops where the video is shown.

Conceptual Spaces in Designer Experience

We take DX to be an ideal; if the designers experience is the same as the users then the designer essentially becomes the user. This suggests to us that one way to approach DX is through iterative participatory design where, to some degree, the user really is the designer. DX asks how we give the designer the user's experience. Participatory design asks how we give users access to designer's skills and knowledge.

The field of design for older users also offers some uniquely challenging problems for DX. The older user is perhaps an uncomfortable challenge to the young designer. How can we give designers the radically different outlook on life older people have, for example when confronting issues around end of life and mortality? Is there a way to simulate the reduced mental plasticity and the resistance to new ideas that characterize aging minds? Ultimately, how might it be possible to fit seventy years of an older persons experience into a thirty year old designers mind?

Even if we somehow manage all this and create an accurate simulation of the end user will it really be useful? Iterative improvements of an existing idea might benefit but will this design ever produce a great leap forward? We asked who could be better suited to design a new system than its end user, someone with holistic knowledge of the user's needs, their wants and dislikes. The reality though is that we are very capable of making the wrong choices for ourselves. A designer can look at a situation from the outside and in doing so see ways to radically alter the existing challenges and change the paradigms which control it.

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