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# 2<sup>nd</sup> Workshop on Designing with Older Adults: Towards a Complete Methodology

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## Abstract

The ageing process can interfere considerably with the use of mobile devices, e.g. due to changes in vision, attention, and motor control. Designing mobile technology with older adults poses its own challenges. In the absence of a complete methodology for working with older users, researchers and designers are often left to improvise their own methods. This can result in co-design relationships being compromised and weak design insights emerging. How can we best adapt or modify existing methods for working with this group?

## Author Keywords

Older adults, mobile interface design, inclusive design

## ACM Classification Keywords

H.5.2 User Interfaces.

## Background and motivation

Designing for ageing requires an understanding of the diverse and unique capabilities and limitations of older adults—identifying their needs, preferences and desires for technology in their lives and involving them in the design process [14]. However, this group brings challenges to design teams. Researchers must be sensitive to the characteristics, sensory and cognitive capabilities, and attitudes of older adults towards computers and being included in research studies [4].

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*MobileHCI 2015* 24-27 August, 2015, Copenhagen, Denmark

ACM XXX-X-XXXX-XX7X-X/XX/XX.

Lindsay et al. [9] and Coleman et al. [3] found that older adults do not conform to ageist stereotypes that designers and others have of them. They are often keen to explore and use new technology, but tend to differ from younger users in that, for older adults, the technology's perceived usefulness to their daily life is of most importance, while young people tend to be more influenced by fashion. Goodman et al [7] for example showed that older people derived substantially more benefit than younger users did from a mobile navigation aid. Coleman et al. [3] have argued that involvement of older users in the very early stages of an idea is desirable. Newell et al. [11] argued that older users need to interact more closely with designers and developers of systems, as there is a distinct inability of the latter to appreciate the issues that older users face without direct observation. Uzor et al. [15] have shown in their work on technology for physical rehabilitation that older adults should be directly involved from the concept stages of the design of such tools.

### **Techniques and approaches**

Antona et al. [1] surveyed 12 design techniques and evaluated their usefulness for use with older adults. Only 5 were deemed appropriate without modification: direct observation; activity diaries & cultural probes; scenarios & personas; prototyping; and art-based approaches. A further 6 were deemed applicable but with a need for special considerations: brainstorming; surveys & questionnaires; interviews; group discussions; user trials and co-operative & participatory design. When older adults self-report on questionnaires, the "don't know" option is chosen more frequently and range extremes tend to be avoided. Older adults also require more certainty before

responding to questions, so it is important that questionnaires are administered where the researcher is present so that clarifications can be given [11]. To ensure that designers and older adult participants establish a shared understanding, language and terminology used must be "compatible", technical language should be avoided and questions should be short and simple, with wording that participants can understand [2]. Agreeing terminology is important to avoid misunderstandings and time being diverted. For example, [13] describe a session being sidelined into a long discussion about the definition of a "document". Göllner et al. [6] suggest the use of metaphor to address issues of unfamiliar terminology or jargon (e.g. a "carrier pigeon" that carries a message to a device, instead of "sending via Bluetooth". Metaphors should be designed carefully however, to avoid being interpreted as patronising. Gaver et al. [5] used cultural probes with older adults to better understand their habits and interests. They found that the technique provoked participants to think about the roles they play and the pleasures they experience, and that the technique can help to establish a rich conversation between designers and users. The tendency of older users to see participation as a social event can be viewed as a drawback but Nicol et al. [13] found that a modified approach where studies are done in group sessions, with participants completing some tasks on their own and others in groups, kept them better engaged than individual sessions. Newell et al. [11] have recommended that if lab trials are to be used with older adults, they should be conducted in a supportive environment where the designer is able to interact directly with participants.

**Table 1. Factors that influence the use of design methods with older adults.**

Factor Category	Issues
<i>Physiological</i>	Age factors that make self-reporting inaccurate Limited endurance Medical conditions that hinder motor skills, hearing or verbal expression
<i>Psychological</i>	Tendency of blaming themselves instead of designers for issues Fragility of confidence while using technology Anxiety towards computer use Perception that computers are not much use to them Difficulty in focusing on the design process if they feel that it is going towards a direction that is not valuable to them
<i>Cognitive</i>	Lack of understanding of technical language and metaphors Lack of underlying understanding of computer concepts Difficulty in envisaging new technology Disapproval of deep explorations in subjects that are forced on them by the designer Tendency to diverge into unrelated subjects during discussions
<i>Societal</i>	Participatory design meetings are seen as social events Positive predisposition towards prototypes and tendency to praise rather than offend researchers by offering objective views

Nicol, Komninos and Dunlop 2014 [13]

Researchers have often noted the presence and involvement of caregivers as decision makers [10] and helpers [8] with regard to technology use. However, the systematic inclusion of caregivers into methodology remains to be explored and is possibly contradictory to UCD principles. Table 1 summarises factors motivating the need for modifications to well known techniques classifying these into the categories: *physiological*; *psychological*; *cognitive*; and *societal* [13].

### Issues for further investigation

At the workshop described in [12] the following issues were articulated as requiring further investigation:

- Is it more difficult to run ethnographic studies with older adults given the more socially intimate nature of the activities being observed -i.e. in the home or other social space compared with much ethnography, which is workplace-focused?
- Can we give participants confidence that their ideas will make it into real products? This reflects the importance of providing feedback (sharing results, publications) to provide continuity between research sessions and provide context for investigations.
- Older adult participants are often engaged, mobile, active people. There is a challenge in expanding to less mobile, less engaged older adults and those living in disadvantaged areas. Are we reaching those who would really benefit from technology? What are the barriers to participation?
- Older adult participants often expect to use technology from day one and are disappointed by low-tech approaches. Motivation for taking part may be that they regard themselves as technologically skilled. Are paper prototypes enough? Do older adults tend to find it difficult to visualise interactions when using low-tech prototypes?
- Is there a place for caregivers in the methodology and usage scenario landscape? Can they be systematically included in research methodology and evaluation?

To address these questions and to extend the discussion into the development of usable mobile

systems for older adults, we propose a continuation of our successful workshop at MobileHCI2014. The main aim of the workshop is to widen the designer and practitioner community interested in inclusive design, by providing a forum that will act as a catalyst towards the development of a more complete methodology and set of tools for designing for older adults.

### Acknowledgements

The workshop is partly supported by the UK EPSRC Council through project reference EP/K024647/1 on designing mobile text entry for older adults.

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