

UNIVERSAL REQUIREMENTS FOR HOME TECHNOLOGIES

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1. ARE THEY DIFFERENT FROM US?

One approach to HCI and the older population is to ask how they are different from us. One can then measure their reduced capability, compared with us, and devise special adaptations to the technology to accommodate them. The inclusive design approach tempers this approach with the assumption that, with ingenuity, it should be possible to design technologies that both older and younger people can use. Power tools designed for people with arthritis can be equally attractive to people with no such problems.

It is important that parts of the population are not excluded from the benefits of new technologies because of poor ergonomic design. There is a degree of self interest here. We all will eventually be old (we hope). However, this paper is to argue for a different take on older people and HCI; this is to ask how older people are the same as us. As Alan Newell has argued [3], designing for an extreme population can highlight requirements that are of value to everyone. This paper briefly describes how research at York involving older people has helped us to think more clearly about the things we all want from home technologies. These will be discussed under the headings: dependability, sociability and enjoyment.

2. DEPENDABILITY

Some of our recent research has been concerned with technology to support independent living. This electronic assistive technology takes two general forms. The first are systems that support activities of daily living, for example a door opener could allow someone in a wheel chair to get out of a room, or let someone else into their house. The second type of electronic assistive technology uses sensor systems to detect emergencies such as a flood or a fall and get help via a call centre. These systems are critical systems in the sense that if they go wrong the consequences could be serious. There is thus a need to ensure that they are dependable. To this end we have been looking at existing standards that might apply to these systems [1]. We have also devised a risk management framework that includes social and psychological harms (e.g., dependency, loneliness and fear) as well as the usual concerns of injury and medical emergencies.

This technology, designed specifically for frail older people, foregrounds the need for dependability arguments in the design of home technologies, but dependability will

be an issue for many of the applications of ubiquitous computing that are being suggested, for all of us. It is not hard to envisage a smart home that locks its owner out, or worse, locks them in at the same time as cutting all links to the outside world. A robotic system could easily cause injury or damage to property. Social and psychological harms from technology seem less likely for younger age groups, perhaps because they have more choices. Nevertheless, a court case where a teenager sues Microsoft because their use of the internet has damaged their ability to socialise normally is not beyond the realms of possibility. This takes us on to the next universal requirement, sociability.

3. SOCIABILITY

Net Neighbours is a shopping service we have designed in conjunction with Age Concern York. It uses existing technologies: the telephone, online shopping and a secure database. Volunteer office workers take orders from older people who are unable to shop themselves, and then use a supermarket online shopping site to order the goods for them. The idea came from an ethnographic study of the hazards faced by older people by Mark Blythe. The problems that had to be solved by frail older people needing shopping were apparent in several interviews. What was also noticeable was that shopping is not just about obtaining food. For many it is an important opportunity for social contact. Net Neighbours takes account of this. The volunteer looks after only one or two older people and rings up for a social chat, not just to get the shopping order. The secure database supports them in this.

Loneliness and isolation are a particular problem for some older people because of reduced mobility and a reducing social circle [2], but we all want social contact. It is perhaps not an accident that the most successful recent recreational technology, the mobile phone, is a communication technology. It is quite possible that the near future will see similarly dramatic changes in social communication from home, once a critical mass of DSL connections is made.

4. ENJOYMENT

Much of the technology we buy for our homes is there to provide an experience. It may do something for us but that is not the point, it must also give us enjoyment, anticipation and pleasure. Because enjoyment is an ephemeral, present

tense, experience, it is particularly difficult to measure. Interrupting the experience to ask for self report will almost certainly destroy it. Asking about it after the event is also less than satisfactory. Darren Reed [4] has been developing an approach that looks directly at user behaviour to detect instances of group flow, i.e., those occasions in group socialising when the group are all fully involved in a transparently pleasurable way. His initial chosen area of study was some telephone conferences run by Hackney Borough Council [5]. Their Friendship Link connected together groups of 4 to 8 frail older using a telephone conferencing switch. Perhaps because these conversations were quite limited these incidents of group flow were particularly noticeable. Since these initial studies, we have observed similar behaviour in the conversations of young graduates in recreational telephone conferences with younger people and in the co-present group conversations of people sharing photos.

5. CONCLUSIONS

The message of this paper is a simple one. All HCI researchers with an interest in domestic technologies could benefit from contact with older people. Understanding their needs and wishes will generally point to universal requirements for home technologies. In the unlikely event that it does not - what the heck - you may still be able to

invent something useful for a very deserving user population.

6. REFERENCES

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