

# Engaging Those Who are Disinterested: Access for Digitally Excluded Older Adults

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## ABSTRACT

The advent of the digital economy has resulted in an increased emphasis upon the provision of new digital products and services. However, those who do not regularly use technology are becoming increasingly disadvantaged in this changing economy. Technology acceptance is determined by a number of factors. For older adults, recent evidence indicates that the most commonly stated reason for lack of adoption is a lack of interest, rather than the perceived affordability or difficulty. This paper explores issues surrounding technology acceptance for older adults, reporting on work designed to incorporate the *values* of older adults in the design process.

## Author Keywords

Older adults, design, inclusion, technology acceptance, digital economy.

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): *General*.

## General Terms

Design, Human Factors.

## INTRODUCTION

It is no secret that many older adults find themselves excluded from using the latest technology. Studies published within the past year show a lower degree of technology adoption by older adults than by those under the age of 65 [9, 13]. Even for those who use technology, the level of access is not equal to that of younger users. For example, access to the Internet is often through older equipment (offering less access to the latest applications), involving a limited number of activities when compared with younger users. Older adults tend to restrict their activities to email and basic Web searches, whereas

Twittering, blogging, and creating online videos are activities typically associated with younger users.

There are a number of reasons that have been identified as contributing to the digital divide, such as cost, geography, and usability, including interface issues that arise from age-related disability and lack of experience [7]. Suggested solutions often encourage increased engagement of older adults within the design process. However, recent surveys have indicated the single largest reason for exclusion is a stated disinterest in digital technologies [8,13]. We explore this in more depth via recent interviews with older adults. We conclude with a description of our current work designed to address the issues uncovered.

## BACKGROUND

In recent years, the concept of a digital economy has arisen, focusing upon digital services and networked technologies. Adopted by industry and government as a means of providing improved and lower-cost services and products, the move to digital interactions has created a situation in which a large number of people are not able to access these options. Recently announced goals of providing broadband coverage to people currently not connected are aimed at addressing the digital divide (see, for example, [1, 4]), but broadband availability is only one aspect of what is needed to get everyone connected. Affordability, usability, and perceived usefulness are also critical. Recent evidence highlights the importance of this latter factor for older users [11, 16]. For many, the perceived lack of usefulness of the technology is a major barrier [8, 15]. A recent survey in the UK asked digitally excluded older adults what would it would take for them to go online [13]. Issues of affordability (low cost computers and monthly fees), help (training and phone support), and easy-to-use devices (such as a touch screens with simple Internet interfaces) were proposed. However, respondents overwhelmingly indicated that none of these factors would be sufficient for them to go online. They simply were not interested.

A number of specific factors are associated with getting online and may help understand why there is a lack of technology acceptance [2, 5, 6, 8, 13]. Age is one factor, with younger adults more interested than older adults in adopting new technologies. In addition, those with better

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education, higher income, and higher fluid intelligence (as measured by cognitive tests of short-term memory and speed of processing) tend to be more willing.

### **SEEDS PROJECT**

The goal of the *Seeds*<sup>1</sup> project is to gain a better understanding of the needs of people excluded from participation in the digital economy. We believe that exclusion arises in large part from the fact that the push for new technology comes from developers, not from the end-users themselves.

The nature and scale of user involvement in the typical design process varies depending upon the methodology used. Inclusive Design and Participatory Design are two approaches that assume active involvement of users. In both approaches, however, the design process originates with, and is shaped by, the designer who retains the ownership of the process, using familiar design tools and techniques and controlling the outcomes. The *Seeds* project adopts a “user-push” methodology. Here, the goal is to empower older adults to participate in developing their *own* solutions that will serve to motivate their inclusion in the digital economy.

Our approach starts with the people, not designers. By listening to the voice of those who are digitally disengaged, we aim to develop a novel methodology that will enable them to take ownership of the design process, and to shape and lead development rather than to have design and technological solutions imposed on them by designers. Thus, we begin by working to understand the potential end-users and how technology would fit into their lives [14].

The *Seeds* team is interdisciplinary, combining complementary expertise ranging from sustainable product design and computer aided design systems to support early design activity, to applied linguistics, cognitive psychology, accessibility, and personal knowledge of difficulties experienced by people with learning difficulties.

### **WHAT WOULD YOU LIKE TO DO?**

As a first step in the *Seeds* project, we began by interviewing older adults who are not digitally engaged. Our goal was to consider whether there is a “killer app” of the sort that would trigger some of these disengaged people to want to become engaged. While admitting that there is unlikely to be a such a killer app that will appeal to all, it is possible that some insights could be gained that would trigger the interests of at least some of those who are currently disengaged.

We have conducted a series of interviews at universities in England and Scotland. These interviews were individually and informally conducted with older adults, with the goal of

understanding current technology use by the informants as well as current needs in their life with an eye to identifying possible technology solutions. The focus of the stories was on identifying things that people would like to be able to do but which they could not do at the time of the interview.

We report here on a subset of the interviews conducted (those from one of the universities involved) involving ten volunteers (seven female, three male), all over the age of 65 (range 68 – 84). During the interviews, all except one person discussed employment that they had had over the years, typically in factory or service industries. They were informed of the general goals of the interview and agreed to have their session recorded for the purpose of aiding researcher recall. Discussions were freewheeling, although did include specific questions about their use of various technologies such as mobile phones, digital television, ATMs, digital photography, and computers. As can be seen from the summaries below, these respondents had been exposed to a variety of digital technologies. Receptivity to these technologies was mixed.

#### **Mobile phones**

As might be expected from the literature, mobile phones were poorly regarded by this group of people. All informants owned a mobile phone, but only one said that she used it. In many cases, they had received the phone as presents from children. The phone remained unused even when family members programmed important phone numbers into the contacts list. One woman commented that the mobile phone made a good paperweight for letters she has on a table!

The one woman who did use her mobile phone said that she did so only after having tried several different models. Interestingly, she had tried a model with large buttons, but found that the buttons required too much force to push. She now uses a phone with smaller buttons that are easier for her to push with her arthritic hands. She uses the phone for both calls and for texting. She found it difficult to learn to text from family and instructional manuals, but easy to learn from friends who could speak her language. She finds predictive text visually confusing so does not use it. She says that texting allows her to easily stay in touch with family members.

Participants generally recognised that mobile phones were useful “in an emergency”. For example, one participant was able to use her phone to call both the police and her daughter when she was involved in a minor car accident on a country road.

#### **Digital Television**

Despite extensive advertising of the “Digital Switchover” in the UK, some informants were unsure as to whether or not their television was digital. Of those who did talk about their digital television, comments were mixed about the electronic program guide. While some expressed difficulty

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<sup>1</sup> <http://www.Seedsfordesign.com/>

using it (e.g., finicky remote controls, confusing interfaces), others enjoyed the ability to find and record programs.

### **ATMs**

For those interviewed, Automated Teller Machines (ATMs) often did not match up with their banking preferences. While some used ATMs, others indicated that they preferred the personal touch of going to banks. This comment about preferring more personal methods for transactions is one echoed in other work with older adults [10].

### **Digital photography**

Digital cameras were generally well received, although one person commented that he stopped using it because he lost too many photos on it. Participants were generally able to use their digital cameras without difficulty, expressing high satisfaction on seeing the resultant photos to reminisce about events in their lives.

### **Computers**

Several of our informants had tried using a computer, but gave up for a variety of reasons. In general, participants found it difficult to learn and keep up with constant developments, particularly if they did not fully understand the technology in the first place and, in several cases, where they could not identify the specific role that computers would play in their everyday lives. So, while most participants indicated a willingness to learn, they felt unable to invest the effort required to do so.

However, many participants enjoyed the benefits of what the Internet had to offer by using 'proxies'. These proxies tended to be family members who will look up information on the Web and do email for the older adult. In short, these older adults had learned how to have some of the advantages of the Internet while avoiding the hassles of learning about computers. Proxies also included peers in their age group who had taken to using computers. Interestingly, those proxies tended to be the most encouraging when it came to learning to use computers rather than family, who were often perceived as too technologically minded or disinterested in teaching.

### **In an ideal world**

Our interviews covered significant discussion about the lives the informants and the aspects they wished were different. It is perhaps not surprising that two themes recurred throughout all the discussions: A desire to easily communicate with family and friends and a need for transportation (to obtain groceries, medicines, and so on).

The first reaction to these comments is that services currently exist to deal with these issues. Consider the desire to communicate with family. Landlines and mobile phones are clearly designed for communication, although our informants indicated cost (for international communications) and lack of interest in using mobile

phones as barriers to use. There may be other factors, however, that go into the technology adoption equation here that were not specifically mentioned by the informants. For example, many older adults do not want to bother family members or interrupt at what they consider to be crucial times [3, 10]. Thus, phones, which by their very nature are instruments of interruption, do not address the communication desires of many older adults.

A variety of online communication methods, such as email, instant messaging, Facebook, and Skype, could also be used. Most of our informants had heard of these – some had even tried email or Skype – yet they were not interested in using them, despite being active, able-bodied individuals who felt capable of learning new skills and who were not particularly technology-adverse.

### **DISCUSSION AND NEXT STEPS**

New technologies and applications are primarily built by younger generations, taking into account the culture and skills involved. However, this approach has resulted in the disengagement of a number of older adults. Without attending to their *values*, and not just their usability requirements, such attempts end up excluding many.

Conventional usability wisdom considers that interfaces for older adults need to be simple and easily legible (with large text and buttons), as described in design recommendations for older users [12]. Multiple special purpose interfaces for older adults have been developed that address these needs [7] and, in extreme cases, special purpose computers have been developed. While intuitively appealing and particularly useful for getting novices started, many older adults are not interested in such technology, stating that even these purpose-built interfaces and devices would not entice them to use computers [13]. It is clear that this population of non-users will not become adopters until we change their perceptions about the usefulness of technology or until technology itself changes to better address their interests and needs.

An interesting finding from the *Seeds* project thus far is how much 'invisible' computers, based or built upon traditional technology well known to this user group, were accepted as opposed to 'visible' desktops or laptops. For example, digital televisions and cameras may be acceptable because they are not perceived as computers *per se*. Rather, they are viewed as merely contemporary versions of recognisable products. Seemingly, the less new technology 'looks' like a computer, and the more it resembles a technology that already plays a role in peoples' lives, the more likely it is to be accepted and potentially used older users.

The next stage of the project is to develop a virtual participatory design method that could be used to help designers better understand older users. It is not sufficient to make technology accessible for older adults (although this is a needed step). Rather, it is important to make

technology that is worthwhile and, in some sense, needed in their lives. With *Seeds*, the informants' stories are being collected in a digital form to produce a repository of social stories to engage designers, helping them to understand issues important to this segment of the population that often lacks a voice in the development process.

## CONCLUSION

When talking about technology adoption by older adults, two common questions arise:

- *Does everyone need to be digitally engaged?* Many older adults believe that their life has been fine so far without using these technologies, so there is no need to change [16]. The fact is, however, that the world is changing to one in which those unable to participate in a digital economy are disadvantaged in terms of consumer power, access to basic services, and access to readily available knowledge and entertainment. Without product and service alternatives to digital offerings, those digitally excluded will become increasingly socially excluded.
- *Isn't this problem with older adults one that will go away with the next generation of older adults?* We have argued previously that without attention by designers to the needs of older adults this is a situation that will not change. Age-related disability will not subside and the rapidly changing nature of technology will require future generations of adults to learn technologies much different from those currently in use [7].

Technology acceptance models predict that, in order for a technology to be accepted, its usefulness (the benefit) must be worth hurdles that have to be overcome for its use (the cost). For those older adults not using current technology, there is a clear indication that the costs outweigh the benefits. This involves more than improving usability. The benefit of the new technology must be clear. To accomplish this, it is important to understand the values of those not currently engaged.

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