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Teletalker – presence software with a bell

Marianne Markowski¹ & Mark Springett¹

Abstract. The Teletalker is the main author's research tool to address the question of how to design online soncial interaction for older people. The Teletalker is an online video system connecting two places, i.e. a Teletalker kiosk at each location. The Teletalker is constantly on – like an online window into the other space – and provides a simple mechanism to switch the volume on in order to have a conversation. The main purpose of the Teletalker is to demonstrate the benefits of online connectivity to older people and to initiate discussion in the wider community. In the demonstration the authors would like to show the bespoke software written for the Teletalker by having it installed on two computers or tablets in two different locations. Through a question and answer dialogue with the co-author at the other end, conference participants will learn about the aim and the methodology employed for this research.

Keywords. Online social interaction; older people; small talk; ticket to talk; constructive design research

Introduction

For this research the term "older people" has been defined as 65 years or older since this is how the European Commission defines older people in general (European Commission, 2012). It is a highly diverse group (Goodman-Deane, Keith, & Whitney, 2008; Newell, Dickinson, & Smith, 2006; Tinker, 1997). The majority of computer novices in the UK are found in this group (Lane Fox, 2010: National Office for Statistics, 2009). The main reason identified for choosing to stay offline is that older people fail to see the benefits of online technologies (Melenhorst, Rogers, & Bouwhuis, 2006; Wagner, Hassanein, & Head, 2010). The main author conducted a literature review and concluded that online connectivity can be beneficial to maintain social contacts. Particularly, in times when physical and mental health decline and social ties reduce, it is important for older people to maintain social contact for their psychological well being (Blažun, Saranto, & Rissanen, 2012; Lester, Mead, Graham, Gask, & Reilly, 2011). The aim of the research is to design a system that facilitates the online social interaction of older people.

Methodology

In order to address the wicked problem of designing for such a heterogeneous group with different needs the main author decided to provide one design proposition (Buchanan, 1995; Cross, 2007). She decided to employ constructive design research – also called research through design – as a methodology (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011) and built a system based on synchronous online video connectivity, which she calls the Teletalker.

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Figure 1. Field research June 2012 - a group of older people use the Teletalker kiosk at Middlesex University to speak to a person at Age UK Barnet

It needs to be noted that the system is not intended as a commercial product. The system has been iteratively re-designed by involving older people in the design process. The Teletalker aims to be simple and intuitive in functionality, so that any person without computer literacy is able to use it. After several rounds of field research the main author organized a participatory design workshop, where she invited a selected group of stakeholders in order to design the future of the Teletalker. She asked 3 groups consisting of academics researching older people, people working in organizations with older people, older people and designers to be hands on with the Teletalker concept but re-developing it by using the "keep-change-lose" method (Frohlich, Lim, & Amr, 2011). Three high-level designs emerged, which could form the basis for commercial use if further developed: one design was concerning virtual hospital visits, another remote shopping experience and that last one was developed for life-long online learning.

Choosing online video connectivity

The main author decided to concentrate on online live video connectivity as the basis for her constructive design proposition. Her literature review showed that live video connectivity may be the closest form of online communication compared to offline face-to-face communication considering social presence (Biocca, Harms, & Burgoon, 2003; Connell, Mendelsohn, & Robins, 2001; Lombard & Ditton, 2006; Walther, 1992) and media richness theory (Daft & Lengel, 1986). Concentrating on online video only meant that older people did not need to learn how to use the computer in order to be online and to be connected with others. The data collected by the National Office for Statistic (ONS) on the use of online video calling by age groups confirms the trend that older people are more likely to adopt online video communication than social networking sites (National Office for Statistics, 2009, 2010). Through informal interviews the main author collected several anecdotes where an older person decided to use a computer or tablet in order to be able to Skype with their grandchildren. In those instances, where the benefit for using online technology was obvious to them, the technology acceptance was higher (Melenhorst et al., 2006). The main author's interest was to demonstrate to computer illiterate older people the benefits of online technology by highlighting the opportunities of copresence (Zhao, 2003) and to get them to be involved in the design process.

Field research with the Teletalker

The first version of the Teletalker was built and tried out 'in the wild' (Brown, Reeves, & Sherwood, 2011) by connecting the communal room of the day centre in Age UK Barnet with the entrance area of Middlesex University for one week during June 2012. The Teletalker kiosk was designed with reference to the furniture of 1930-50 TV sets, hiding the computer in a big brown box (see Figure 1).



Figure 2. An edited video clip showing the use of the Teletalker. http://www.youtube.com/watch?v=Ucoy6pm3wyI).

The two spaces were connected via Skype, which was left on throughout the day, but the sound was muted. A simple hand sensor consisting of a light sensitive receptor connected via arduino to the PC was used to mute and unmute the sound. The volume was off by default in order not to disturb the environments. If two people wanted to communicate they were able to place their hand over the sensor and speak to each other. The hand sensor was designed with an older person's strength in mind.

The majority of the Age UK Barnet day centre clients are over 75 years old, computer illiterate and has some type of mobility impairment. Feedback was collected through direct interaction through the Teletalker, observations, informal interviews and consented video recordings. The returns of the field trial showed mixed reactions. The Tuesdays and Thursday clients of the day centre were more open to the Teletalker and tried it out by speaking to students and staff. Some outspoken day centre clients of the Wednesday's and Friday's group were suspicious of the Teletalker system and did not want the "screen" near them, resulting in switching the Teletalker off for one day and placing it into the foyer on Friday. Students and staff on the university site were open to trying the Teletalker spontaneously. The concept worked in regards to providing a window into a different world and "providing a sense or feeling that you are present in the proximity of another entity" (Mennecke, Triplett, Hassall, Jordan, & Heer, 2011, p7). Several students commented that they previously had no idea what happened at an older people's day centre. The hand sensor for the volume button and using Skype as software proved to be unreliable at the time. A video clip summarizing the highlights of the field research can be seen here http://www.youtube.com/watch?v=Ucoy6pm3wyI).

Improvements to the design were carried out such as adding speakers, streamlining the code concerning the volume mechanism before trialing the system for a second time by placing the Teletalker in two different locations in Middlesex University. Returns were again inline with Zhao's mode of corporeal telecopresence (Zhao, 2003) but not only referring to individual interactions. Students commented on the fact that one of Teletalker kiosks was near the coffee bar and they were able see, who was there and see how long the queue was. One important observation was that students did not start a conversation through the Teletalker with another student they did not know before. One of the reasons for this was that rarely two students approached the Teletalker at the same time in order to start a conversation. In order to have interaction through the Teletalker, the main researcher placed herself near one of Teletalker kiosks so she was able to respond to any communication.

From Teletalker to Telewalker

The opportunity arose to design the Teletalker for a London care home for older people. Two care homes were merged and the new care home management was interested in introducing the residents who usually stay in their lounges, to each other in a 'fun' way. In order to adjust the original Teletalker kiosk to the requirements of the care home's residents (age range from 80-100





Figure 3. Field research July 2013 at Age UK day centre in East Finchley, London – a daycentre visitor speaks through the Telewalker. The blue button switches the sound on / off. The smaller button activates the bell. The laptop is hidden behind a cover, so that the keyboard does not distract.

Figure 4. Teletalker software interface showing large icons for the bell and that the sound (microphone icon) is switched on. The interface design of the software has been improved with colour added.

years old, most suffer from mental or physical impairments), the Teletalker was re-designed into a Telewalker. The Telewalker, using a laptop placed on a desk with wheels, is more easily transportable and can be moved to the residents. The simple volume mechanism was changed into a large button for more obvious affordances (Gaver, 1992) (see Figure 3). The main author works in collaboration with the KIT (Keeping in touch) Charity – the charity that volunteers at the London care home – in order to trial the Telewalker. The aim is to introduce the technology slowly and to facilitate the connection between the lounges, before the Telewalker is trialled for an extended period of time without a volunteer.

Also, instead of relying on Skype as originally used for the Teletalker, bespoke software using WebRTC was written (see Figure 4).

In order to get people's attention for a conversation a bell functionality has been included in the software. The bell and volume functionality was also offered by designing a box, which included two buttons and which was connected via arduino to the software using a google app in chrome. The big blue button with LED light was the button to switch the volume on and off and a smaller button was the bell. During field research at the Age UK day centre in East Finchely the bell seemed to be particularly enjoyable for some older people to press. It seemed to make them feel in control.

The difference of the Teletalker software to other video connectivity software

The concept of the Teletalker in the sense of connecting two spaces audiovisually, is not new. There are plenty of video conferencing systems such as Cisco Telepresence and HP Halo on the market for business purposes. Skype, Oovoo, Googlehangouts, Facetime are also easily available video connectivity software running on various devices. The Teletalker software differs from those since it is built on the WebRTC platform and does not need a specific log in or registration. Talky (http://talky.io) also based on this platform and allows people to video connect over the internet, but their current service is not performing reliably. In addition, it is the bell functionality, which sets the Teletalker software apart from other video connectivity software. The Teletalker



Figure 5. Latest visual design for the Teletalker software for tablet use. Note: the design is subject to change and it may look different on the day of the demonstration.

software is constantly on, and provides a view into the other space, rather than offering a facility to 'dial' a specific person for a private chat. However, if a person has a question and would like to get attention from someone at the other location, the bell can be pressed. The volume, or effectively the microphone, can be easily switched on when people would like to communicate.

Setup at the conference

In the demonstration the authors would like to show the bespoke software by having it installed on two computers or tablets in two different locations at the conference. Through a question and answer dialogue with the co-author at the other end, conference participants will learn about the aim and the methodology employed for this research. Ideally, the Teletalker software will remain installed on those computers / tablets during the conference duration, so people can try it out and play with it in their own time. A suggestion would be to place the Teletalker(s) in areas such as near the water cooler and in the lunch area or entrance areas.

The Teletalker software is by default muted, but the video connection will be constantly on. If people like to have the attention of a person on the other side, they can ring a bell and then switch the volume on with a simple mechanism. See figure 5 for the latest visual design of the software, designed for tablet use. The authors will welcome any feedback on the concept during and after the conference.

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