

# Towards Better TV Interaction for Older Adults

Jan Brejcha, Eva Laňková, Jana Kratěnová, Anna Pokorná, Martin Šotola, Martin Buchta, Zuzana Pipková

Charles University  
Faculty of Humanities  
Electronic Culture and Semiotics  
U Krize 10, 158 00 Prague 5  
The Czech Republic

[jan@brejcha.name](mailto:jan@brejcha.name), {7977,6694,6340,6264,11725,11722}@mail.fhs.cuni.cz

**This paper presents a research focused on how older adults (aged 60 or more) interact with their TV receivers, what is the setting for such interaction, and how these people perceive their usability needs related to their age and health problems. Since the elderly people are a rapidly growing part of the Western population, a thorough research into their usage patterns is as much needed as it is neglected by the market. Our research is done through a semi structured interview based on a comprehensive questionnaire. It examines current use of TV and related technologies and suggests that the current interaction paradigm is obsolete and ineffective face to face still growing information load. One of the interesting points is the emotional attachment to the remote control and a strong need for tailoring the functions to the users. On top of the findings the authors provide future lines of research that will lead towards constructing a functioning prototype of a remote-controlling interface based on the collected data and personas created for the purpose. This prototype will include better feedback through on-screen control, personalisation, list of favourites and better accessibility through back lighting of the buttons of a recharger/detection system.**

*elderly, television, interaction, inclusive design, questionnaire.*

## 1. INTRODUCTION

Elderly people are an important and growing part of population in Czech Republic (as well as in other countries).[1,2] The number of elderly who use a TV remote control has increased rapidly in connection to affordability of this technology. However, these users' requirements are not often considered neither in the design of remote controls, nor that of TV software. As a result, the elderly find it difficult to use all of the features TV remote controls offer. In order to accommodate older users' effectively, it is important to find out how this population interacts with TV and utilizes the remote control. As a first step towards this we created a questionnaire including questions of use, personal experience and user needs, and surveyed 21 participants over the age of 60. Our research took place during a course of Interaction Design and drew its inspiration from the UTOPIA Project.[2]

## 2. METHODS

The questionnaire was drawn up to obtain information about the reaction of older population towards design of their remote control. The sections of most interest to this paper are those focused on TV use and difficulties according to their experiences, health problems and skills. These contained questions on the context of using a TV remote control, the use of TV remote control applications. In addition questions about other technology use and skills, including their previous experience were asked. The information obtained from these questions provides us with a picture of how older people use TV remote control, a rough estimate of their general level of technical expertise and what they find unsuitable on TV remote control. Throughout the questionnaire there was space available for comments, which enrich our picture of the population and provide deeper insight into the difficulties.

### 2.1 Distribution of questionnaire

Regarding the fact that older people might find it difficult to fill in the questionnaire on their own and to elicit richer, more in-depth information, the questionnaires were administered by researchers who used them as the basis for semi structured interviews.

## 3. RESEARCH

### 3.1 Context of Use

Most of the respondents use analogue receiver TV with a basic offer of four programs (only four among all have more than ten programs). Once they have set up TV (with help from relatives) they use remote control (further RC) only for switching programs, volume and switch on/off function. Other functions -buttons- cause confusion and are not required. Majority watch TV regularly for more than two hours a day, often as a background for other activities, they switch programs frequently. Since most of them use specific RC for more than five years they would refuse radical changes in structure of it (like universal RC for more than just one device). On the other hand changes that will make RC easier to use (ergonomic shape, bigger illuminated buttons, aso.) will be welcomed. Watching TV is a relaxing entertainment and RC should help increase the comfort of it.

### 3.2 Needs of our target group

There are two segments of the target market. The first one has no problem with using technologies and has no ailment. This group is content with the normal TV remote control and doesn't require a special one.

Members of the second group have smaller or bigger problems with technologies. The majority of them has a family member or friend, who helps them with the set-up and control of new technologies. The members of this segment would also need to wear glasses and must change them (ones for long distance, ones for short distance) whenever they need to use remote control. Some of the respondents have also problems with hand shiver. Solution of this ailment is to construct a remote control which will have bigger coloured buttons placed farther from each other.

Most of the respondents switch programmes during watching TV and do more things at the same time. Most often they would change programmes and volume. So this is another reason why to construct a clean and simple remote control with small number of button. More buttons are not necessary and escalate probability that the viewer will keep pressing the wrong buttons.

All of the respondents prefer using a remote control and don't want to change this. They seem also to be somewhat emotionally attached to it.[3] Respondents usually don't prefer one universal remote control for more devices and don't have interest in controlling TV by voice.

## 4. CONCLUSION

We found questionnaires to be a useful means for finding out about the older population, particularly in the early stages of a HCI design project. Done on a larger scale and age span, they could provide better quantitative data but with a limited number of respondents they can provide an opportunity for further discussion with older people, allowing one to get to know the target user group better. This paper presents some of our findings from such study, highlighting needs towards decreasing technology complexity. This barrier can be overcome, at least to some extent, by appropriate design. In the future we plan building on this work by investigating older people's interactions with digital TV technology using novel interaction methods and applications.

## 5. FUTURE WORK

Our future efforts will be directed towards designing and testing novel interfaces that would eliminate the shortcomings of the current approach, which is marked by the problem of two interfaces (one on the remote control and one on the TV display),[4] complexity and low accessibility, and towards following the needs of older adults regarding TV and ICT interaction.

### 5.1 Starting points

The remote controller should be very friendly tool for everybody who uses it.

Our contemporary society is used to using all the types of remote controllers. Tele-acting and tele-observing is becoming a part of everyday practices in high-developed countries. After the Computer Revolution in 1980s the television has already become an already ancient medium. Remote control was designed to change programmes offered at that time, mute the sound and tune colour parameters of the screen. No objection against this perfect invention that worried marketing departments of companies which promoted in TV so much because people could change the channel WITHOUT moving their body (and replace promotion holes in the movies by surfing on another channel), but we think that the idea of remote control is quite old and that this tool could be used in much more effective and friendly way.

### 5.2 Possible functions

What new functions could we image in remote control? We tried to summarize our ideas influenced by new media studies. Here is a short list of goals we would like to incorporate in our future prototypes:

1. On-screen control. Remote control should have just several buttons (arrows, confirmation and cancel button, favourites - mentioned later) and most of the functions would be displayed and controlled directly on the TV screen.

2. There is no personalization in remote control. Whole families are using the same remote control regardless of age and knowledge of technology. With on screen control everybody could have his own „portal“ to start surfing on the channels. This topic is closely connected to favourites channels mentioned in the next point.

3. Favourites. If we accept the idea of a personalised remote control (user just choose a profile by his fingerprint for example) we could follow the circumstances evolved from that. Contemporary digital television has several hundreds of TV channels. It is a waste of human brain to remember all the numbers of channels which are interesting for user. Remote control could „remember“ the channels chosen in past and make list of favourites channels. We can group the channels by topic - sport, news, entertainment, cartoons etc. Those lists of topics could be „pushed“ by TV companies to TV as teletext[5] so it would not be necessary to classify the channels by user.

4. Recharger point. Infra-red rays have several disadvantages - necessity of direct visibility of both points, clearance of the display etc. We suggest using more sophisticated technologies based on different wavelengths as WI-FI or Bluetooth (mobile phone could supply function of remote control by easy java applet). Remote control should occupy one place in the room where you can ever find it. The idea is to have a recharger place (as the contemporary wireless fixed or cell phone has) so you never need to change batteries inside. If somebody forgets to return the remote controller to its place you could push a button on the recharger and the remote controller would start beeping in order to be findable.

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[2] <http://www.computing.dundee.ac.uk/projects/UTOPIA/Publications.asp>

[3] Norman, D. A. (2004). *Emotional Design*. New York: Basic Books.

[4] <http://www.computing.dundee.ac.uk/projects/UTOPIA/publications/Carmichael%20-%20DesignStyleGuideFinal.pdf>

[5] Teletext is an information retrieval service provided by [television](#) broadcast companies. Teletext pages can be viewed on television sets with suitable [decoders](#). They offer a range of text-based information, usually including national, international and sporting news, weather and TV schedules. Subtitle (or closed caption) information is also transmitted in the teletext signal. (<http://en.wikipedia.org/wiki/Teletext>)