ABSTRACT
The main aim of my PhD is to design and evaluate accessible interactions of older people with DTV (Digital TV) services related to communication and e-health information. DTV opens up a wide range of opportunities for older people to communicate with their social circles and access to online information. However, DTV services are not accessible to older people. I address this problem by considering three relevant and relatively unexplored areas in the field of DTV accessibility with older people: real-life accessibility barriers, everyday use of DTV and cultural differences. I will follow a user-centered design methodology with a contextual component in order to observe and talk with older people while interacting with DTV in real-life settings, and to design and evaluate prototypes with two user groups (Spain and Brazil). I seek to identify the most and least relevant accessibility barriers for older people to interact with DTV. I also expect to identify their needs and real use of DTV services, and discuss cultural differences in the two previous aspects. These results will take current DTV research with older people forward.

Keywords
Digital TV, older people, real-life accessibility.

1. INTRODUCTION
There is growing interest in improving ICT (Information and Communication Technologies) accessibility to older people. In my PhD I focus on DTV, since it is an emerging technology that opens up a wide range of opportunities for older people to access digital information and services that can (and should) improve their quality of life. The aim of my PhD is to design and evaluate accessible interactions of older people with DTV services related to communication and e-health information. I concentrate on communication because it serves critical functions in ageing [7]. I focus on e-health because older people look for information about health when they go online [1]. In the rest of the paper I describe the problem, expected results and methodologies. This is followed by what I expect contribute to DTV (and HCI) research with older people and to gain from this doctoral consortium.

2. OVERALL PROBLEM
Older people consume a lot of TV content. However, moving from analog to digital TV is a mixed blessing for them. Whereas DTV opens up opportunities for communication and access to online information/services older people run the risk of being unable to use them, due to their general lack of digital skills and the tendency to exclude older people from software and hardware developments. The populations ageing, the relevance of DTV for older people and their accessibility barriers when interacting with it create a need to make DTV more accessible to older people.

Some studies have addressed DTV accessibility for older people ([5], [9], [12]). They have mainly focused on developing novel prototypes, without exploring the real-life of DTV by older people. However, understanding everyday interactions is a crucial element to design better, and therefore, more accessible interactions. My PhD addresses this overall problem by breaking it into three specific aspects: (i) accessibility barriers; (ii) everyday use; and (iii) cultural differences in accessibility and use. Next I explain my motives for concentrating on these areas.

3. MOTIVATION
Whereas the accessibility barriers that older people face while interacting with the web, e-mail systems and other technologies have been explored ([3], [10]), very little is known about the accessibility of DTV interfaces for them. However, this is a crucial step for older people to use and interact with DTV. As stated in [9], significant work still should be done to design interfaces that are more usable to older adults and can support their skills and abilities.

Regarding everyday use, according to [2]: “the major open research question in ITV is when, and how much audiences want to interact with devices, content, and other people”. Previous studies have shown that communication systems (as e-mail) are very popular among older people ([3], [11]). Some studies have also suggested that communication and social interaction through TV are important applications for them ([9], [12]). But there is no information as to how older people interact with DTV in their daily life. However, there is growing awareness in HCI that understanding how people interact with technologies in their daily life is a key step to design better (and therefore, more accessible) technologies [6].
I am currently creating the pool of users; designing the material for with the DTV services need to evaluate and design prototypes. I am in contact with companies that will provide me methodology. I am in contact with companies that will provide me

At present

In relation to the user group, I have carried out a literature review and defined the accessibility barriers that hinder more severely the interactions of older people with DTV - prototypes related to communication and access to online information about health; (B) examination of how older people interact with and use DTV in real-life settings; and (C) exploration of cultural differences in accessibility barriers and use of DTV amongst older people living in developed and underdeveloped countries.

I will follow a user-centered design approach, with a strong contextual component guided by the Contextual Design methodolgy [4]. The general design and research stages of the study are: (i) Contextual investigation: Interview and observe users group, considering older people needs, patterns of behavior and accessibility problems; (ii) Interpretation and Data Consolidation: Identify key points and common understanding related to the previous stage. (iii) Brainstorm solutions: Propose solutions. Identify what applications could do to address the full potential; (iv) Paper prototypes interviews: Perform many times; (v) Prototype testing: Usability tests with high-fidelity prototype.

I am going through these steps by focusing on the scenario involving older Spanish people. After going through some of the stages and getting some results, I will focus on the third objective, cultural differences. In order to compare data from two different countries these stages will be perform in another scenario (Brazil). The results will be analyzed by using quantitative (experimental design) and qualitative (content analysis) techniques.

Methods that may be including in this study are: first-hand observation of users behaviors; interviews; questionnaires; focus groups; low and high fidelity prototypes; usability studies; and analysis of log files.

In relation to the user group, I aim to work with 40 older people (20 in Spain, 20 in Brazil) ranging from 65 to 80 years old. Our user groups include participants with low education levels and little experience with ICT (and DTV). All of them will have TV at home and be motivated to interact with DTV. Ethical concern forms will also be used throughout my research.

5. STAGE

At present, I have carried out a literature review and defined the methodology. I am in contact with companies that will provide me with the DTV services need to evaluate and design prototypes. I am currently creating the pool of users; designing the material for the contextual analysis and exploring the technologies to develop DTV prototypes.

6. CONTRIBUTION ACCESSIBILITY

I aim to contribute to HCI research with older people with: (i) an understanding of accessibility barriers in everyday interactions; (ii) identification of their real needs and use; and (iii) discussion of relevant cultural differences in both accessibility barriers and use of DTV services in developed and developing countries.

7. PARTAKING IN THE CONSORTIUM

I hope to receive feedback from experts in the area, especially in terms of the design and evaluation methodology: challenges, opportunities, methods, data gathering and analysis. This will be an excellent opportunity for improving my presentation skills and meet other PhD students working on accessibility with whom I could share my work.

8. ACKNOWLEDGMENTS

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9. REFERENCES
