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TOWARDS UNDERSTANDING E-GOVERNMENT WITH OLDER PEOPLE AND DESIGNING AN INCLUSIVE PLATFORM WITH THEM

- PRELIMINARY RESULTS OF A RAPID ETHNOGRAPHICAL STUDY

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Abstract

The ageing population and the growing importance of e-government reinforce the need for further e-government research with older people. We have conducted a rapid ethnographical study aimed at understanding attitudes of older people towards e-government related activities and Information and Communication Technologies. We present initial results derived from our study and discuss a potential scenario for supporting information sharing and promoting a more active and dynamic participation of older people in their neighborhood, which we consider a relevant aspect of e-government with older people. Our initial findings suggest that a variety of inclusive aspects, such as socialization, face-to-face contact, or mutual support impact the use and adoption of e-services by older people.

Keywords: e-government, older people, social inclusion, ethnography

1. Introduction

An increasing ageing population and the relevance of e-government in current society create a need for furthering research into e-government with older people (60+). In addition to social and ethical issues, having access to information and being able to

act on it are two key elements of independence in later life [Gilroy 2005]. While governments are providing citizens with an ever-growing number of online services, the barriers of Information and Communication Technologies (ICT) for most of older people mean that they might not make the most of them.

Whilst older people are often considered passive users of e-government services, which also tend to be delivered unidirectionally, a 3-year ethnographical study of ICT use by around 400 older people showed that older people are not passive at all in their everyday use of ICT, and social inclusion and independence (i.e. not relying on anyone else) are key aspect of this use [Sayago and Blat 2011]. In this paper, we extend the discussion to e-government services.

An increasing number of governmental policies are addressing the need for fostering the involvement of older people in local communities in an attempt to avoid isolation and encourage active ageing. Governments are also looking into effective communication strategies for delivering services and useful information to their citizens. We consider that ICT can (and should) help to achieve these goals, and, as understanding people's everyday interactions is crucial in developing better ICTs [Bødker 2006; Moggridge 2007], we look into the (lack of) use of e-government services by older people in out-of-laboratory conditions .

We aim to understand the role that ICT could play in creating and sustaining social interactions among older people over time, which we consider crucial elements in enhancing e-government services for senior citizens. We started to address this issue by exploring the solutions older people develop when engaging themselves in social interactions and activities in their local areas, according to their social context and resources. We have been doing it by conducting a "rapid" ethnographical study [Millen 2000] with circa 45 participants (aged 60-80) over a 5 month-period. The results show that the sharing of local information of older people is rich, contrary to popular stereotypes, and their use of ICT is thoughtful and inspiring for conceiving useful e-government services for them.

We also aim at envisaging e-services that increase older people participation within their communities, by building upon our interpretation of the ethnographical results and by conducting participatory design workshops. These activities have led to design concepts of an inclusive platform for e-government.

We have been conducting this work within the context of the Life 2.0 EU project [Life 2.0], which aims at making the network of social interactions more visible to older people by implementing a platform which should enable them to track, locate and communicate with relevant members of their social networks (i.e. relatives, friends and caregivers).

The rest of the paper is organized as follows. Section 2 reviews previous work on e-government and Human-Computer Interaction (HCI) with older people related to the objectives of this paper. Section 3 describes the ethnographical study, the methods and the analysis of the data. Section 4 presents our initial findings. Section 5 describes the participatory design activities and design concepts of an ongoing e-government platform conception. Section 6 discusses the main conclusions and outlines future work.

2. Related Work

E-government is receiving growing attention, especially with 'ordinary' users of e-services, such as young and adult people, from several perspectives, as illustrated by the different papers presented in the HWID workshop at INTERACT'11 [Katre et al. 2011]. However, we argue that older people have mostly been overlooked, despite the

increasing ageing of the populations worldwide. This section reviews previous research on e-government with older people related to this paper.

2.1. More accessible governmental services

HCI research on e-government with older people has been generally focused on improving the accessibility of governmental websites. Often, the approach adopted is to compensate for age-related changes in functional abilities, such as vision, physical impairments and cognitive decline. For example, Becker [Becker 2005] conducted a study on 50 state and 50 federal e-government home pages and showed a number of usability barriers (e.g. "banner blindness", font size, screen length, performance and translation efficiency) that might limit access of those websites by older citizens. Other studies have addressed the design of web forms, which are a key element of e-government services [Lines et. al, 2007; Money et. al., 2011]. Lines et at. provides design guidelines for government online forms, addressing issues related to layout, simplified question structure, data entry assistance, justification for personal/sensitive questions, personalisation.

Pinder [2004] argues that the major barrier to the take-up of e-government services is the difficulty in the information access, given the poor design of most governmental websites. Navigation is often driven by the inner structure of governments, so users are required to know which department provides the service to determine the appropriate section of the website to find the information. This example, amongst others, suggests that web design in the area of e-government has often focused on government needs, rather than on citizens'.

2.2. Older people attitudes towards e-government services

Other studies have looked into the attitudes of older people towards e-government services, which are an important part of ICT and e-services adoption, especially amongst older people, who are usually described as being afraid of the technology.
According to [Sykes 2008], personal contacts, especially contacts within their social circles, is the way older adults use mostly to access information. On the other hand, they barely have direct contact with local government and agencies, and mainly seek information relevant to them, by looking for data that enhance the factual information and meet their specific needs.

[Curzon et al. 2003] conducted a contextual inquiry with 8 older people to explore the strategies they use to seek web-based government information and compared them with the way they normally perform this task. The results suggest that participants were developing their own strategies by building upon their "crystalized" abilities of information seeking. For example, a woman used her phone book to find how the council called its housing department, and typed it as the search term in the web browser. The results also suggest that older people's metrics of effective and satisfying government information searching are based on social criteria, such as the possibilities to socialize and to talk with others.

Phang et al. [2006] investigated the effect of perceived usefulness and perceived ease of use to predict the use of an e-service allowing senior citizens to withdraw cash from their social security saving plan. The results showed that older people's perception of usefulness was driven by both tangible benefits, such as resource saving, and intangible benefits, such as motivation to stay up to date on technological skills. However, human contact did not affect perceived usefulness. The authors associated this result with the low perception of the quality of the service provided by the personnel. Ease of use was found to be affected by computer anxiety and

computer support, but not by declining physiological conditions inherent to the ageing process.

Overall, these studies suggest that the design of e-government services for older people should be driven more by social and inclusive goals than by the all-important usability aspects, to cover better all the aspects involved in the overall e-government experience. This paper present a rapid ethnographical study carried out to address this issue.

2.3. Towards citizen-centred design

Criticisms about e-services provision have resulted in placing citizens at the centre of the design processes and research efforts. Studies adopting this approach have addressed several aspects, such as the design of the web-based government services [Hamilton et al. 2011], the evaluation of e-services [Wang et al. 2005], the measure of citizens' satisfaction [Verdegem and Verleye, 2009] and the cost-benefit of the adopted approach [Bertot et al. 2008].

Følstad et al. [2004] focuses on how user involvement is actually conducted in e-government projects development. The results show that involving users' representatives in the project team were the most frequent strategy. Gilroy [2005] suggests a bottom-up approach that looks at creative older people as catalysts to changing governance cultures and modernising local government. His discussion draws upon examples of case studies in which older people have been involved in working groups not just as generators of ideas, but also as equal partners that collaborate together with professionals and researchers throughout the process (i.e. seeking, giving and creating information)

2.4. Ethnography in relationship to citizen-centred design

There is a growing awareness in HCI of how important is to consider the social context of system use and everyday interactions and experiences in order to design *better* technologies (e.g. Bødker 2006; Moggridge 2007; McCarthy 2004). HCI has looked to ethnography to develop this understanding. As reviewed in [Sayago and Blat 2010], the main virtues of ethnography in HCI are: (i) to make visible the context of system use, social practices of interactions and communities' sensibilities which might not otherwise be encountered [Macaulay et al. 2000; McCarthy and Wright 2004]; (ii) to provide explanatory frameworks for whatever is observed that offer us new ways of imaging the relationship between people and technology [Dourish 2006]. However, ethnography is much less popular in HCI research with older people than laboratory-based studies. An exception is [Sayago and Blat 2010], who conducted a classical ethnographical study of ICT use by nearly 400 older people over a 3-year period, finding that socialisation, social inclusion, competence and independence (i.e. not relying on anyone else) are key elements of ICT in out-of-laboratory conditions by this user group.

The paper builds upon this previous study and extends it by looking into how older people use ICT to conduct (or not) e-government-related activities.

3. Description of the rapid ethnographical study

3.1. Context

We have conducted our study in Àgora, a 20-year-old adult educational centre in Barcelona. Integrating into the Catalan society people who are, or might be, excluded

from it, such as immigrants, non-educated or older people, is a key objective of Àgora. This is done through informal learning in courses (e.g. computing, languages, mathematics or literature) with over 1000 people (using Àgora's terminology, 'participants') taking part in them monthly. Àgora, and its participants, consider that mastering ICT is crucial in achieving social inclusion, so courses in computing, Internet access and workshops are provided. Participants decide what ICT they want to (learn to) use according to their needs and interests: courses and workshops are geared towards supporting their daily life activities. The participants are also encouraged to play an active role in the association, by, for instance, voicing their opinions in monthly public meetings, and making decisions regarding future plans of the centre and research projects.

All these activities are free for the participants, and most of them, supported and encouraged by local authorities. For instance, the *Òmnia* point, a computer room where people take courses in computing and go online, is part of a Catalan network managed by the Catalan Government aimed at increasing the digital literacy in Catalonia. Àgora is also connected with the Education Department of the Barcelona city council and Catalan government, since teachers working in them run official courses (e.g. access to university for people over 25 years) in Àgora.

3.2. Research methods and participants

The results presented in this paper build upon 90 hours of fieldwork activities in Àgora's computers room. The activities consisted of *in situ* observations and conversations with around 45 older people while using several ICT, ranging from Google Maps, Facebook, weblogs and YouTube. Around 35 participants were familiar with basic and more advanced ICT-related tasks. We have also conducted two, 1-h focus groups (6 women, 2 men) to elicit everyday life stories, and one semi-structured interview with the director of social services of the area to understand key stakeholders in e-services for older people.

We recorded fieldnotes by using inclusive technologies in Àgora: paper and pencil, and photographs. Laptops and video cameras might have been considered intrusive since there are no laptops around and participants are not used to being videoed during their everyday interactions with computers. We took most of our notes at the end of the sessions, since our direct involvement in them hindered taking detailed notes while being there. Although this might challenge their 'veracity', it also indicates the engagement of the participants in our research.

3.3. Data analysis

We have been analysing our fieldnotes by using Grounded Theory [Charmaz 2007], while gathering the data. This consisted of extracting the main categories and subcategories from the entire body of fieldnotes, and defining the relations between them. The core categories that emerged from this analysis are:

- Relation with e-government services: emotion (fear of being excluded, willingness to learn, independence); training; mutual support; trust.
- Sharing of Information: type of information; channels; actors; channels' problems; peer-to-peer sharing; peer-to-peer advice.

4. Key findings of the ethnographical study

4.1. E-government services

4.1.1. Older people want to use e-government services

The first question is whether older people want to use e-services. Our participants are aware of the growing number of ICT services being offered to citizens, but they consider that society seems not to be concerned about the difficulties older people have in using them.

[Woman B, 66]: '*Now there're many services offered in Internet, for example the other day I found out that my electricity company allows me to pay the bill via Internet! I think it's a great idea! But someone should help us (older people) understand how all this works. The same is happening with the health system. Now you can make doctor's appointments through a web page. What happens if in the future this would be the only way we've to make an appointment? We go to the school (Agora) because we want to learn and be up-to-date with technologies and the new services, but we also need support; most of these services are difficult to use for us!'*

During a conversation with 9 participants, 4 of them reported feeling frustrated and excluded when not being able to use the most recent services that allow people to, for example, make an appointment with the doctor by Internet or pay the bill online.

[Woman A, 61]: '*I'd like to be able to pay the bill online; this would avoid me going to the bank and stand in a queue. However, I'm afraid of making mistakes. What happens if I do something wrong?*'
[Woman B, 66]: '*I agree it's difficult for us! However with all these new technologies and services growing every day, we need to learn as much as possible if we do not want that our grandchildren look at us as persons coming from the prehistory*'

In a session with 17 women, with low to medium experience with ICT, they showed interest in learning how to make an appointment with their GP online.

4.1.2. Social support is a key step towards using e-government services

Peer-to-peer support throughout the learning process is a key point for motivation, socialization and new learning. Continuous training is a strategic point for increasing the adoption of ICT (and e-government services) by older people. When approaching ICT for the first time, they tend to be negative and pessimistic, feeling that they will never be able to master the tools. However, once this first step is passed, they are willing to learn new tools and they wish to be independent users. They mostly rely on peer-to-peer support to solve small problems and increase their knowledge. Mutual support is considered a natural part of their relationships and they want to help peers. For instance, to overcome the problems they experience in using e-government and other online services, the group of 17 women who showed a big interest in making an online appointment with their GP, reported relying mostly on friends, relatives and the training they receive in Àgora.

[Women G, 74] "*I know that when I have a problem with my computer and can always ask help to (name).*"

[Women H, 61] '*I am often here at the school and if I can, I am pleasant to help. Sometimes, we chat while we are at ours home and we try to solve problems together.*'

Figure 1. Participants working in a group during a class on mobile phones (left) and GoogleMaps (right).

4.2. Rich sharing of information

4.2.1. Type of information shared

The majority of information shared by our participants is about leisure activities, such as events organized by Àgora or by other social services and volunteer organizations. All the information regards activities in their local area. They also often share information about upcoming services addressed to them, such as the deadline to book for the organized pensioners' travels. Less popular are conversations about primary services, such as health.

4.2.2. Sharing with people they know, and through specific channels

We observed that our participants did not read the brochures or leaflets in Àgora with information related to these activities. This was not because they were unaware of this printed material. It was because their sharing is mainly conducted face-to-face with their peers. 45% of the participants reported that they missed out events or activities because they did not go to Àgora, or because none of their friends had informed them about upcoming activities.

Close friends often share information by phone and do not use e-mail for this. E-mail is used to share informal content and information they find on Internet, or to pass on jokes, powerpoints or public exposure regarding local or national government, to their close friends.

4.2.3. Trustful, thoughtful and appreciated sharing

They do not rely on e-mail to inform friends of an event. Two participants commented that this is because they did not want to be forced to access the e-mail every day to know about something; they prefer to call or wait to meet a friend in class and tell him directly. Moreover, our participants appreciate when their peers give them information, advice and support. Peer-to-peer sharing of information is particularly valid because information received by a friend is perceived as an advice and encourage them to participate. All their social contacts are more familiar with their interests: they know what to suggest or what information a friend needs.

4.2.4. *Social networking technologies for sharing information? First, making sense of them*

We also observed the use that older people made of social networking sites (SNS) to understand the role that these tools play in supporting the sharing of information. All our participants looked really interested in learning to use Facebook and asked us to give them a special class on this topic. However, SNS are mainly used by the most advanced users. The most used functionalities are the video and photo galleries. They mostly use SNS to share YouTube videos or upload photos of family and friends. Often videos and photos are about an event that took place in a local area (e.g. local dances). One of the main barriers in using SNS is the huge number of possible connections: this increases the sense of losing control and all participants in the SNS class were continuously asking us who can read the messages posted on the wall or written privately to friends, or who can look at the photos in the gallery. Some 70% of them said they were not interested in reading the messages of nephews' friends on their noticeboard and complained that these messages make their noticeboard chaotic. This suggests that although mostly older people are attracted to Facebook because their family talk about it, this tool seems ineffective in supporting intergenerational communication. Our observations suggest that the use of SNS might increase if older people would feel they are using the tool for a *clear goal*, with known persons and in a restricted and controlled environment.

5. Towards an inclusive e-government platform

As stated in the Introduction, this work has been conducted within the context of Life2.0, which aims at designing and developing an accessible online platform for making the social networks of older people more visible to them. By building upon the ethnographical insights in Section 4, and without aiming to reduce them to a mere list of 'bullet points' [Dourish 2006], in this section we describe our first attempt to make explicit some of the implications of the ethnographical results for designing an inclusive e-government platform. To do so, we built upon our ethnographical analysis to conduct participatory design workshops promoting discussion around the design of potential services. At the same time the discussion allowed us to deepen and extend our understanding of the findings of our ethnographical research.

5.1. Participatory design workshops

We have conducted two participatory design workshops during the third and fifth month of the fieldwork activities, and took place in Àgora since this is a natural setting for our participants.

The first workshop was carried out by three members of our research team, and one representative of Àgora. Ten participants (5 men, 5 women) attended the workshop to elicit ideas for services that cover participants' needs. During the session, the researchers were taking notes and stimulating the discussion by proposing scenarios of use.

Based on the results of the first workshop and the fieldwork activities carried out in parallel, a second workshop was organized. It was attended by 9 participants (4 men, 5 women), three researchers, one representative of Àgora, and representatives of two ICT industries involved in the Life2.0 project. During the workshop, concrete scenarios of services were presented using storytelling to facilitate comprehension and start the discussion. Conversation was promoted through questions that tried to cover all the stages and functionalities of the services. Participants were asked to tell their

ideas, whether positive, negative, or neutral. While we were discussing the ideas with the participants, some of us were taking notes and written down ideas in "post-its", which encouraged participants to further their contributions to the workshop.

6. Implications for the service

6.1.1. Supporting the sharing of information

Our results suggest that there is a generalised need to support the sharing of information among older people within the local community. Often, many activities are organized for them but final "customers" are not always informed, when a key aspect of a service is its diffusion, so that they can access and use it. In the neighbourhood we conducted the fieldwork, there are several social service providers that offer different activities for older people each diffusing the information using different channels. Participants in the workshop asked for a centralised distribution of the information so that they would not be forced to access several different sources.
Based on this, we envisage a service which addresses two main goals: 1) help social service providers to organize and disseminate the activities/events; 2) promote an active role of older people within their local community by allowing them to propose and suggest activities and by encouraging their role of promoters of the service.
The service should allow:

- service providers to publish activities, events and all related services addressed to older people;
- older people to both access a list of upcoming events/activities and add/propose a new activity;
- older people to recommend or invite their friends to an activity using a recommendation/invitation system, therefore promoting the service to other potentially interested people.

6.1.2. Supporting face-to-face contacts and building trust

Our results suggest that leaflets and web sites used to inform about the activities are not very effective. Our participants mostly rely on face-to-face and peer-to-peer contacts for sharing information about local activities; however, this is not merely due to the inefficiency of the other methods, but also because "physical socialization" is important for them. It seems therefore relevant to include these aspects in the service. The service should not replace face-to-face contacts, but instead try to stimulate them and, at the same time, support information sharing in case face-to-face contacts are not possible (e.g. the person is sick and cannot go out). Moreover, our participants wished to be more active in the use of social media, when and if they feel in control of who can read their messages or see their pictures. During the workshop, participants agreed that they would feel more comfortable to use the service if they clearly see a trusted authority (e.g. Àgora) behind it.

Considering these two points, we envisaged the use of the service both in virtual and "private" environments (e.g. access a webpage from home), and in public settings using public screens. The public screens should be located in social centres, and/or other potentially interested organizations of the local area. We hypothesize that the advantages of using public screens are: (1) to promote discussion and face-to-face contacts around the screen; (2) to enable collaborative access to the service; (3) to promote peer-to-peer support and therefore facilitate the access for the ones who are not confident in using ICT, (4) to build trust among users and towards the service

since the relation between the provided service and the trusted entity it is made visible. Moreover, we hypothesize that the offline use of the service will increase an active participation in the online platform.

6.1.3. Facilitating the use of the service

The use of the service can be fostered by allowing the access through different devices, such as TV, PC and mobile phones. TV is a well-known technology with which older people feel comfortable interacting; this device can be especially thought for the users who are less advanced with PCs. PCs are becoming widespread among older people since they often receive unused ones from family members; access through home PCs will be most suitable for the seniors who are more familiar with this device. Finally, mobile phones are widely used among older people. All our participants have a mobile phone that they always bring with them, however only 40% of them feel confident in using it. Accessing the service on-the-move through a GPS mobile phone, would allow receiving and sending updated and geo-localized information, thus facilitating notification of events or publication of activities.

Besides multi-devices access, training and technical support must always be provided if we aim at a wide adoption of the service among older people. Training classes should be organized especially during the initial period of use of the service, while general support should be provided throughout the period. Finally, mutual support between themselves should be encouraged.

7. Discussion, conclusions and future work

We consider that citizen-centred perspectives in e-government should be driven by understanding the social and situated context in which the technologies (and e-services) are used and their everyday use. The results of this paper seem to confirm it, and suggest that socialization, mutual support, face-to-face contact, and trust are important aspects in older people's attitude towards e-services. Although our results are built upon observations and conversations with motivated ICT users, they seem to implicate a number of ways to foster service use and adoption for less digitally engaged users that we have indicated. However, further research addressing this issue is needed.

We did not directly explore existing government webpages since we concentrated on technologies and tools that our participants use and want to use, without forcing them to use others, as we believe that this leads to results that are more relevant.

Time constraints of R&D projects and [Millen, 2000] encouraged us to narrow the focus of the field research when entering it. We did so by building upon our previous extensive ethnographical work on ICT with older people [Sayago and Blat, 2011].

Whereas a key aspect of ethnographical research is to tell a story by giving voice to the participants, the preliminary character of the results moved us to include very few voices, since more research is needed. Yet, these initial findings represent a step forward beyond considering cognitive decline and usability issues as the only usually acknowledged factors affecting the engagement and adoption of e-services by older people.

We have presented preliminary results of an ethnographical study, which fits in the category of 'rapid' or 'quick' one, due to relatively short period of time spent in the field, as opposed to classical ethnography [Fetterman, 2010]. Our rapid ethnographical study aimed at understanding the role that ICT (can) play in e-government with older people by supporting and reinforcing their social interactions and participation in local areas. We have also presented a first description of a

scenario derived from these results, which we consider can help older people's access to e-services, and increase their participation in activities conducted in their neighbourhood. In this scenario, older people are both creators and consumers of information, which can foster information sharing and support.

Our preliminary findings highlight some of the potential benefits of using ICT for enhancing the participation of older people in the social life of their neighbourhood, reducing social isolation and promoting a more active role of them within their community. At the same time, ICT might be used to build a direct channel of communication between older citizens and their local organizations, facilitating the sharing of information and providing direct support.

Contrary to common stereotypes of older people as e-services users, we have revealed a great interest and willingness to use (and learn) such services and our results outline important factors impacting the overall e-government experience, such as socialization, independence , face-to-face contacts, mutual support, sharing.

We are gathering more data, widening and deepening our analysis, and expect to conduct field intervention studies aimed at evaluating prototypes in out-of-laboratory conditions (i.e. social contexts). The goal is to explore the effect that the service introduced and technologies integrated produce on the sharing of information and events, and we will adapt a mixed-research approach (i.e. quantitative and qualitative data) to understand better the results. We will research into the impact of different elements on the perceived sense of social connectedness with the community, on increasing (or decreasing) engagement in activities, and on the effective broadcasting of information within the network of neighbours, all of which being key elements of e-government. We aim at progressively extending the range of action of the intervention studies, starting from a small and controlled context, such as Àgora, moving to a slightly larger one, such as several social services located in the same building of Àgora, and finally the service will be tested in a large context such as the entire neighbourhood. The latter one will be the target for the Life 2.0 service platform. Throughout the period of the intervention field studies, we will carry on focus groups, training classes, and design workshops with our participants, to transform the design process into a continuous customization process.

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