

Keeping “InTOUCH”: An Ongoing Co-design Project to Share Memories, Skills and Demands through an Interactive Table

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Abstract. We describe the first phases of an ongoing co-design project for a cooperative distributed space, based on multi-touch technologies, through which older adults engaged in the activities of recreational centres in their everyday contexts could keep in touch with others, for example other recreational centres, and with a general public. The project’s main goal is to foster the active participation of older people as producers of resources related to their experience and know-how and to the activities carried out in the centres, to be shared in a community context. The project aims to fulfill some seniors’ needs and wishes as “always learning new things”, “being with others” and “not staying at home”.

Keywords: co-design, older people, memories, skills, interactive table.

1 Ageing and ICT

In 2002, the World Health Organization adopted the expression “Active Ageing” to express the concept of ageing in connection with concepts of social participation and safety, with the aim of improving older people’s quality of life [15]. The United Nations identifies specific psychological dimensions behind the concept of Active Ageing that are: dignity, independence, participation, care, self-fulfillment. Even though most of these dimensions rely on the emotional aspects of ageing, many research projects in the domain of Ageing and Information and Communication Technologies (ICT) primarily focus on the design of assistive technologies and monitoring systems, offering a representation of older persons mainly characterized by their weaknesses, passiveness and failings [8,9].

More recently, a growing number of research studies have focused on the design of ICT systems which aim to foster social interactions for older adults in peer-to-peer communicative contexts [2], in intergenerational communities [3,16], also through the development of virtual game platforms [4].

From a technological point of view, the last years have witnessed considerable advances in the possibility of interaction with ICT systems. The advent of mobile computing devices as smartphones and tablets quickly widened the access to multi-touch technologies and multimedia integration. These technologies

have proved to be effective in lowering the digital divide between different generations [1]. A standing research challenge is to use them in forms that can be inclusive and supporting of older adults and of their needs and wishes.

The ongoing co-design process we present here, called InTOUCH, aims at creating a service that is rewarding from the emotional and social point of view. It provides older people with the chance of maintaining already existing meaningful personal connections and building new relationships inside a community in which experience and competences they gained through life are shared with others, in order to support their active participation in their life environments.

At the same time, also the other users of the service, with a special regard to younger adults, can benefit from the contents and information produced within the system and the interactions shared.

We propose, as a “community tool”, an interactive table, i.e. a horizontal multi-touch screen designed to digitally support collective activities in their usual meeting space (a recreational centre) without losing the communicative possibilities of “around the table” meetings. This technology is proposed integrated with standard tablet technology (to be used outside of the centre or in the centre for special purposes like recording).

Paper Organisation. In Section 2 we discuss the methodology of the InTouch project and in Section 3 we report on findings from a previous study. Section 4 presents the ICT service, while Section 5 sketches interaction with them through a multi-touch tabletop. Finally, conclusions are given in Section 6.

2 The “InTOUCH” Co-design Project: Methodology

A co-design project is based on some main assumptions, first of all the definition of “users” as unique experts of their own experience [12] and not only the “prototype” of users who will evaluate and test the new service/product [11]. Recently, many research projects focused on ageing and ICT adopted a co-design perspective in order to better include seniors in the design process [2,6,16]. The InTOUCH project follows the same approach, involving as co-designers a group of 14 older adults (13 females and 1 male) aged between 76 years old and 86, who are members of two daily recreational centres for frail older adults in the X Municipality of Rome. Both centres are part of a local social co-operative.

Since the start of the project, the design team recognised that a co-design process with the group of older adults required the active participation and involvement of two main groups of stakeholders: the management of the cooperative and the group of caregivers who work every day with seniors, in order to better stimulate them during the work sessions and to avoid frustrating experiences due to requests for skills they could not support.

The InTOUCH project has started in June 2011 and is running for three years. It is a long-term design process undertaken by an interdisciplinary research team, organized around some main phases. In the first phase seniors participated in an in-depth user experience (UX) research, whose main activities were:

- a first “user forum”, during which the project, its phases, goals and methodology were described;
- co-construction of the seniors’ life stories and interviews on their everyday activities, a crucial activity for better knowing seniors’ past and present lives, their competences and know-how;
- co-realization of guided video tours in the seniors’ homes, to “situate” their narrations about daily activities and life events in their everyday spaces;
- two workshops on specific subjects: the first focused on the interactions of seniors with modern technologies; the second on the experience of sharing memories related to their own “objects of affection” within a group;
- a workshop of “needs prioritization”, in which the most important older participants’ needs (and wishes) were better identified (see Figure 1).



Fig. 1. The workshop of “needs prioritization” in the recreational centre

The second phase of the project, still ongoing, focuses on the development of the concept of the ICT service through the use of some service design tools as personas, narrative scenarios and user journey. Caregivers and managers have played a crucial role in generating the service concept.

Currently, the research team is designing the interaction system and the service interfaces involving seniors and caregivers in workshops with low-fidelity prototypes, also taking into account the critical points related to their use with this specific group of participants [7], as discussed in the next Section.

3 Main Findings from the Co-constructed UX Research

From the UX research some main needs emerged. We describe them in order of importance from the senior participants’ point of view:

- *Always learning new things.* Learning is described as what allows self development and synchronicity with the present time. It supports the perception

of the life progression. The main learning wishes expressed by seniors are to be able to use computers (especially in order to gather from the Web information about practical aspects of their lives), to cook, to better know the city where they live. Many older participants recognize their know-how and expertise (typically cooking and sewing, as participants were mostly women) as “gifts” they have and they would like to share with others. Other seniors, however, have difficulties in identifying their skills or abilities.

- *Being with others.* The need to be in touch with people, to share activities within a group is quite important for senior participants. The time spent with others is mostly dedicated to informal communication and storytelling. The most gratifying communication is with friends or people close to them in everyday life (e.g. young volunteers met in the recreational centre). Beside chatting, older participants like to share activities like cooking or sewing, already carried out in the recreational centers. Other activities they would like to do together are traveling and strolling around the neighborhood and the city, as they did in the past. But they complain of the growing difficulty to meet other people due to their health problems and to the lack of a large and supportive social network.
- *Do not stay at home.* The home time, spent in loneliness, on the edge of recreational centers activities, is mostly described by seniors with an emotional tiredness. The home, scattered of tangible memories and emptied of real presences, remember “delights and sorrows”, as a participant said.
- *Helping others (or feeling oneself helpful) and being helped.* The need of helping others, to enhance the perception of their usefulness, emerged during the user forum with the older adults. But during the final workshop of “needs prioritization”, terms changed in favor of the need of being helped. “Who can we help? We need to be helped”, an older participant says. Helping others seems to be something done in the past when their abilities and agency were better recognized than now.

3.1 The Experience of Storytelling

The life story activity presents an emotional ambiguity between the opposite needs to forget and to remember through storytelling. The experience of narrating their own stories is most positive when it is possible to choose and select what to tell, e.g. in workshops focused on objects of affections, in which objects are selected and stories are told about them. The shared dimension of storytelling within the group adds value to the experience. Seniors’ narrations are also characterized by their strong localization in the places where events happened.

3.2 Representations of Technology

In the course of the UX research, older adults have also expressed some specific representations of the “modern technologies”. Technology is useful and comfortable if it answers specific needs otherwise unsatisfied (see also [5]), as in the case of the cellular phone. Technology is also “intriguing”, especially for some

familiar features seniors already know as the visual functionalities of digital technologies, for example watching films, documentaries, photos of cherished persons and “to talk with others”, as a participant says. The written dimension is perceived as too tiring and not appealing. Digital technology enters older people’s everyday life through the mediation of meaningful others: children, grandchildren or caregivers of the recreational center.

4 The InTOUCH Service and Its Objectives

On the basis of our findings, we created a concept for an ICT service that responds to the cognitive, emotional and social needs of the older participants.

InTOUCH is an ICT service that allows older adults who participate in activities of recreational centres to become part of a community in which a specific pool of resources is created and shared, in order to build meaningful relationships among users.

The members of the community interact with each other in an interactive map where the resources are localized. The choice of the map as metaphor of the service is due to the will of enhancing the seniors’ wishes to learn new things about places where they live, not to stay home, and to be with others for traveling and strolling around. The InTOUCH service is a journey within geographical places, known and unknown, and the resources associated with them. These consist in: 1) TALES, short stories of events, biographical or not, linked to places; 2) KNOWLEDGE IN ACTION, video tutorials for learning specific activities; 3) TOURS, guided tours of places; 4) QUESTIONS, requests coming from the members of the community for specific competences or know-how they want to learn and to know. Resources will be produced and enjoyed under the form of short clips, taking advantage of the seniors’ interest towards the visual functionalities of digital technologies. They will be localized in the map and visualized according to categories described above.

Older adults of the two recreational centres, with the support of caregivers, will be the first active members of the service, by creating a first pool of resources to share, that are related to the activities usually carried out in the recreational centres. In short, the InTOUCH service allows:

- *to foster the learning* of the digital technologies by using them as tools for creating new knowledge on that domains most quoted by seniors, among them the knowledge of places;
- *to enhance the sharing* of seniors competences and expertises, also by empowering the awareness of their abilities and skills;
- *to keep in touch with others* by carrying out practical activities together;
- *to empower the usefulness perception* of older adults and their ability to help others, and to answer for others’ requests, as something not only related to their past life experiences but also to their present time;
- *to foster the storytelling* as positive experience, by activating the selectivity of reminiscence and improving the normal attitude of older tellers to link their narrations to their life places (past and present);

- *to enhance the representation of digital technology as useful* and comfortable since it answers for specific needs otherwise unsatisfied;
- *to make use of the mediation of meaningful others* for the introduction of the InTOUCH service in older adults' everyday environments. In particular the recreational centre will be the first touch-point of the service for older adults, taking into account its role in their everyday lives.

The InTOUCH service also aims at becoming a tool for creating new relationships between older adults and other people that could become vis-à-vis relationships. Caregivers have to be able to use the service to fulfill their role of guiding activities and facilitating comprehension and access to technologies. People close to seniors will support them when using the service outside of the recreational centre and will also access and request contents as a way to share knowledge and interact with older people. Other persons using the system will access and request contents to share knowledge and build social relationships.

5 Devices

We defined some requirements for the devices to be used by the older adults and caregivers: 1) Audio/Video Recording Capability; 2) Portability (for ease of recording and transportation between centre and home/outside); 3) Graphical and Natural User Interface; 4) Possibility of exploring/organizing contents in a map based view; 5) Possibility of playing contents; 6) Support for group activities in the recreational centre. The first three requirements are met by the use of tablets. To support collective activities we propose an interactive table. The service will be available also to the general public as a web application in order to provide the desired openness.

5.1 An Interactive Table

The interactive table consists of a table whose upper surface accommodates a multi-touch display (see Figure 2). The table is designed to support collective activities of a small group, up to four active users at a time, centred on the research and exploration of the available resources (see Section 4).

To provide comfort and support interpersonal interaction [14] we opted for a basic rectangular table with space for legs below and some free space near the edges of the tabletop (to rest arms or to put objects). At each side there will be an earphone plug to be used in case of independent content fruition.

The layered interface has the Interactive Map at the bottom. On the map lay the Points of Interest (POIs), that are the locations which are related to some content. When a POI is tapped or dragged it exposes its content through the appearance of a Floating Content Thumbnail (FCT) that can be arbitrarily dragged and reoriented to support natural collaboration roles [10].

To support and suggest personal areas of action [13] Personal Panels can be summoned from each side and dragged to allow different arrangement of users.

In each Personal Panel, among the other commands, there is a clearly designated Personal View Area in which a FCT can be dragged to be viewed. The content on display can then be also enlarged, becoming a Resizable Content View that can reach the most comfortable size depending on user and group needs [1].

The interface is multidirectional, the map being the only graphic component with global orientation, which can, however, be changed to favour another user through the "Navigate the Map" command. The favoured user is the only one who can change the map view searching for a location or filtering visible POIs.

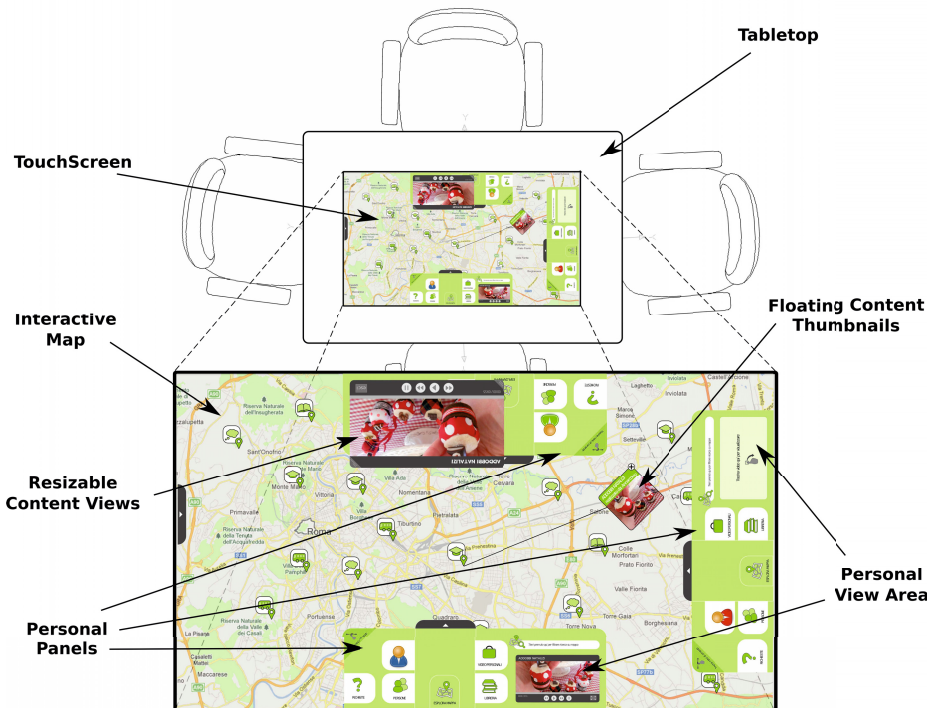


Fig. 2. The interactive tabletop. A view from above with the active area enlarged.

6 Conclusions

We described the methodology and experience of co-design with a community of older adults participating in activities of a recreational centre, in order to realize an ICT service fostering "active ageing" and participation in their cultural and social life contexts. We studied their needs and wishes, their relationships with memories and storytelling and their representations of technology. From the findings of our study we designed a service to reach social engagement by sharing of knowledge and life experiences, both in digital form and vis-à-vis.

We chose to use a digital tabletop system as main access point to the system and sketched the design of the device and the interface. Currently, we are carrying on the process of co-design of the interfaces of the InTOUCH service. In the meanwhile we plan to carry out some UX research aimed to reach a general public, especially young people, through the service.

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