Participatory Design of a Digital Reminiscence Application

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Abstract

With the goal of designing applications for the social support of elderly we have followed a Participatory Design (PD) approach in the design of an application for supporting reminiscing activities. Four PD workshops were conducted to explore how reminiscence takes place and progressively co-design an application for its support. The demo allows the user to experiment our reminiscence application, which is the result of the PD process. This accompanying paper presents a brief description of the PD experience, the design choices it inspired and a reflection on the overall process.

Author Keywords

Reminiscence; Elderly; Participatory Design

Introduction

Reminiscence, the practice of revisiting our past, is a human experience common to all ages, with some of its forms gaining more importance as we grow old [1]. Its practice help us, among others benefits, to create our identities, maintain our relationships [2], increase our life satisfaction and lower or prevent depression [3], which has led to its use with therapeutic purposes [4]. To investigate how reminiscence takes place and how to support it, we adopted a PD approach and organized four workshops where seniors of a community center helped us to iterate the design of a tablet application

Figure 1. Our introduction to the community: the laboratory of ICT
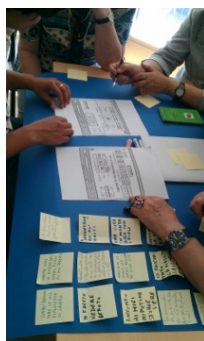
Figure 2. Brainstorming with paper prototypes during the first workshop.
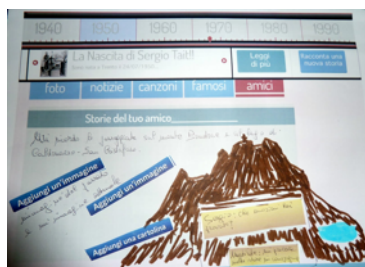
Figure 3. Screenshot of our first wireframe printed in paper, with design feedback on top.

for stimulating face-to-face social interaction around the practice of reminiscence. In this paper we discuss our motivation and findings, related to the application design, our methodology and the resulting demo.

Motivation and Related Work

When we started our research on how to improve social support of elderly, our initial focus was set on remote asynchronous interactions to increase feelings of social connectedness [5]. This initial experience allowed us to observe how important it was for elderly to meet others face-to-face, leading us to shift our focus to the design of technology for motivating people to meet the elderly, improving that interaction when they are right there with them, making it more fun and enjoyable. With this in mind, we have chosen reminiscence as the activity to motivate this interaction, based on its benefits and its importance for the elderly. HCI has seen some recent interest in supporting reminiscence [6], encompassing ways of stimulating [7], collecting and preserving[1] and curating or sharing memories [8]. We focus on stimulation of reminiscence in a conversational context, a preferred scenario for social reminiscence [9].

Research Approach: Participatory Design

We began this project by introducing ourselves in the community through a participatory action research project [10] centered on a laboratory of ICT for seniors, where they themselves selected the topics they wanted to learn [11]. Giving the personal nature of reminiscing, the trust we gained with the laboratory facilitated their involvement in the PD process, consisting of four full-day workshops distributed in 6 months, averaging 20 participants, aged 60 to 84, and 5 to 8 facilitators each

workshop. In the first workshop, we used some of our applications[2] to help them familiarize themselves with tablets. In the second, we focused on what make them reminisce and observed the experience. Combining our intuitions, observations and questionnaires from the second workshop, we created a wireframe prototype of the tool. We played with and co-designed on top of this prototype during the third and fourth workshops, using both digital and paper versions. Facilitators observed which content seemed to raise more attention and interest, and which content or feature was confusing.

Insights and Evolution of our Design

The workshops informed our design in three domains: i) which **content** stimulates reminiscence, ii) in which **scenarios** does it takes place (where and with or to whom), and iii) which features can best support the **user experience** of reminiscence.

Content of Reminiscence: the most important insight from the workshops is that triggers are fundamental for motivating reminiscence, especially "visual" triggers. Common triggers we have observed are post-cards and tourist guides from past trips, personal printed photos (particularly those related to travels, family and moments of pride) and newspaper articles. The easiest theme to explore was travel. Work-related stories were often associated with jokes and funny subjects as it was with school-related stories. Affections triggered opposite reactions: half reacted happily and ready to tell; half said it belonged to a personal sphere of their lives ("this story is only mine"). All this, however, can be very different in a more intimate context (e.g. family).

[1] Memoro: www.memoro.org

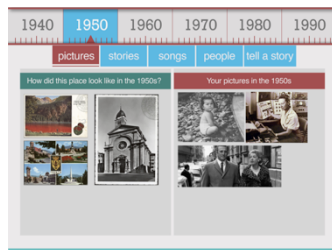[2] Our previous work can be found at: www.lifeparticipation.org
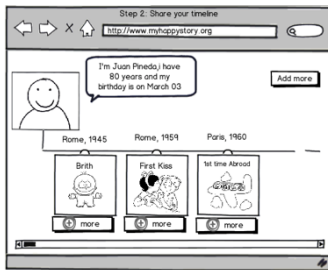
Figure 4. Design Evolution. First paper prototype focused on visualization through a timeline.

Figure 5. Design Evolution. Second version focused on timeline, stimulation through questions and related information.

Figure 6: *Current Design.* Main screen, focused on stimulating reminiscence with contextual cues.

Scenario of Reminiscence: most participants would share their stories to "whoever wants to get in game" confirming results of previous research [12], changing only the level of detail according to the audience. Storytelling is a fun activity, but not everyone is ready to do it publicly. Many expressed that memory exploration is also pleasurable when alone, because they can stay longer in "important pictures".

User experience of reminiscence: most participants did not want to write and would rather just talk about their stories. Usually, there was a need of anchors for storytelling (e.g. initial questions about life). Once storytelling started, life was usually referred to as divided in stages (before and after marriage, before and after parenting). Therefore, a timeline metaphor was used for navigation in the prototype with two flavors: one divided in years and the other in stages (e.g. childhood). The year-based timeline proved to be simpler, while the stages-based timeline had problems concerning what was part of each stage (e.g. "does childhood include also my initial school years?").

Evolution of our design: All these insights informed our design and influenced our original ideas. Figures 4 to 6 show how our design evolved from a simple paper prototype, passing through an intermediate version, up to the current design, where the focus is placed on stimulating reminiscence by displaying information related to the context of personal life stories (i.e. triggers). Moreover, to provide storytelling anchors we introduced contextual questions before adding new stories (Figure 7). The story editor was changed to be drag-and-drop driven, emulating the creation of story posters that was so much enjoyed during workshops (Figure 8). Voice recording was also added. After the

workshops, we realized also of the potential for collaboration to tell stories about shared experiences. We included then a "collaboration" feature in our story editor, to allow users to invite others to contribute to the story. Finally, due to the importance of physical items of memory, we plan to include the feature of automatically cropping pictures, so that it will be easy to digitalize printed pictures (Figure 9)

**Reflections about the PD experience**
Working with elders entails taking into account that they are more fragile than younger people, sharing characteristics with other users with impairments [13]. We were aware and prepared for this issue in our previous experience in retirement homes, but we did not expect this to be relevant for this group of younger and autonomous elders, without significant physical or cognitive signs of decline. Nevertheless it turned out that the nature of reminiscence is too emotionally strong for some participants. In this sense, trust was key to maintain participation. Elders going to the daily center build trust in the staff, trusting the people working with or supported by the staff. We based our "approach to the elders" on building trust with them, but as it turned out, we were actually gaining an even more important trust relationship with the staff, who effectively became a gatekeeper of our relationship with the elders. Trust is also a long-term investment, which makes PD a costly endeavor. Furthermore, the need of many facilitators for the workshops forced us to involve several volunteers, many of them available only for a limited amount of time, making it difficult to have appropriate debriefing sessions. A PD process like this would go much better if there are at least 2 or 3 researchers following the whole process and doing the analysis together. Another insight is the relevance of

Figure 7. *Current Design.* Contextual questions as a starting point for storytelling.
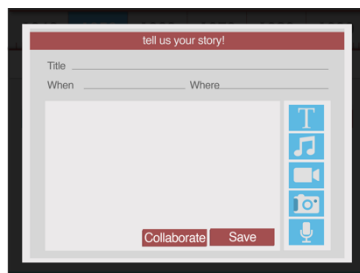
Figure 8. *Current Design.* Drag and Drop life story editor with voice recording support and a collaboration button.
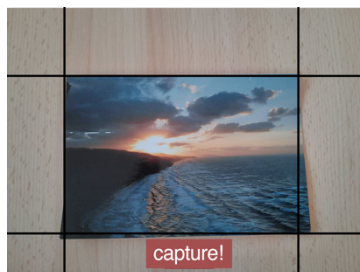
Figure 9. *Current Design.* Digitizing physical memories, with automatic cropping of images.

the time between workshops. When we left for more than one month, participants and researchers both took more effort in rebuilding the context for collaboration. Moreover, finding the proper mix between the unknown and the familiar is important, balancing "stability" with elements of "novelty" not only in content and features, but also in the relationship with researchers. It was reassuring for participants that some facilitators were always present. Finally, as it is probably common with users who had little experience with technology, abstractions such as video component images were complicated to grasp in co-design. It is better to replace them with simple, self-explanatory, labels that textually explained the meaning of the component.

In summary, *Reminiscens* is about organizing personal life stories in a timeline and automatically generate a context composed of items that occurred somewhere nearby the place and time of the stories in the timeline. The intuition is that both personal resources (e.g., personal pictures) and related context will stimulate reminiscence and conversation around this practice.

Acknowledgements

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