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Motivating Elderly People to Use Fall Preventive Exercise Training Games at Home: Are Community Based ICT Features Always a Good Choice?

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Abstract. In this paper we present first insights of designing community oriented exergames for elderlies to motivate them to use fall preventive exercise training at home over a longer period of time. Informed by current research on persuasive design and gamification, we build mock-ups that illustrate our design idea of that elders might be interested in online communities while playing. Discussing the mock-up and the underlying assumptions with elderly people in a participatory design workshop, however, showed that they have another perspective on this topic. For them, the design should focus on the necessary features to exercise fall preventive training in the most effective and efficient way instead of looking on nice-to-have community features. In this workshop, we want to discuss, how to deal with this different perspectives in participatory design and if and how community approaches could support motivation of older people to play fall preventive exergames?

1 Introduction

In new areas for computer technologies applied for independent living of older adults at home, like Health, Energy conservation, or keep to a diet, motivating users becomes a central issue addressed by approaches like persuasive design

(Fogg 2002) or gamification (Danforth 2011). Similar ideas have been used to motivate elderlies to taking part in sport or physical education (Drew und Waters 1986; Ijsselsteijn u. a. 2007; Gerling, Schild, und Masuch 2010). In the domain of fall prevention such exergames are useful to improve muscle strength and balance to gain a better protection against falls (Gillespie 2009). And thus, fall preventive exergames tailored to the abilities and the life situation of community-dwelling older adults are a good opportunity to provide effective fall prevention at home. Furthermore, modern exergames allow to take part in collaborative physical activities and education over a distance (Wulf u. a. 2004; Mueller u. a. 2007).

In the EU FP7 research project iStoppFalls we focus on motivational issues of older adults playing a fall preventive exergame at home. The aim of iStoppFalls is to develop and implement ICT-based technology preventing and protecting against falls by means of a long lasting exercise training program (Exergame). Thus, we want to address the question of motivating older people to use such an exergame with the help of integrating community-based solutions like collaborative activities and gaming.

In this project we followed a participatory design approach including elderly in the design process just from the beginning. Hence we started with 6 semi-structured interviews with elderly people in Germany. In these interviews we focused on the peoples' fall experiences, their media consumption habits and motivational factors as community-based approaches and others. All interviews were analysed with the help of Mayring's content analysis (Mayring 2007) to group the data into categories.

In a second step, we invited five elderlies to join a user-workshop which was split in two sessions. Session A focusing on the user experience playing exercise games using MS Kinect for 45 minutes and was followed by a group discussion of about 15 minutes. Session B was a Participatory-Design workshop, where we present our design ideas about community oriented exergames by mockups of a possible main menu of the iTV application to be developed, and by means of the card sorting method. The menu points included: (1) *Game* (start game here), (2) *My Profile* (to view one's data), (3) *Friends* (what are my friends doing?), (4) *Learn* (pointers for healthy living).

2 Results

Contrasting to the assumptions about improving exergames by integrating online communities while playing, we get to know in the interviews another perspective of the elderly users. Most of the questioned seniors stated that they don't need additional computer support to get socially connected. They visit public facilities, such as Internet cafes or senior centres, at least once a week, to interact with other seniors. Thus, they participated regularly in different group activities or met up with friends to go hiking. They emphasized that they prefer these kinds of direct

personal contact instead of connecting with people in virtual worlds. This coincides with the statements of the workshop participants regarding the menu item *Friends*, that most participants thought unnecessary. The majority of the users do not want an integration of social networks into the iTV/Exergame application.

The seniors all said to be in close contact with their families and in this context they could imagine an integration of a social component as possible. Many participants, both from the interviews and from the workshops, said, that they would like to be able to play with their grandchildren in order to share a common interest with them. In general, most participants imagined playing together with well-known people, as them all being in the same room together and not as playing together via a network in a virtual world. One older participant however said that she would like to keep in touch with other people, but did not like traveling that much anymore. Under this aspect, the integration of a social network would be an advantage for her. A precise suggestion for the integration of social contacts is not possible at this stage. As mentioned above, this topic might still need to be further analysed and discussed.

Additionally the users had a very pragmatic way of using new media. In general, the participants expressed a desire for a simpler and less ambiguous menu. The participants agreed further that they wanted a menu without lots of accessories and other extras, but one that was simple and easy to get to know and use. „You just want to play and see what you've accomplished. Why is it necessary to have *Friends* and *Learn* in there?" one participant clearly said. Another added: „The exercises are what's important."

In summary the participants preferred to play with family members at home and not in a virtual community with unknown people as we thought right at the beginning. But this perception may be due to changes, if we would have done our interviews and workshops with more lonely and isolated older people instead of the more active and well socialized participants of our workshops and interviews.

3 Conclusion and future prospects

This first results show motivating elderly people is much different from a community-based networking approach which seems to target the younger facebook generation. This indicates that motivational design for elderly has to be different to motivational design for youngsters which in accordance with the general finding that design for elders have to be different (Lindley, Harper, und Sellen 2008). While the integration of community features in ICT is today totally normal for younger people, older adults do not necessarily want these features. Instead of virtual worlds, elderlies wish to play concerted in their own living room.

Finally, the question leaves open how to cope with these divergences: Maybe another approach will be needed to enable older adults to engage themselves in health-relevant activities at home. Furthermore, it would be interesting to think about intergenerational approaches to foster interaction between young and old people. For example we can think here of games between older and younger neighbours, their (grand-)children or friends. Nevertheless, we want to discuss additional possibilities to bring such scenarios into action as motivational factors for elderly people playing exergames.

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