

Reminiscence, Digital Storytelling and Maps: How Technology Affects Loneliness of Older Adults

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Abstract. Issues related to social isolation, loneliness and reminiscing are vital for the elderly, especially for those who suffer from memory loss or live far from their families and friends. Through this research as a PhD student, I will examine the effects of specific technologies (social networking sites, chatbots and online maps) on the elderly's feelings of loneliness under the scope of reminiscing and online storytelling. Three distinct communication technologies will be implemented: a chatbot, Facebook posts and a cooperative online map where users can post, read and make comments on geo-tagged personal stories. The methodology of this experimental study implements both qualitative (semi-structured in-depth interviews) and quantitative techniques (structured questionnaires, log files) for data collection.

Introduction

Population of seniors increases rapidly worldwide. While the elderly are the fastest growing group of internet users (Wagner, Hassanein, & Head, 2010), they are often confronted as passive consumers rather than active creators of online content (Brewer & Piper, 2016).

1.1 Memories and loneliness

Loneliness burdens older adults' health (Holwerda et al., 2012) and, suprisingly, there is a remarkable rise of lonely people worldwide (de Jong Gierveld, Van

Tilburg, & Dykstra, 2016). Fortunately, it seems that recalling past events contributes to maintaining social relationships (Hyman, 1994) and therapeutic interventions related to memories have a positive effect on reducing loneliness (e.g. Chiang, Chu, Chang, Chung, Chen, Chiou, & Chou, 2010).

1.2 Memories and technology

Throughout all human history, from paintings in the caves to diaries, people have been representing their memories on artifacts that remain long after their physical death. When individuals regard that they approach to the end of their lives, they tend to document segments of their personal history (Unruh, 1983) and issues of generativity and knowledge transmission to younger generations are considered as significant to seniors (e.g. Lang & Carstensen, 2002).

Nowadays, web 2.0 technologies for storytelling, communication and content sharing have been an important field of research in HCI and CSCW (e.g. Brewer & Jones, 2015). Chatbots, social networking sites (SNSs) and digital maps have been broadly used as reminiscence triggers and digital diaries (Campos & Paiva, 2010; Caquard & Cartwright, 2014; Steinhart, 2014).

1.3 Comparing different technologies for digital storytelling

Based on the fact that the communication medium affects user's behavior (Peesapati, Schwanda, Schultz, Lepage, Jeong, & Cosley, 2010), three different technological mediums have been selected in this research: (i) an SNS, (ii) a digital map and (iii) a chatbot.

Facebook can host applications and chatbots. Every Facebook post can be read by a specific group of viewers and geographical places, from a predefined list of Facebook pages, can be attributed to it. As for the digital map platform, each post is put on the cooperative digital map, it can be easily attributed to a specific spot on it by the storyteller and can be read by anyone. Although there are other similar platforms, I chose to design my own application in order to make it simple for seniors to use. In contrast to previous two storytelling tools, writing stories in a chatbot has different attributes. This type of communication is private, real-time, senior's interlocutor is single and is not human.

Research Questions

The current survey will focus on the below research questions:

Does storytelling in a cooperative map-based web application facilitate different levels of reminiscing/storytelling compared to other facilitators (SNS, chatbot)?

Does storytelling in a cooperative map-based web application facilitate different levels of socializing and loneliness compared to other facilitators (SNS, chatbot)?

Methodology

The sample will be older adults (60 years old or more) who will be recruited via snowball sampling and will be randomly attributed to four groups. As spatial memory of seniors is enhanced when visual 3D models are used (Sharps & Gollin, 1987), Google Streetview has been embedded in the digital map, which will be the common reminiscence trigger. At the beginning of the experimental process, all seniors will fill a questionnaire with the UCLA Loneliness Scale (Russell, 1996). During the following eight weeks, each of the first three groups will be asked to use (a) Facebook posts, (b) the chatbot and (c) the map application, respectively, for storytelling. Appropriate instructions will be given to every participant, in order for storytelling to depict events recalled from their episodic memory. Episodic memory is a memory system that enables individuals to remember personal past experiences in a unique spatial and temporal context (e.g. Zhang, Thalmann, & Zheng, 2016). The fourth group will be the control group of the experiment. All seniors will fill the loneliness questionnaire three more times: a week, four weeks and eight weeks after the beginning of the experiment.

Additionally, at the beginning and at the end of the experiment, each senior and a person that lives close to him/her (e.g. spouse, caregiver) will be interviewed upon the participant's daily activities and experiences (reminiscing, storytelling, socializing, etc.). Log files, containing information mainly upon the number of storytelling posts and comments, will be also used.

Work in progress, next steps & expected contribution

Until now, I have reviewed scientific literature upon issues concerning HCI, CSCW, Computer Mediated Communication and Psychology. I have also made the first versions of the storytelling platform and the chatbot. Next steps include completing these versions and conducting a pilot study with four seniors.

The results of the current work are expected to shed light on how popular technologies, such as SNSs, chatbots and online map-based applications, affect everyday lives and well-being of the elderly. Based on the outcome of a limited literature review that I have made, no similar comparative research was found.

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