Analysis of Elderly Persons' Social Network:
Need for an Appropriate Online Platform

Tobias Fritsch,[†] **Frederick Steinke,**[‡] and **Daniel Brem**[*]

[†]Universität Heidelberg (t fritsch@gmx net), [‡]Humboldt Universität Berlin (steinkef@student.hu-berlin.de)
[*]Technische Universität München (daniel.brem@mytum.de)

Abstract

The increasing demographic change and the upcoming technology affinity of the elderly population provide many Internet-based opportunities for social interconnection. Thus, we focus on the status quo of social contacts, the use of the Internet as well as online information offerings and support in the neighborhood for the target group (age of 60 to 90). Hence, two partial standardized surveys including 37 and 50 participants with average ages of 68 and 71 years were conducted respectively. Results indicate that social contacts decrease with age and 75 per cent of the seniors already use the Internet. Thus, there is a general high importance of several web-based information offerings.

Introduction

Social interaction is an innermost human need at any age. However, especially elderly people often have to suffer in isolation since family and relatives do not have enough time to care. In addition, the closest of friends is getting smaller with increasing age and if the partner dies prematurely, it lacks the elderly to increase social reference persons. Due to global demographic changes, the situation will increasingly exacerbate.

The Internet is a way to make the existing social contacts more accessible for older people (Kaplan and Haenlein 2010). Due to its increasing use, almost 60 percent of people aged 60 years and above are online in Germany by now (Initiative D21 2011). According to the study by AC-TA (2010), the membership of the elderly in Social Network Sites (SNS) has also grown. Whereas in 2009 only three percent aged 50 to 64 were active people in social networks, the number rose to ten percent in 2010.

The current research approach is based on a prior litera-ture review by the authors. One of the identified research gaps is the need to integrate elderly people into information technology usage. Thus, based on the findings of the literature review, this paper contains an empirical approach to tackle elderly people's motivation to interact with information technology devices. Therefore, the growth potential of SNS for elderly persons was analyzed by face-to-face interviews in Berlin, Germany.

Background

Two major trends of today are the rapid growth of the information technology as well as demographic change (de Ruyter et al. 2010). Both megatrends penetrate several functional areas of the society and are thus responsible for a fundamental change (Eberhard et al. 2010).

The usage of the information technology, including the Internet, has dramatically increased over the last decade. On par with this increase, several further trends emerged, e.g. the revolution of user-generated content (Brandtzæg and Roibás 2009) or the spread of social network communities (Boyd and Ellison 2007; Studer 2009). Based on the functional differentiation of the society by Luhmann (1994), the information technology would account as a part of the mass media sector. Hence, it expands the current function of information provision by further aspects. Although this change increases the efficiency of these processes, it discriminates large parts of the society (Brandtzæg and Roibás 2009). Users who are not capable of interacting with the new technological interfaces either need to stick to classic channels or rely on the help of others.

As a parallel evolution to the raising spread of information technology, the population is becoming older on average due to demographic change (UNDESA 2010). With regard to the interface of information technology ser-

vices, older people are less likely to adopt them (Kara-hasanovic et al. 2009; Smith 2010). Evidence for this gap can be found in the distribution of mobile phones (Google et al. 2010), the demographic distribution of Facebook members (Instrategylabs.com 2010) or the general preference of older people to use the land line instead of the cell phone (Hashizume et al. 2008). Both cases underline that older people show significantly less usage of these channels on average (Prensky 2001; Smith 2010). Combined with the aspect of discrimination, the knowledge gap and the need for help lead to a decrease in the quality of life.

Therefore, this paper focuses on the motivation of elderly people to interact with technology. The aim is to provide an overview on existing obstacles and purpose solutions to integrate elderly people into virtual environments.

Methods

Background Information

The analysis was based on data collected in two semi-structured face-to-face interviews with overall 87 participants which both addressed the same peer group of elderly people. Participants were recruited in Berlin, Germany using standardized random selection criteria. The first survey (37 attendees) was conducted between January and February 2011 and addressed the status quo of social contacts of the elderly, the second one (50 attendees) as a fullow up study was completed between February and March 2011 and target the use of information technology of the elderly. Both surveys' lengths were between 1.5 hours and three hours. Because the study rests upon both surveys, comparability regarding peer groups had to be ensured. Thus, background characteristics age, gender, current job and housing situation were ascertained. As shown below, they only differed barely so that homogeneous target groups could be assumed.

Participants of the first interview were between 58 and 89 years old and their average age was 69 years. The majority of 62 per cent (23 persons) was female, a minority of 14 elderly (38 per cent) was male. 23 seniors (68 per cent) had already retired and 11 (32 per cent) still had a job (whereas three did not respond). Regarding housing situation, 19 persons (51 per cent) stated to live alone versus 18 (49 per cent) who lived together with someone else.
In the second survey, the minimum (60 years) and maximum (90 years) age of attendees was similar to the first one and the average age of all attendees was 71 years. Again, more women (72 per cent or 36 persons) participated than men (28 percent or 14 persons) and 86 per cent (or 43 persons) of the elderly had already retired (versus 7 persons or 14 per cent who had not). 54 per cent (27 persons) stated to live in a single household versus 46 per cent (23 persons) who lived with someone else.

Questionnaire development

At the first step, the status quo of social contacts of the elderly in Germany was examined in the first interview. Participants were questioned about their overall contacts per week as well as their contacts to family members and friends personally or via telephone. In addition, they were asked about satisfaction with their five closest reference persons and their general desires for more frequent direct interactions with them. To verify these results, respondents indicated if they would like to see or interact with others (here family members and friends) more often and if there is a wish to simplify making contacts.

Based on the results of the first study, the second interview explored the user behavior of the elderly respecting the Internet and examined different options of access to information offerings at the second step. The objective was to cover options to support seniors in gaining more social participation. Therefore, respondents were questioned about having access to the internet (if yes how long) as well as its importance. Regarding options of access to information offering, attendees evaluated its general importance and its importance with a focus on the elderly, the importance of listing of events as well as the importance of listing business hours nearby (both at a glance).

Statistical analysis

In the first interview, no consistent way could be applied to assess the different variables. All values examining the amount of contacts to others as well as the frequencies of interactions with them were based on open metric scales. Referencing satisfaction, "desire for less contact" needed to be coded as "-1", "same contact as yet" with "0" and "wish for more contact" with "1". Regarding the desire for more frequent interactions, "more often" and "same as yet" was differentiated. In terms of the relationship to other contacts, "family" and "non-family" was distinguished. The type of reference person was either "family members" or "friends" and the wish to simplify making contacts was carried out with "yes" and "no".

In the second interview, the amount of years having access to the internet was based on an open metric scale and every importance factor was measured with a single question on a 10 point Likert scale. In accordance with Backhaus et al. (2006), all outlier of questions based on open metric scales were identified by box plot analyses and eliminated.

To obtain sound results, descriptive analyses of all gathered figures were conducted. In addition, t-tests were used to compare the satisfaction of contacts with family and non-family members. Furthermore, correlations were used to investigate nexuses between the different desires of the elderly for information offerings. All statistical analyses were conducted using SPSS Statistics v.17.

Results

Social contacts of the elderly

At large, seniors reported 24.77 contacts per week on average. Concerning the distribution, there are vast differences. Only 1.40 (personal) and 3.24 (via telephone) of them accounted for contacts with family members. As opposed to this, personal contacts with friends were more than twice as much (3.17), whereas contacts via telephone (3.45) were only slightly more (see table 1). Concerning age and social contacts, a significant nexus could be proven with respondents' contacts per week. A correlation factor of -0.36 (significance level of 0.043) showed that social contacts per week decrease with age.

Table 1

Descriptive statistics (participants, mean, standard deviation) of different kinds of contacts

	Contacts per week	Family (personally)	Family (via phone)
N	33	33	33
Mean	24.77	1.39	3.24
	Friends (personally)	Friends (via phone)	Other
N	31	31	31
Mean	3.17	3.45	13.52

In order to increase these numbers, 38 per cent would like to see others more often and 45 per cent have the desire of more frequent direct interactions. A majority of 58 per cent would like to simplify making contacts.

Table 2

Means of satisfaction with reference persons (RP) 1 to 5 in view of the difference of relationship (t-test for unpaired comparisons)

	RP1	RP2	RP3	RP4	RP5
Satisfaction family	0.05	**0.30**	**0.20**	**0.36**	**0.38**
Satisfaction non-family	0.06	**0.00**	**0.00**	**0.00**	**0.00**

Bold figures are significant on the 0.05 level (2-tailed)

Besides these facts, the relationship (family versus non-family) to one of the five closest reference persons has a significant influence on the satisfaction (except reference person 1). A t-test analysis shows that satisfaction scores of relationships with family members are essentially higher than those with others (see table 2). Accordingly the elderly may wish more contacts with non-family members.

The Internet and information offering for the elderly

75 per cent of the seniors stated to have access to the Internet, on average since 7.34 years. Internet access as such is also considered as very important by this group (mean of 8.30). In view of the possibilities of information offerings, importance factors are even higher. General access to information offerings (e.g. for the purpose of leisure activities and general knowledge) reaches an importance factor of 9.00. Access to information offerings with a focus on the elderly (e.g. use of information filtering and new input) is rated with a factor of 8.59. Compared to the first two factors, the importance factors of listing events at a glance (e.g. benefit of easy and fast access to information) (8.00) and listing business hours at a glance (e.g. convenience of time saving and reduction of effort (8.59) are slightly below, but still on a very high level. This indicates that there is a strong need for these offers.

Furthermore, there are interrelationships between the different options of access to information offerings. General access to information offers is significantly and strongly positive related to listing events (correlation factor of 0.47) and business hours (correlation factor of 0.38) at a glance. In comparison, there is no evidence of interrelationships between all other factors (see table 3). This means that the elderly who consider a general information offering as more important also prefer profound information as events or business hours.

Table 3

Odds rations including participants and two-tailed significance for interrelationships

	General access to information offers	Information offers with a focus on elderly	Listing events at a glance
Information offers with a focus on elderly	0.28		
Listing events at a glance	**0.47**	0.05	
Listing business hours at a glance	**0.38**	0.10	**0.33**

Bold figures are significant on the 0.05 level (2-tailed)

Discussion

The results indicated several interesting, even some counter-intuitive findings. In general, the survey supports common findings from other papers referencing both mega-

trends. An example is the decreasing social contact rate per week with an increase age. Common phenomenon, such as the inability to build sufficient trust to peers and the difficulty to find new contacts are consequences based on this fact. Concluding from the resulting loneliness, it is not surprising that up to 45per cent of the participants pinpointed the desire for more frequent direct interaction. One should also keep in mind that a small interaction bias might occur, since the participants of these surveys are considerably more socially active and seek for new contacts instead of disconnecting from the society.

With regard to the interaction with others, the results are as expected. A majority of 58 per cent desires a simplification for making contacts. Since the same majority of participants also want to have more contact with non-family members (peers), we conclude that the missing mobility and the decrease in real-world offerings hinder many fruitful contacts, which could be established electronically. Although 75 per cent of the participants stated to have an Internet access, most of them did not lever this medium. Thus, one of the hurdles for a simple interaction arises from missing interfaces to get in touch with each other.

One possible way to resolve this issue is the usage and knowledge transfer of how to integrate these users in existing interfaces. The survey pinpointed the motivation of the elderly to interact and the possibility due to the existence of an Internet access. Nevertheless, these options are not used. One interpretation for this multi-causal influence is the inadequate interface combined with the missing trust in virtual environments.

With regard to empirical evaluation, this aspect requires further research. This interpretation is underlined by the result of the overall high interest and importance of information offerings on the Internet based on our sample. In order to understand the success of online services for elderly people, a requirement analysis in terms of benchmarking for best-practices could provide solution scenarios. Besides this questionnaire-based approach, also other means such as social network trainings serve to understand the usage of information technology by the elderly. No matter which method is chosen, the question behind these actions always reads as follows: How are elderly people inspired to use online social networks?

Acknowledgements

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