

THE EXPERIENCES OF DEAF AND HARD OF HEARING PEOPLE ON SOCIAL NETWORKING SITES

Ines Kožuh¹, Manfred Hintermair², Matjaž Debevc¹

¹University of Maribor, Maribor, Slovenia

²University of Education Heidelberg, Heidelberg, Germany

ABSTRACT

Social networking sites (SNSs) have become extremely popular among deaf and hard of hearing (DHH) people. As these users can have particular communication needs when compared with other users, it is important to know their characteristics like language skills, ways of communicating and using SNSs, as well as technology use skills that may affect their experiences when using SNSs. Thus, there is a need to develop a conceptual frame for examining the experiences of D/HH users with SNSs.

The purpose of this paper is to introduce the conceptual frame and present the findings of its implementation. The concept comprises aspects and factors and it is suggested to examine the relationships between them.

Based on that concept, a questionnaire was developed in German sign and written language. It was implemented online as a sample recruited from the German D/HH population, where 199 users of SNSs were included.

In regard to some of the results online Deaf identity was positively related to community building and negatively related to online hearing identity. Community building was positively related to connections with other communities. Additionally, some parts of the factors affected aspects, i.e. we found that sign language skills significantly affected community building. Some initial conclusions drawn from our results are discussed regarding in particular recommendations for deaf education.

INTRODUCTION

The widespread global use of social networking sites (SNSs) has emerged within various social groups, also among deaf and hard of hearing people (D/HH). This phenomenon has been addressed in a few recent studies (Blom, Marschark, Vervloed, & Knoors, 2014; Kožuh, Hintermair, & Debevc, 2014), where Facebook was found to be the second most visited website among the D/HH Americans and the most frequently used SNS among the D/HH Germans.

Social networking services are defined as Web-based services which allow individuals to create a public or semi-public profile within a bounded system. These individuals connect with other individuals within the system by having them on their lists of connections, which is also articulated and traversed by them (Boyd & Ellison, 2007). Due to the variety among numerous SNS users, it is important to know how these users utilize SNSs and what their characteristics are. The importance is even higher when people with hearing loss are examined since they have some communication specificities compared to hearing people, like possible use of sign language as a primary communication mode.

Such specificities may have effects on the way the D/HH experience their SNS usages and consequently the way they identify, communicate and connect with other SNS users. In existing literature there has evidently been a lack of research into the comprehensive experiences of D/HH with SNSs. For instance, Blom, Marschark, Vervloed, and Knoors (2014) examined the effects of hearing loss on the frequencies of SNS activities but found no significant effects. What is more, they did not find differences between groups of SNS users with different hearing statuses regarding well-being and friendship qualities.

Thus, the question arising now is how the identities of D/HHs are experienced online, i.e. whether they identify with the deaf or hearing online users, and how they build online

communities with these users and how they connect with them when they are considered as not being members of the same online communities. Within this process, the aspect of communication is crucial. For instance, it is important with whom these users communicate on SNSs, as well as which mode and method of communication they use.

The aim of the presented study was thus to introduce a conceptual frame for examining the experiences of D/HH users with SNSs, which we propose to describe through identity as experienced online and attitudes toward members of online communities. The model is necessary since SNSs can potentially be used within the education process as a learning tool. Consequently, opportunities can be enhanced for work and communication among mentors and D/HH mentees.

A CONCEPTUAL FRAME FOR EXAMINING THE EXPERIENCES OF D/HH USERS WITH SNSs

The conceptual frame would be comprised of aspects (identity, community building and connections between communities) and factors (hearing loss, educational background, communication situation and use of technology) (Kožuh, 2015). Relationships would be examined between the aspects and effects of variables within factors on the aspects (Figure 1).

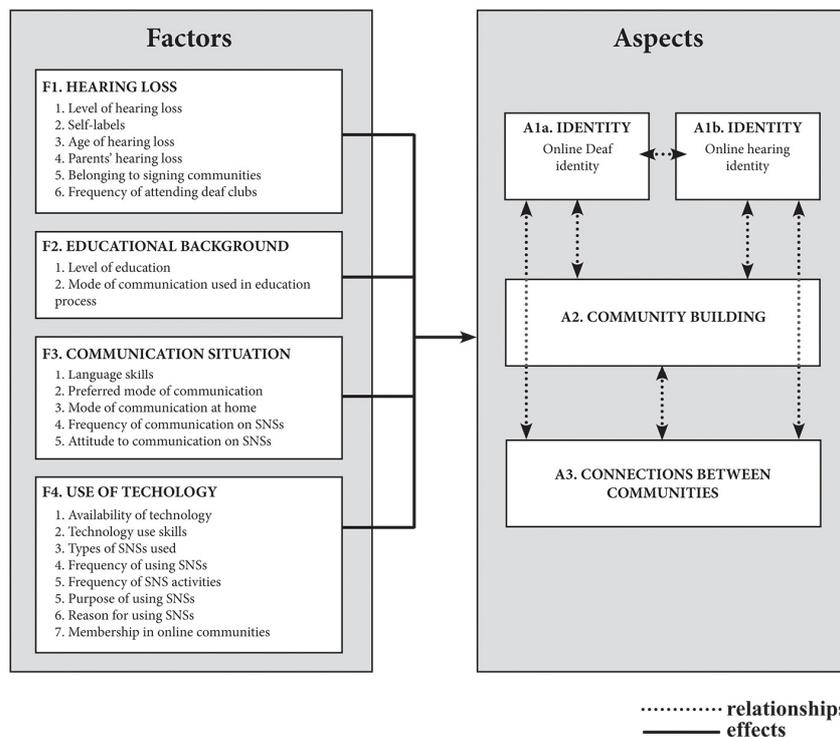


Figure 1 The conceptual frame for examining the experiences of D/HH users with SNSs (Kožuh, 2015)

RESEARCH QUESTIONS OF THE PRESENT STUDY

In order to outline the possible benefits of the model, we examined D/HH people's experiences with SNSs by applying a questionnaire developed in accordance with the conceptual frame illustrated above. The main objective was to examine whether and how the aspects of the frame would be related to each other, and how the factors (particular variables within them) would affect the aspects.

METHOD

Participants

The sample for the current study (N = 245) was recruited from the German D/HH population. Out of these, 199 respondents were SNS users ($M_{age} = 38.16$, age range: 12 – 72, SD = 12.60). The majority (62.3%) were female and 63.32% were profoundly deaf. Severely hard of hearing people followed (32.12%). They mainly used Facebook (74.3%) and Google Plus (15.1%), while LinkedIn and Hearzone were used to a lesser extent.

Instruments

Following the conceptual frame for examining the experiences of D/HH users with SNSs, we developed a questionnaire. In what follows we present the instruments we used to collect the data.

Instruments related to the aspects

Online Deaf and hearing identity

Participants were asked with whom they identify on SNSs – with the Deaf or hearing world online. We used the adapted Deaf Acculturation Scale (DAS) (Maxwell-McCaw & Zea, 2011), where the context of online environment was considered instead of offline setting.

Measurements for both types of identity each encompassed three Likert-type questions. Question example: "I feel good when I am connected with Deaf people online."

Community building

We measured participants' tendencies for building on-line communities using four question items. An item example: "I invite other D/HH people to participate in online communities of D/HH people on SNSs."

Connections between communities

We measured how participants connected with members of on-line communities they did not belong to (yet). Two question items were provided; an item example: "I join online communities of hearing people on SNSs".

Instruments related to the factors

Level of hearing loss

We asked participants to estimate their level of hearing loss where the definition by the American National Standards Institute was followed (ANSI, 2010). Accordingly, five categories of hearing loss were used, ranging from mild to profound hearing loss.

Educational background

The level of education was measured based on the German education system, where they answered provided options ranging from basic, vocational and advanced vocational to secondary school qualification.

Communication situation

Participants reported how frequently they communicated on SNSs with users with different relative status: friends regularly and rarely met in everyday life, schoolmates or work colleagues, siblings and unknown persons. Participants were asked to answer five questions with response categories ranging from 1="never" to 5="very frequently – once or more frequently a day". For the purposes of analyses, five groups of participants were constituted in line with the response categories. For instance, the first group was comprised of users who never communicated and the fifth group comprised those who communicated once or more frequently a day.

Use of technology

Participants reported on two questions as to which SNSs (e.g. Facebook, LinkedIn, etc.) they use and estimated the frequencies of their usages on a scale from rarely (once a month or less) to very frequently (once or more times a day). Additionally, SNS activities (actualizing profiles, posting photos, videos and comments, sharing and liking the content) were measured by six questions with response categories from 1="never" to 5="very frequently – once or more frequently a day".

Further questionnaire

Questions were provided on participants' genders, ages and some other characteristics.

Procedure

The study was conducted in Germany, where e-mail invitations to participate were sent to the German Association of the Deaf, deaf clubs across the country, schools for the deaf, and other media. Invitations were also published on SNSs. The questionnaire was put online and was entirely presented in German written and sign language. Before being able to start completing the questionnaire, participants had to agree to participate in the study (Kožuh, Hintermair, & Debevc, 2014).

RESULTS

Results on relationships between the aspects

Statistical relationships between the aspects were checked using Pearson's correlation coefficient. The results revealed a negative relationship between the online Deaf identity and online hearing identity (Table 1). A positive relationship was found between the online Deaf identity, community building and connections between communities. In contrast, the online hearing identity was not related to the variables "community building" and "connections between communities".

Table 1 Correlations between the aspects

		(1)	(2)	(3)	(4)
(1) online Deaf identity	Pearson Correlation	1			
(2) online hearing identity	Pearson Correlation	-.345**	1		
(3) community building	Pearson Correlation	.377**	-.022	1	
(4) connections between communities	Pearson Correlation	.241**	.063	.537**	1

* $p < .05$; ** $p < .01$; *** $p < .001$;

Results on effects of the factors on the aspects

A One-way Analysis of Variance (One-way ANOVA) was used to examine the differences between independent groups. Firstly, when considering the effect of hearing loss, significant differences between hearing loss groups were found in the online Deaf identity and online hearing identity.

As these results did not indicate whether the effect was reported within or between the groups, we conducted post hoc comparisons with the Tukey HSD test (Field, 2005).⁶ Results showed that profoundly deaf SNS users identified with the Deaf online more than those with lower levels of hearing loss. Moreover, severely hard of hearing users identified with hearing people more than users with profound hearing loss. The effects on the other aspects were not significant.

Secondly, the level of education had an effect on community building and connections between communities. Post hoc analysis revealed that D/HHs with better qualifications

(advanced vocational and secondary school qualifications) were significantly less engaged in community building than those with a basic school qualification. Similarly, participants with a basic school qualification tended to connect with other online communities more than those with an advanced vocational qualification.

Thirdly, we examined the effects of the frequencies of communication on SNSs with users having different relative statuses. We found significant differences between groups with different frequencies of communication with friends regularly met in everyday life in the aspects community building and connections between communities. Post hoc analysis revealed that those who never communicated were less engaged in building online communities than those who communicated sometimes or often. Similarly, those who never communicated connected with members of other online communities significantly less than those who did it very often.

In addition we found significant effects of frequencies of communication with friends rarely met in everyday life on hearing identity experienced online and community building. Those who never communicated were found to identify with the hearing world online significantly less than those who communicated often or very often. In community building, significant differences were found between those who never communicated and those who did it often. Frequent communication reflected higher tendencies for building online communities.

When analyzing the effects of frequencies of communication with siblings on the aspects, we found significant effect when connecting with members of other online communities. Further analysis revealed that the differences were significant between a group of users who never or rarely communicated and a group who communicated very often. The more frequent communication reflected more engagement in connecting with members of other online communities.

Frequency of communication with unknown persons had a significant effect on online hearing identity and community building. Post hoc analysis revealed that those who never communicated experienced hearing identity online to a lesser extent than those who communicated with unknown persons sometimes. In contrast, in community building, post hoc analyses did not reveal significant differences between groups.

Fourthly, the results revealed the effects of the frequencies of performing activities on community building and connections between communities. The frequencies of all activities significantly affected community building and the frequencies of conducting particular activities affected connections between online communities. Further post hoc analysis showed that those who never actualized their profiles tended to build online communities less than those who performed this frequently. Users who never post photos tend to build online communities less than those who perform this sometimes and tend to connect with other online communities less than those who perform this very frequently.

Moreover, the frequency of actualizing profiles had a significant effect on the online hearing identity. However, the effects of the frequencies of conducting activities on the online Deaf and in some cases on the online hearing identities were not significant.

DISCUSSION AND CONCLUSION

The results of our study show that profoundly deaf SNS users identify with the Deaf online more than those with lower levels of hearing loss. Identifying with the Deaf online was further positively related to community building. Identification with the Deaf online was also positively related to connections between communities; this can be explained by the expansion of universally used technology among D/HH people, which has replaced technologies once exclusively used by D/HH people (Maiorana-Basas & Pagliaro, 2014). Consequently, D/HH people might have more opportunities on SNSs to connect with hearing people than in an offline setting. This can be further explained by our findings, showing that connecting with members of other online communities is affected by the frequencies of SNS communication with friends regularly met in everyday life and with siblings.

Moreover, the results showed that D/HHs who never actualize their profiles tend to build online communities less than those who perform this frequently. Users who never post photos are less engaged in community building than those who perform this sometimes and tend to connect with other online communities less than those who perform this very frequently. These results are in line with another study (Cummings, Sproull, & Kiesler, 2002) which demonstrated that the more active D/HHs participate in the online community, the more benefits from the community and stronger community orientation they report.

These findings imply that SNSs have high potential for use within the education process as a learning tool either in engineering (Kožuh et al., 2015) or language learning (Maiorana-Basas & Pagliaro, 2014). For instance, distance education can be carried out, where mentors and mentees have wider opportunities to work together (DeMoss, Clem, & Wilson, 2012).

Our findings are limited by the self-reporting used in the study. For instance, we cannot determine exactly how frequently participants really use SNSs and perform the activities they report. Thence, in the future, additional research is required in which the observation method would be used and the content produced by D/HH on SNSs would be analyzed.

ACKNOWLEDGEMENTS

We acknowledge the German D/HH people for participating in the study supported by the Slovenian Research Agency [no. 1000-11-310140] under The Young Researcher Programme and a scholarship received by the German Academic Exchange Service [no. A/13/91743].

REFERENCES

1. American National Standards Institute. Specifications for audiometers. New York, NY: American National Standards Institute; 2010. ANSI publication ANSI/ASA S3.6-2010.
2. Blom, H., Marschark, M., Vervloed, M.P.J., and Knoors, H. (2014). Finding friends online: Online activities by deaf students and their well-being, *PLOS ONE*, 9 (2), 1–10.
3. Boyd, D. M., and Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), article 11.
4. Cummings, J.N., Sproull, L., and Kiesler, S. (2002). Beyond hearing: Where real world and online support meet. *Group Dynamics*, 6 (1), 78–88.
5. DeMoss, W.L., Clem, B.C., and Wilson, K. (2012). Using Technology to Mentor Aspiring LSLs Professionals. *The Volta Review*, 112 (3), 329–343.
6. Field, A. (2005). *Discovering statistics using IBM SPSS statistics: and sex and drugs and rock 'n' roll* (second edition). London, UK: Sage publications.
7. Kožuh, I. (2015). *The deaf and hard of hearing on social networking sites: identities, community building and connections between communities. [Gluhi in naglušni na spletnih družbenih omrežjih: identiteta, grajenje skupnosti in povezave med skupnostmi]*. Doctoral dissertation. Maribor, Slovenia: Faculty of Electrical Engineering and Computer Science (in press).
8. Kožuh, I., Hintermair, M., and Debevc, M. (2014). Examining the characteristics of deaf and hard of hearing users of social networking sites. In K. Miesenberger (Ed.), *Computers helping people with special needs: proceedings: part II, (Lecture notes in computer science)*, vol. 8548 (pp. 498-505). Heidelberg; Dordrecht; London; New York: Springer.
9. Kožuh, I., Jeremić, Z., Sarjaš, A., Lapuh Bele, J., Devedžić, V., and Debevc, M. (2015). Social presence and interaction in learning environments: The effect on student success. *Educational Technology & Society*, 18 (1), 124–136.
10. Maiorana-Basas, M., and Pagliaro, C.M. (2014). Technology use among adults who are deaf and hard of hearing: A national survey. *Journal of Deaf Studies & Deaf Education*, 19, 400–410.
11. Maxwell-McCaw, D., and Zea, M. C. (2011). The deaf acculturation scale (DAS): Development and validation of a 58-item measure. *Journal of Deaf Studies and Deaf Education*, 16(3), 325–342.