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## **Experiences of an internet-based aural rehabilitation (IAR) program for hearing aid users: A qualitative study**

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**Keywords:** qualitative study, semi-structured interviews, internet-based aural rehabilitation.

### **Abbreviations:**

AR = Aural rehabilitation; IAR = Internet-based aural rehabilitation; HA = Hearing aids; HL = Hearing loss.

**Word count:** 5 042

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**Abstract**

*Objective:* Internet interventions for hearing aid (HA) users have been shown to be effective in helping persons with hearing problems. As earlier research refers to objective data on these effects, little is known about how participants experience the Internet interventions subjectively. The aim of the present study was to explore participants' experiences of an internet-based aural rehabilitation (IAR) program for HA-users, and to explore the possible subjective benefits of such a program.

*Design:* A qualitative exploratory design was implemented involving semi-structured telephone interviews. The interviews were transcribed and analysed using content analysis.

*Study sample:* Interviews were conducted with 20 participants (9 men and 11 women) who had completed an IAR program for HA-users. The participants were 57–81 years old and had used HAs for 2–25 years.

*Results:* The results are organized in three main categories: general experiences associated with participating in the program, knowledge obtained from the program, and perceived impact of taking part in the program.

*Conclusions:* The overall results indicate positive experiences of the IAR program, and an overarching theme of increased self-esteem was identified. The findings provide some valuable information for developers of future IAR programs.

**Keywords:** qualitative study, semi-structured interviews, internet-based aural rehabilitation, internet interventions, hearing loss.

## **Introduction**

Hearing loss (HL) causes communication failures in peoples' everyday lives, which may lead to social withdrawal and reduced quality of life (Hawkins et al., 2012; Monzani et al., 2008). Counseling is most crucial for addressing these shortfalls in communication (Boothroyd, 2007) and can be performed during all parts of aural rehabilitation (AR), separately from hearing aid (HA) fitting, after the provision of HAs or in HA follow-up group programs. According to Hawkins (2005), the most cost- and time-effective counselling in AR takes place in a group setting, as it allows participants to interact and address communication disruptions in situations that resemble real life. Such group programs usually focus on psychosocial counselling, provision of information, and training communication strategies (Hickson et al., 2007; Preminger, 2007; Öberg et al., 2014).

Another cost-effective way of delivering AR is through the use of the Internet. The use of the Internet to provide interventions and health care information has increased in recent years, facilitating improvements of clinical encounters in a cost-effective manner and enabling clinicians to reach out to a significant proportion of HA-users (Swanepoel & Hall, 2010; Molini-Avejonas et al., 2015). For example, Thorén et al. (2014) showed, in a randomized controlled trial, significant improvements in activity and participation in an intervention group that completed an internet-based AR (IAR) program, which were maintained over three months, compared to control group which did not improve. Similar group programs assessing activity and participation have been tested in several studies, for example by using telephone and/or the Internet to provide an HA follow-up group program (Lundberg et al., 2011; Thorén et al., 2011; Thorén et al., 2014; Malmberg et al., 2015; Ferguson et al., 2016; Malmberg et al., 2017).

However, less is known about how participants and audiologists experience these internet interventions. Qualitative research on individual experiences of internet

interventions can provide a deeper understanding of experiences relevant to people with HL and has the ability to generate new information that one otherwise may fail to notice (Knudsen et al., 2012). For example in a study by Ferguson et al. (2016) the authors assessed first time HA-users feedback by a range of quantitative and qualitative measures, suggesting ideas for future development of educational programs delivered partly via the Internet. Clients commented that the program needed to be informative, easy to use, include family members and incorporate a means for clients to access information after the program has finished. Another qualitative study on internet interventions focused on audiologists and new HA-users' experiences of an internet-based support system (Brännström et al., 2016). The authors found generally positive experiences of the support system, although both the audiologists and the new HA-users contributed to new insights in terms of intervention development. The audiologists desired future improvements of the system that addresses the needs of a broader range of clients, and the HA-users desired improvements in the online log-in procedure which is necessary for facilitating usage.

Considering the broad possibilities of reaching and treating HA-users via the Internet, it is important to identify possible outcome mediators of internet interventions in order to maximize the effectiveness of such interventions (Greenwell & Hoare, 2016). Accordingly, we were interested in identifying and exploring HA-users' individual experiences of an IAR program (Thorén et al., 2014). The investigation in the present study is based on a study previously conducted by Thorén and collaborators and reported by Thorén et al., 2014. The aim of the present, qualitative, study was threefold: to explore participants' (Thorén et al., 2014) experiences of an IAR program for HA-users, to explore what element of the program the participants find as most important, and to explore the possible subjective benefits of the program.

## **Methods**

In order to explore the participants' experiences of the IAR program, a qualitative exploratory design was implemented based on semi-structured telephone interviews.

### ***Sampling and recruitment***

In all, 36 HA-users (95%) who took part in the original study's intervention group (Thorén et al., 2014) were contacted by email and invited to participate in the present study, approximately six months after they completed the intervention. Twenty of them (9 men and 11 women) (53%) accepted the invitation. The participants, who were 57–81 years old and had used HAs for 2–25 years, received additional information about the study by mail. They also received a consent form and were informed that their participation was voluntary, that their privacy would be protected, and that they could withdraw their consent at any time. After signing the consent form, the 20 participants were interviewed.

### ***Procedure***

An interview guide addressing the following three main areas was produced: reasons for participating in the IAR program, the participants' overall experiences of the program and its individual elements, and the possible benefits experienced from the program (see Appendix 1). In order to gain as much information as possible from the participants, the interviewer's prior knowledge of the IAR program was limited. The interviews were carried out by three interviewers that were trained in qualitative interviewing. The date and time of each interview were communicated via email. Each interview lasted on average for 13-35 minutes and was audio recorded and later transcribed by the performing interviewer.

The participants were encoded with a research number in order to maintain their privacy. The data collection was approved by the Research Ethics Group at the Department of Logopedics,

Phoniatrics and Audiology, Lund University, Sweden. All recorded material was archived at the same department.

### ***The IAR program***

The examined IAR program reported by Thorén et al., 2014 lasted five weeks and consisted of: 1) *reading material*, including access to a book about hearing and HAs (Elberling & Worsøe, 2005) and a compendium of communication strategies that were inspired by those incorporated into the Active Communication Education program (Hickson et al., 2007; Öberg et al., 2014); 2) *home training* in the form of instructions and weekly assignments related to the reading material; 3) *individual interaction* with an audiologist online and personal responses to submitted assignments; and 4) an *online discussion forum* shared with the other participants in the intervention group, where new discussion topics were posted each week (without any interaction with the audiologist). The IAR program was offered to the participants in the intervention group whilst the control group was referred to a waiting list. For details of the study design and the IAR program, see Thorén et al. (2014).

### ***Analysis***

The interview transcripts were interpreted in accordance with content analysis using an inductive approach (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005; Knudsen et al., 2012). The first two authors verified the interview transcripts by listening to all recorded interviews and then making some minor linguistic corrections. All interview transcripts were then read several times by the first two authors to obtain a good overall sense of the material. The transcripts were divided into units, which were then condensed (see Table 1) in order to make the meaning units shorter while maintaining their essential information (Krippendorff, 2013). Meaning units were coded and categorized in order to bridge the gap between the

transcribed interviews and their interpretations. According to Krippendorff (2013), to add reliability to the coding process coders need to have some familiarity with and share a sense of understanding of the information they are looking at. In the present paper, two authors with professional background as licensed audiologists cooperated in the coding process. A tentative set of categories and subcategories of meaning units was formed and then discussed, criticized, and modified by the two authors, yielding a final set of categories. This final set was applied on the condensed meaning units by the first author, resulting in the deletion and rephrasing of some categories and the addition of a few new subcategories. The new set of categories was then applied by the two authors individually to a sample of the material to be analyzed, in order to maximize the relevance of the categories. A consensus regarding categories and subcategories was then reached after a discussion. In order to assure completeness and unambiguousness of the results, no unit was excluded due to lack of descriptive terms and no unit fell between two subcategories/categories or was presented by two different descriptive terms (Krippendorff, 2013). The categories and subcategories represented the *manifest* content (what is visible). Three main categories emerged and the *latent* content (the underlying meaning) of the categories was finally formulated into a theme (Ryan & Bernard, 2003). A selection of participant quotes representative of the research findings will be presented throughout the result section.

- Table 1 –

## **Results**

In line with the aims of the present study, the authors were interested in what the transcripts revealed about the individual experiences of the IAR program and in exploring the probable benefits of the program. The meaning units were separated into three main categories, i.e.,

*general experiences associated with taking part in the program, knowledge obtained from the program, and perceived impact of taking part in the program, as well as 14 subcategories (see Table 2).*

- Table 2 -

A theme emerged when reviewing the categories, subcategories, and meaning units: *Increased self-esteem as a process of becoming more knowledgeable about HL and having confidence in the ability to deploy knowledge practically* (see Table 2). The awareness of the HL gained from attained or revisited theoretical knowledge, and was obtained by completing the program. Together with having confidence in how to deploy knowledge practically, this seemed to be of great importance to the everyday communication of HA-users who participated in the IAR program. As HL influences communication in people's daily life, these aspects are of crucial importance to the interpersonal interactions of HA-users.

***General experiences associated with taking part in the program***

In the present study the participants expressed expectations and motivation for participating in the IAR program (e.g., curiosity and hopes of improvement). The IAR program was described in terms of three types of experiences: positive and valuable experiences, negative and disadvantageous experiences, and ambiguous experiences (see Table 2). Most of the participants expressed an overall positive and valuable experience of the program, in terms of both practicalities and value of the content.

*'I've had a positive experience [of the program] ...because I think I now have some new information on how to deal with my hearing loss.'* (P1)

*'I thought [the program] was good. It was extremely concrete.'* (P14)

The program was generally seen as convenient and one participant expressed this as follows:

*'And I think it's good to be offered different programs, and why not using the Internet. I mean, you use the Internet to do a whole lot of things. And the thing with the education about hearing [referring to the reading material in the study program] is that you're not bound to anything...I mean, while you're on, you can sit around wearing pajamas while participating. And you can do everything on your own and by yourself [without clinical encounters]. It's outstanding!'*  
(P20)

The duration of the program was perceived as sufficient, even though some participants tended to put off the reading requirements and weekly assignments and therefore did feel a bit stressed about finishing everything that was requested of them by the set deadlines. This was interpreted as an ambiguous experience.

*'I had no problem [with the duration of the program]/.../It's a maximum of what, 1-2 hours a week, that's nothing.'* (P14)

*'Sometimes I thought that: "oh, all the assignments need to be done now"'/.../'I didn't have the time to read everything.'*' (P19)

The personalized approach of interaction between the audiologist and each participant, as well as the audiologist acknowledging the participants' personal concerns, was experienced by some as positive and valuable.

*'[The interaction with the audiologist] is where I, in my opinion, had a very good dialog.'* (P3)

Yet the participants also expressed that the interaction with the audiologist depended on them taking the initiative.

*'So, it's what you make of it [the interaction with the audiologist]; it's up to you to decide to what extent you would like to use that option. That was one of my weakest parts.'* (P15)

Presenting the program in an online format was reported to work well for people with HL. However, even though the advantages of participating in the program via the Internet were appreciated, the program website, including the discussion forum, was frequently perceived as complicated and not user friendly. These technical problems were interpreted as negative experiences of the program.

*'We needed log-ins and user-names to answer the weekly assignments, and that wasn't clear enough for me. [Those responsible for the program] made all the technicalities too complicated/.../it all made me miss out on participating.'*  
(P7)

For example, many participants found it technically complicated to participate in the discussion forum, and were disappointed about missing out on participating.

*'I tried my best, but during the program I messed up on some technical stuff. For example, I didn't understand the meaning of "threads" /.../ I really wish I could have got in contact with others [in the discussion forum]. But I didn't.'*  
(P17)

### ***Knowledge obtained from the program***

Knowledge obtained from taking part in the program was described in four subcategories related to four different elements of the program (see Table 2), and in additional two types of subcategories: revisiting knowledge and increased awareness of HL.

While many participants revisited some previous theoretical and practical knowledge, many also learned some new things from participating in the program. One

participant described the information obtained from taking part in the program as the following:

*'Yes, I can say that it has affected me, this program has explained things to me; I've revisited things I already knew about...such as, what happens in one's environment, and how we perceive our environment, and possible hearing problems that we could experience. I have revisited all that, and maybe even learned new things.'* (P17)

The book in particular was highly appreciated for providing interesting and beneficial information, even if some participants reported that the volume of reading was quite demanding. It provided the participants with new knowledge or enabled them to recognize previous knowledge, and they considered it comprehensive, legible, and easy to read. The book provided good information about HL, HAs, and the benefits of using HA.

*'I highly appreciated the information in the book, for example the text about how hearing aids work and how to take care of them.'* (P4)

*'[The book] was very informative and it was, it was a really good learning experience, to gain knowledge about hearing loss and also about the functions of our hearing organs. /.../ Maybe I could adapt my hearing loss a bit better if I learn something about how it works.'* (P7)

Another valuable aspect was that the participants were able to refer back to the book occasionally, even after completing the program.

*'I followed it [the book], I like it, I benefited from it. I still have it and I can look up information whenever I want.'* (P1)

*'I'll tell you that...all parts of [the program] were interesting, and I've been using this book as evening reading...it has really been good. Something that ...that I have missed in the past...'* (P10)

The weekly assignments contained practical applications which were generally perceived as concrete and feasible.

*'It was good with the concrete assignments...'* (P9)

*'What I remember the most is the weekly assignments with pictures... [explains the assignments from the compendium]...there is a lot you can do to improve your situation. How you place yourself in the room. And I thought it was really...very concrete and good.'* (P14)

Moreover, the participants' experience of the compendium upon which the weekly assignments were based was interpreted either as basic, not bringing new information, or almost consistently revisiting communication strategies acquired prior to the IAR program. On one hand, there was a sense of disappointment suggesting that some participants' expectations of gaining practical knowledge exceeded the outcome of the program. On the other hand, revisiting already acquired communication strategies was highly appreciated, as was the learning of some new strategies, such as actively communicating about HL.

*'And also, a lot was about all the different strategies. They were old news to me. I was already familiar with the strategies.'* (P5)

*'It was really good, the compendium was really good, both theory and practice.'*  
(P9)

*'I got the opportunity to learn new things [referring to the compendium], and I got things confirmed...which is good.'* (P17)

Several participants expressed a desire to participate in this kind of IAR program periodically in order to maintain the knowledge gained. Nine participants reported non-adherence to the discussion forum. Thus, it was hard for these participants to see any personal benefits of participating in the discussion forum, even though they appreciated the value of the forum, especially the value of enabling peers the opportunity to share experiences

when needed. One participant described the discussion points in the forum as indisputable. A vast majority found it meaningful to read other participants' comments and said they benefited from empathizing the experiences expressed in the forum. Those who actively participated in the discussion forum saw great benefits in sharing experiences with peers over the course of the program.

*'Then I realized that the narratives were similar to what I...it's always nice to know that you're not alone with a feeling.'* (P4)

*'[The discussion forum] was interesting, and I've learned that [HL-related problems] is a broad area/.../in [the forum] one could read about different problem-solving strategies that other hearing aid-users have tried.'* (P7)

The IAR program contributed to new or revisited knowledge for many participants. This knowledge made many participants gain an increased awareness of the HL, HAs, and communication strategies. The increased awareness was perceived as broadening the horizon of opportunities, and for some participants it led to greater acceptance of their HL and to being more collaborative in their decision-making with the audiologist.

*'I was fitted with new ones [HAs] this summer, directly after I completed the internet program. At that point I was knowledgeable, and could talk to my audiologist at a completely new level, about what hearing aid I should try out. And also in ordinary, daily situations, I am much, much more aware of where I place myself when I'm for example in larger groups of people. I have thought about that in the past, too, but now I am much, much more aware of where I place myself.'* (P12)

*'I do believe that this [the program] helped me...to completely accept [the HL], and to take advantage of every opportunity to gain better communication with other people, instead of hiding.'* (P3)

### ***Perceived impact of taking part in the IAR program***

Many participants described the program as a source of knowledge with positive effects on their self-esteem. For example, several of them stated that their participation in the program had inspired them to ask questions of reiteration or to request communication enhancements in certain situations, i.e., the participants gained the courage to demand improvements. Several participants also stated that they now face HL in a more open manner and they communicate more actively about it.

*'Every time one take part of something like this [refereeing to the IAR program], it boosts your self-esteem.'* (P14)

*'The more I learn about [the HL], the tougher and cocky I become./.../That gives me a better sense of self-esteem related to my hearing loss.'* (P9)

The positive effects of the IAR program on participants' self-esteem triggered participants to apply gained or revisited knowledge practically in everyday life. For example, many participants described that they had increased their use of communication strategies, some reported using their HA more than prior to the program, and some also reported increased social activities.

*'Yeah, this program made me realize that I shouldn't neglect the hearing aid. I've kept [the HA] in its box for a long time, but it's no use keeping it there. Now I am using [the HA] practically every time I am around people.'* (P19)

However, a majority of the participants did not report increased HA-use, in terms of hours per day, rather they reported increased confidence in how to deploy new or revisited knowledge practically related to their everyday HA-use.

*'Yes, I do think [the program made a change in my HA-use]...I would say that I'm now using my hearing aids in a smarter way.'* (P1)

*'Before participating, I never asked somebody to repeat a question or acknowledged that I didn't hear in a conversation...Now I have more courage to do that.'* (P4)

### ***Findings regarding future applications***

All but one of the participants would recommend the IAR program to other HA-users for the following reasons: the Internet enables the gathering of meaningful information in a practical way; the program may increase one's awareness of the HL; the program offers an opportunity to discuss experiences with peers; and the Internet makes the program easily accessible and enables participation in accordance with personal circumstances (e.g., time and place). Many participants believed that the book may be of key importance to new HA-users. Several participants recommended the program especially for new HA-users, since it offers good information about HA technology.

*'I would do that [recommend the program]...especially for the new ones, the ones fitted with hearing aids for the first time; they should go through this program as it would give them an introduction to what hearing aids can and cannot do for them.'* (P13)

Regarding program improvement, some of the participants suggested, for example, that significant others should be included in the program, that the psychosocial aspects of HL should be addressed, and that the pressure on participants to complete the weekly assignments should be increased. Several participants also expressed a need to simplify the use of the technical parts of the program website.

*'I was very disappointed on the technicalities, [the IAR program] was hard to reach and to navigate/... /this should have been much easier than it was.'* (P19)

## Discussion

The results of the analyzed interviews based on the use of IAR program were separated into three main categories: *general experiences associated with taking part in the program*, *knowledge obtained from the program*, and *perceived impact of taking part in the program*.

The participants' experiences of the program were overall positive. This finding is in line with the quantitative analyses of the data reported by Thorén et al., (2014) where some participants showed significant improvements in activity and participation on a group level. The opportunity to acquire new knowledge and/or revisit previously learned knowledge appeared to be a key factor for many of the participants when attempting to improve their communication skills in daily life. According to Lumer (2010), in order to accomplish a framework of knowledge, participants need to define what they want to achieve by employing the knowledge. In the present study, being knowledgeable about the HL helped the participants define their desired achievements.

Further on, the results of the current study show that participants expressed improved self-esteem after participating in the program, which in turn encouraged many of them to take actions that could improve their daily communication. Accordingly, the current study theme indicated that as clients became more knowledgeable about hearing loss, their self-esteem increased, and in turn, so did their ability to deploy knowledge practically i.e. the theme requires both the knowledge and the achievements – one does not preclude the other. The current study theme could be linked to empowerment as a purpose of health related education, which is defined as to: *“Provide a combination of knowledge, skills, and a heightened self-awareness regarding values and needs, so that patients can define and achieve their own goals”* (Feste & Anderson, 1995; p.140). The overall results of this study were in line with Backenroth and Ahlner (2000), who used in-depth interviews to discover that counseling interventions can increase participants' awareness of the HL, help them gain

new perspectives on wearing HAs, and boost their self-confidence. Further on, in Henshaw et al. (2015), the increased awareness of hearing difficulties encouraged some participants to seek further interventions.

The improvement in self-esteem may have been linked to the improved psychosocial impacts associated with HA use. Many participants in the present study reported increased confidence in how to deploy new or revisited knowledge practically related to their everyday HA-use. According to Dawes et al. (2014), getting used to HAs involves discovering what psychosocial impact HA-use will have on one's self-esteem. Even though many participants in the current study were experienced HA-users, the positive effects of the IAR program led to increased self-esteem and to participants taking further action to improve their daily communication. This indicates that more purposeful HA-use may lead to more substantial everyday communication.

The discussion forum in the IAR program, the individual interaction with the audiologist, and parts of the weekly assignments in the program could be considered examples of client-centered practice in AR. For example, participants were able to discuss social, psychosocial or environmental factors related to their own life experiences of HL, with each other in the discussion forum, or individually with an audiologist. Furthermore, for example, some of the weekly assignments required participants to describe real life experiences of communication failures and to address such shortfalls with communication strategies. Earlier research reveals some positive effects of intervention adherence when involving participants in a client-centered approach (Laplante-Lévesque et al., 2010; Poost-Forosh et al., 2011; Grenness et al., 2014). However, the adherence to the discussion forum in the current study was reported as poor. One reason for poor adherence could be the technical difficulties experienced by the participants. As many participants reported benefits from reading the narratives of peers, another reason could be that, due to the positive effects

obtained from reading other peers' comments, the participants didn't see the value of writing personal experiences. Exchanging experiences in an online discussion forum for HA-users has shown positive effects in previous research as well (Thorén et al., 2011). According to Laplante-Lévesque et.al. (2010) *other people's experiences, recommendations and support* is one of 7 factors influencing rehabilitation decisions. Exchanging experiences in the current study could be one of the positive impacts the IAR seem to have on participants' ability to participate in decision-making with their audiologist regarding future interventions.

### ***Clinical Implications***

Despite the positive effects of communication programs, many hearing aid users are neither aware of nor offered such programs (Kochkin, 2009). In a study by Grenness et al., (2015) 62 initial AR consultations were filmed and analyzed. The results indicated that the clinicians focused mainly on hearing aid-related issues. In the current study, differences in expectations of the program could be sensed among the participants. This may be explained by clinicians generally not having time to bring up the importance of HA follow-up programs in connection with HA fittings. It could also be due to difficulties scheduling communication programs in addition to HA-fitting (Grenness et al., 2015). An internet-based approach increases the availability of HA follow-up programs, and previous research has revealed the advantages of implementing IAR in general clinical practice (Malmberg et al., 2015).

Using the Internet to provide AR programs has been a positive experience in the current study, with the Internet making the program easily accessible. People with hearing HL are more motivated than their hearing counterparts to use the Internet (Barak & Sadovsky, 2008). Admittedly, the technical problems with the studied online program call for attention, as technical assistance was requested by many participants. This is in line with Brännström et al. (2016) and Thorén et al. (2016), who found that users of internet-based programs/systems

appreciate simplicity in the use of technology. Providers of future programs should take this into account. Another valuable consideration would be to include significant others in the program. Preminger and Rothpletz (2016) consider the inclusion of a communication partner to be one of four activities critical to a successful internet-based group AR.

### *Methodological limitations and future directions*

In the present study the participants expressed expectations and motivation for participating. This could be described as internal motivation driving the participants to actively seek involvement in research (Hagger & Chatzisarantis, 2008; Thorén et al., 2014), a characteristic that could affect the outcome of the program (for additional participant characteristics, see Thorén et al., 2014). A participant's expectations prior to participation may influence the individual perceptions and understanding of an IAR program. Henshaw et al. (2015) found that reasons such as hearing difficulties affected non-HA-users' initial participation in a study on computer-based auditory training. In the present study, self-perceived hearing difficulties was one requirement for participation in the IAR program (see Thorén et al., 2014). According to Vestergaard Knudsen et al. (2010), self-perceived hearing difficulties correlate with elements such as HA use, and satisfaction.

The interpretations in the current study should be viewed within the context of qualitative research (Malterud, 2001). The results cannot be generalized to all HA-users who participate in an IAR program. Furthermore, the average duration of interviews appeared short, and also, the interviews took place six months post-participation in the program, and the participants' experiences rely on what they remember from the program. This could certainly affect the results of the present study, and there is a need of more studies to be done.

### **Conclusions**

This study examined an IAR program in terms of participant experiences, and provides some valuable information for developers of internet-based interventions within AR. The results reveal overall positive experiences in relation to the studied IAR program. Identifying what was of greatest importance for the participants is a challenging task. Many participants gained knowledge from the program. These benefits led to participants experiencing increased awareness of the HL, HA benefits, and communication strategies, as well as improved self-esteem. The program underlines the ability of HA-users having confidence in how to deploy new or recognized knowledge practically, i.e. enhancing empowerment, and shows the participants what they can do rather than what they cannot do.

In conclusion, our recommendation for future efforts when developing and modifying internet interventions is that theory and practice must go hand in hand. The information provided through an internet intervention should be comprehensive and easy to follow, and include concrete applications. Another important recommendation is keeping the internet-based program simple in the use of technology in order to facilitate usage of the program. Also, offering participants the possibility to share experiences with other people, to get recommendations and support are important outcome mediators that should be considered in future internet interventions.

## **Notes**

Interested readers can access the Appendix 1 at <http://tandfonline.com/doi/suppl>.

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### **Declaration of interest**

The authors report no conflict of interest.

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**Table 1.** Examples of meaning units, condensed meaning units, and codes.

MEANING UNIT	CONDENSED MEANING UNIT	CODE
I followed it [the book], I like it, I benefited from it. I still have it and I can look up information whenever I want. (P1)	The book was beneficial and is reusable	Positive experience of the book
It was really good, the compendium was really good, both theory and practice. (P9)	The compendium covered both theory and practice	Positive experience of the compendium

**Table 2.** Theme, categories, and subcategories.

<i>Theme</i>	Becoming more knowledgeable about HL increases the self-esteem and in turn, the ability to deploy knowledge practically		
<i>Categories</i>	GENERAL EXPERIENCES ASSOCIATED WITH TAKING PART IN THE PROGRAM	KNOWLEDGE OBTAINED FROM THE PROGRAM	PERCEIVED IMPACT OF TAKING PART IN THE PROGRAM
<i>Subcategories</i>	Positive and valuable experiences Negative and disadvantageous experiences Ambiguous experiences	The book The weekly assignments The compendium The discussion forum Revisiting knowledge Increased awareness of HL	Impact on self-esteem Actively communicating about HL Employing communication strategies in everyday life Increased social activities Impact on HA-use

*HL=Hearing loss, HA=Hearing aid/s*

**Appendix 1.** The topic guide for the interview procedure.

How did you get in touch with this project and what made you comply?

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Please tell me about your overall experiences with the program and the material that you have received related to the program.

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Please tell me if you perceived any impact of taking part in the program?

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