

# Chapter 17


## Persona–Scenarios in Game Development: Communication Tensions Between Hearing Aid Users and Communication Partners

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### ABSTRACT

*The 3D Tune-In project developed serious/leisure game applications to educate hearing aid (HA) users about how HA functionalities could improve hearing in different sound environments. The application development team had little prior experience catering for end-users with hearing loss. HA users and their communication partner were consulted regarding their communication difficulties and communication strategies in different environments. Participants reported many hearing problems, affective issues, problems with their HA, tensions in their relationship caused by hearing issues, and they noted a need for training in how best to use HAs. Persona-scenarios were created outlining user needs and goals and a user-requirements table detailed how end-users might interact with proposed applications, both of which were presented to developers during the initial application design period. Game developers identified that these resources positively influenced the development of their application. They were able to produce a useful and useable application for their new target user.*

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## INTRODUCTION

Some of the most challenging outcomes of hearing loss (HL) are the extent to which it can affect people's ability to form and maintain interpersonal relationships and engage in meaningful/effective conversation, consequently straining existing relationships (Erber & Scherer, 1999; Heffernan, Coulson, Henshaw, Barry, & Ferguson, 2016; Heine & Browning, 2004; Preminger, Montano, & Tjørnhøj-Thomsen, 2015). The effectiveness and quality of communication between a person with HL and someone without is greatly affected by contextual factors such as type of environment, background noise and room echo as well as individual characteristics and behaviour (e.g. accents, facing each other when communicating etc.) and desired activities (Erber & Scherer, 1999; Hasan, Lai, Chipara, & Wu, 2013). Some environmental factors may constrain communication by influencing which strategies can be used to facilitate hearing; for example, people cannot face each other when travelling in a car.

The use of hearing aids (HAs) plays a significant role in the ability of those with HL to communicate (Guerra-Zúñiga, Cardemil-Morales, Albertz-Arévalo, & Rahal-Espejo, 2014). Achievement of a good fitting and post-fitting support are positively associated with HA use (Laplante-Lévesque, Dons Jensen, Dawes, & Nielsen, 2013; Solheim, Kværner, Sandvik, & Falkenberg, 2012). However, proper fitting and calibration of standard HAs is notoriously challenging to achieve, given the inherent differences in the nature of each acoustic context. Sound contexts may be subject to continuous change (e.g. the noise levels of a café may change depending on the number of people present and their activities), and the specific needs of HA users may vary (e.g. whether they want to converse or just listen) (Kuk, Bulow, Damsgaard, & Ludvigsen, 2004). Thus the HA fitting and calibration process is long-winded, requiring many audiologist appointments to allow HA users to 'test' the performance of their HA in different real-world sound contexts and discuss their experiences with the audiologist, who may then re-calibrate the HAs and conduct further assessment. Although some HAs allow users to change settings directly in different environments, Keidser et al. (2005) advise that only a subset of people with HL are viable candidates for these HAs, as their use requires a high level of understanding of both the limitations of their own hearing and also about what the settings do in each environment. Indeed, Laplante-Lévesque et al. (2013) identified that lack of knowledge about the functionalities of HAs resulted in sub-optimal HA use: many HA users leave their HA on the default setting, which is insufficient for hearing well in certain situations (de Graaff et al., 2018).

It is suggested that the HA user's satisfaction with their HA might be, to some extent, related to their level of social support (Singh, Lau, & Pichora-Fuller, 2015). Communication partners may, in some cases, be better placed to identify and objectively describe their partner's particular difficulties in different settings (Schulz et al., 2017). Research focusing on the frequent communication partners of people who wear HAs acknowledges the role of both parties in contributing to the psychosocial wellbeing (through effective communication) of each other (Barker, Leighton, & Ferguson, 2017; Brooks, Hallam, & Mellor, 2001; Erber & Scherer, 1999; Heine & Browning, 2004; Kamil & Lin, 2015; Lazzarotto et al., 2016; Manchaiah, Stephens, & Lunner, 2013; Preminger et al., 2015; Scarinci, Worrall, & Hickson, 2008; Vas, Akeroyd, & Hall, 2017). Communication partners may have learnt strategies to help facilitate conversations with someone with HL/HA users (Caissie & Gibson, 1997; Echalié, 2010; Manchaiah et al., 2013), but they may find it difficult to understand their partner's experience of HL or the effect of additional factors such as HA use, background noise and fatigue (Echalié, 2010). Communication partners may also experience fatigue in social interactions due to the additional effort required to converse with the person with HL (Vas et al., 2017). Both partners commonly experience frustration with the type

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