

## Chapter 6

# Emotional Factors for Teleaudiology

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### ABSTRACT

*The internet has created new possibilities for health practitioners to deliver services remotely. The potential for telemedicine is yet to be fully realized. Many factors hamper the uptake of telemedicine, including funding models and the availability of technology. This chapter concerns one important area often neglected by technology developers: considering the emotions of users interacting with systems and services. The authors believe that consideration of emotions is essential for the advocacy, adoption, and appropriation of telemedicine services by a wide range of stakeholders, who have diverse abilities and motivations. They consider one area of telemedicine: teleaudiology. The authors outline emotional factors that need to be considered in providing teleaudiology services drawing on research from software engineering developing agent-oriented models of socio-technical systems, as well as knowledge of assistive technology frameworks. They consider how emotional factors can be taken into consideration with respect to a specific teleaudiology service provided by a successful company.*

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## 1. INTRODUCTION

The Internet and other technologies have created new possibilities for health practitioners to deliver services remotely, in order to address challenges such as access and geography, a phenomenon known as telemedicine or telehealth (WHO, 2011). The potential for telemedicine is yet to be fully realised. Many factors hamper the uptake of telemedicine, including funding models and the availability of technology. This paper concerns one important area often neglected by technology developers, considering the emotions of users interacting with systems and services.

Consideration of emotion, and the effect that emotion has on cognition, is essential for understanding and increasing the take up of telehealth services. Whether a service is adopted is affected by a wide-range of stakeholders, who typically have diverse abilities and motivations. Most computer software researchers focus on technical aspects when asked to develop software or systems for health. While technology can connect people in social domains and support people in their everyday lives, the technology is only valuable if it addresses and fulfills people's needs. Needs include cognitive and emotional needs, such as experiencing fun, feeling engaged or feeling valued (Prilleltensky, 2016).

When considering adoption of telehealth, the technology itself is an important factor. Factors such as reliability, trust and confidentiality, as well as access to appropriate software and hardware must be considered and must be correct. Without the reliability and validity of the technology itself, the person is unlikely to engage with the process. However the effective uptake and utilisation of telemedicine depends on the advocacy, adoption and appropriation of the software by a wide-range of stakeholders, who have diverse abilities and motivations.

Focussing on technical issues while ignoring emotional factors may fail to get any technology used widely (Mendoza et al, 2013). Further, lack of use of a technology effectively diminishes both the value of the investment in the technology and the significance in producing outcomes. The literature indicates that emotional expectations of the user are critical if users are to appropriate technology meaningfully into their lives (Boehner et al., 2007), which becomes even more complex when looking at health, healthcare and assistive technologies. Healthcare is always a highly emotional experience that involves intense emotions at all stages, including prior to intervention occurring (Berry, Davis and Wilmet, 2015).

The need for emotional design has been made cogently by Norman (2005). Norman refers to three levels of cognitive processing: visceral processing, associated with product "look and feel"; behavioral processing, associated with product characteristics such as performance and usability; and reflective processing, associated with the meaning of a product and its impact on self-image and satisfaction. Emotions play a role in all levels. While Norman's work seems not to have been adopted widely by software and app developers. However emotions have been discussed in the context of requirements engineering by (Bentley et al, 2002), (Ramos and Berry, 2005), and (Proynova et al, 2011) among others.

Given the highly emotive nature of health care, it is imperative that any changes or digitization be considered in the context of the emotion of the recipient. Emotion in the context of technology for assistive technologies, or innovation in supplying health care to address a deficit, mean that emotion must be at the centre of the process. Often, medical devices are designed with only functionality in mind. However, when providing healthcare technological innovations, there is a need to balance the needs as well as the abilities and limitations of a range of stakeholders, which includes the user, but also regulatory and funding bodies as well as the provider.

For take up and implementation of telehealth, it is important that the experience of using technology be considered. It has been purported with mainstream assistive technologies that poor design can reinforce

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