Social Acceptability of a Virtual Assistant? From trusting a system to realizing its fallibility

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Applying novel technologies to everyday life raises the question which consequences and ethical implications this transfer brings along for its users. Harper et al. [1] point out that existing concepts of human-centered design need to be extended by an additional stage: The traditional stages of *studying*, *designing*, *building* and *evaluating* a system take the users' requirements into consideration with regard to efficiency and utility of technology. These concepts, argues Harper et al., have to be complemented by a novel stage *understanding* which focuses also on social, cultural and ethical aspects.

Thus, bringing autonomous systems - wheter robots or virtual agents - from the laboratory to the real world goes beyond issues of mere functionality and usability and points to the relevance of their social acceptability. Using questionnaires, Krämer finds that users accept an agent more easily, when it assumes a specific role [2]. Meyer, e.g. points out that a social robot that causes positive impacts on autonomy and self-determination of elderly people [3] is accepted more easily. She further concludes that a system has to be reactive and is only allowed to talk, when the user recommands talking [3]. Such considerations are particularly important in the case of assistive technologies for elderly or cognitively impaired people. However, the progress of social acceptability and its impacts on the users' daily routines and activities - especially when transfering a virtual assistant to everyday life - have to be explored using a combination of questionnaires/interviews and videobased studies.

In a current project on virtual assistants and their social acceptability (VASA) we aim at developing a system that should assist users with special needs - such as elderly and cognitively impaired people - in organizing and structuring their day when. The system uses an embodied conversational agent („Billie") and provides an intuitive interface for a calendar application. Users can enter and manage appointments into a computer-based calendar with the help of „Billie" using natural means of communication and should be reminded at predefined moments in time [4], [5]. We ask: (I) How can a conversational virtual human be designed so as to be socially acceptable on the level of its concrete behavior and forms of interacting with the user? (II) How can users integrate novel technology into their everyday lives and which effects might this have on their daily routines and attitudes?

We develped a participatory study design that involves users at each of its four methodical steps: (1) focus group about users' personal needs, attitudes and technical affinity, (2) demonstration of the system and subsequent discussion about impressions at first contact, (3) interaction study (here: wizard of oz) and interviews about functionality, usability and design, (4) debriefing focus group. - Our analysis shows that (a) users evaluate the system better in terms of perceived usefulness and intention to use it after having tested it. (b) Using sequential video analysis, we find that users quickly developed an understanding of the system's limits and began to realize its fallibility.

References

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