
Design with Proxies: a Desktop-PDA System for People with Aphasia

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Abstract

We present an overview of the issues and questions we confronted while designing a desktop-PDA system for people with aphasia and using proxies to bridge the barrier between us and our target population.

Keywords

Assistive technology, aphasia, multi-modal interfaces, participatory design.

ACM Classification Keywords

K.4.2 Computers and Society: Social Issues—Assistive technologies for persons with disabilities; H.5.2 [Information Interfaces and Presentation]: User Interfaces - Evaluation/ methodology, graphical user interfaces, prototyping, user-centered design

Introduction

Losing the ability to communicate, as individuals with aphasia know all too well, is a life changing experience. It can lead to feeling helpless and highly dependent on other people and also to feeling excluded from family and friends [2, 3]. We have developed a personal planner that allows people with aphasia to add spoken phrases to their daily schedule to help them communicate with others by attaching pre-composed phrases to planned events. Creating a tool these

individuals can use to improve their quality of life, however, depends on our ability to overcome the communication difficulties that define our target population.

Technology and Aphasia

Although there are a number of devices to assist individuals with communication disorders, there is a dearth of technology specifically designed for people with aphasia. Many of the existing devices are visually conspicuous due to their size or conspicuous sound output or simply do not meet the needs of the user. Individuals with aphasia are concerned that their use sets them apart and attaches a social stigma that they feel is inappropriate [1]. Thus, such devices are likely to be used only in private. In order to address the needs of people with aphasia as well as the stigma attached to cognitive impairment, we hope to harness technologies such as a personal data assistant that are already a part of everyday life.

Many individuals with aphasia have already embraced e-mail, digital cameras, electronic organizers and other technologies. However, because many sufferers of aphasia are older, some have had no prior experience with computers and are unfamiliar with electronic devices. Consequently, we must attempt to satisfy both elements of the population; any application that is "one size fits all" will be too trivial for one part of our audience and too complex for the other.

Overcoming Challenges by using Proxies

Even given a wide range of communication abilities, there is an inherent difficulty in designing for individuals who are unable to articulate their needs. Consequently, in our design, we used speech-language

pathologists, professionals who work on building communication strategies for individuals with aphasia and training them in techniques for reintegration into society. We took advantage of their expertise in judging the abilities of people with aphasia and of their experience in assessing patients' needs from the countless hours they normally spend with our target audience.

We chose to use speech-language pathologists because their experience encompasses the entire range of all the individuals that they have helped over the years. While a family member might have a deep understanding of a single individual and their needs and capabilities, speech-language pathologists can help us design for a broader range of our target population.

Questions

We asked the speech-language pathologists to imagine scenarios where a communication aid might be useful and to suggest what features would help people with aphasia in their everyday lives. This information directed our design, which we then evaluated with the speech-language pathologists via a paper mock-up and a more developed software prototype. Our design with proxies was very fruitful, especially in determining who our target audience would be and the functionality this set of users might need, but as a final step we had to present a high-level prototype to individuals with aphasia in order to collect feedback from the true target population.

We are interested in finding out about other alternatives to using proxies to enable us to design for individuals with aphasia. We would also like to learn how we can best determine if the use of proxies is an

effective design strategy, and how to measure the effectiveness of this approach. We've learned that using proxies at the early design stages may be more beneficial than interacting with users directly, but we would also like to learn how to adjust our design process to best use the knowledge and experience of proxies to serve our eventual user.

We feel that there is great potential for the continued use of proxies in designing assistive systems, but they cannot replace real users, for whom we still need to improve our methods of assessing usability and adoptability.

About the Authors

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Both are members of the Aphasia Project, which seeks to provide technological tools to people with aphasia that lessen the burden of their disability and improve the quality of life.

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