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Assistive technology as cognitive support in everyday life for persons with dementia or stroke

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ABSTRACT

The overall aim of this thesis was to expand the knowledge base for a better understanding of how persons diagnosed with dementia or stroke become users of assistive technology for cognitive support in everyday life.

In **Study I**, identified difficulties in everyday life related to cognition were matched with a specific type of modifiable context-aware assistive technology with the aim of identifying what types of tasks the assistive technology could support. The findings showed that the assistive technology in focus was judged to be able to initiate the performance of specific tasks and to inform about upcoming events, to support the completion of an already initiated task or to remind the user in a specific location or after specific actions. It was judged as less supportive in the area of communication, handling electronics and doing more complex activities with many steps.

In **Study II**, four persons who had experienced a stroke had one type of modifiable context-aware assistive technology, with individual customisations, installed in their homes for a six-month period. The participants were interviewed with the aim of examining how the assistive technology influenced their everyday lives. The findings showed how routines developed with support from the assistive technology influenced the participants towards increased control of their everyday life, created daily structure and supported them in regaining social contacts. The spouses cooperated in the use of the assistive technology and were alleviated from responsibilities to some extent.

In **Study III**, ten persons, who had an early stage of Alzheimer's disease, were followed on their way towards becoming users of assistive technology which was individually chosen to match their needs, desires and goals. The participants were interviewed to acquire descriptions of how they become users of the assistive technology and to examine how they experienced the use of the assistive technology. Four significant junctures were identified at which decisions influencing whether the person became a user of the assistive technology or not were made. The junctures were related to how the initial decision was made, how routines were adjusted to the assistive technology, whether the users trusted the assistive technology and whether the participants felt an increased sense of capacity when using it. As users, the participants perceived how time and effort were saved, how worries and stress decreased and how their sense of safety increased, which enabled them to perform their valued activities.

In **Study IV**, experiences from the assistive technology interventions presented in the previous studies were examined with the aim of identifying features in the assistive technology that affected the usability and usefulness of it.

The findings identified eight themes, including features that promoted or impeded the task performance and goal achievement, that is, the usability and usefulness of the assistive technology. They were related to the use during task performance, the preparation and customisation of the assistive technology, and the impact of faulty assistive technology.

The findings in the thesis provide new knowledge about how a person, who experiences cognitive impairments due to a stroke or a dementia disease in the early stage, becomes a user of assistive technology. These findings can be of use in the provision of assistive technology for cognitive support and for future research.

It was apparent that to become a user of the assistive technology, it was of great importance that the task intended to be supported by the assistive technology is connected to a valued goal that the potential user has a desire to achieve, and moreover that the assistive technology can enable the person to achieve that goal, not only to perform the task in target.

In the findings, for some persons to become users of assistive technology the significant others were identified as being of great importance. Features in the assistive technology that promote usability and usefulness were identified. The usefulness of the assistive technology was shown to be closely related to the matter of trust and sense of safety. The findings implied the importance of having a user-centred perspective, also concerning the social and physical context, when planning for the provision of assistive technology to the potential user.