Practice-oriented Development of a User-centered Assistance and Safety System for Supporting People with Dementia

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Motivation

- According to Alzheimer's Disease International, worldwide an estimated number of 46.8 million people were affected by a dementia disease in 2015. By the year 2050, the number of sufferers is expected to have tripled [1].
- Since human resources in healthcare decrease, the integration of technically assisting systems can be an approach to mediate the supply gap developing due to the demographic change.
- The AUXILIA research project develops a user-centered assistance and safety system to support people with dementia. The system bases on intelligent behavioral analysis, which enables users to live a self-determined life for a longer time.
- To achieve these goals, support and security features must be aligned with the needs of users.

Research Status

- Currently, numerous AAL-systems were developed from the technical perspective. Not all consider the needs or requirements of dementia patients.
- Only few models of needs of dementia patients were researched so far. The methodical basis of existing models is divers and documentation partially insufficient. Examples of previous methodological approaches are:
  - focus groups [2]
  - expert survey [3]
  - theoretical derivations [4]
- Howether, the illness and age-related impairments of the user group require an alternative method [5] [6].
- The user-centered approach represents research gap.

Method of Needs Analysis

Literature Review
Needs models, impairments

Critical Incident Technique
Needs and requirements
(explorative)

Focus groups
Approaches to technical assistance

Survey
Evalua-tion

The Approach of Critical Incident Technique [7] [8]

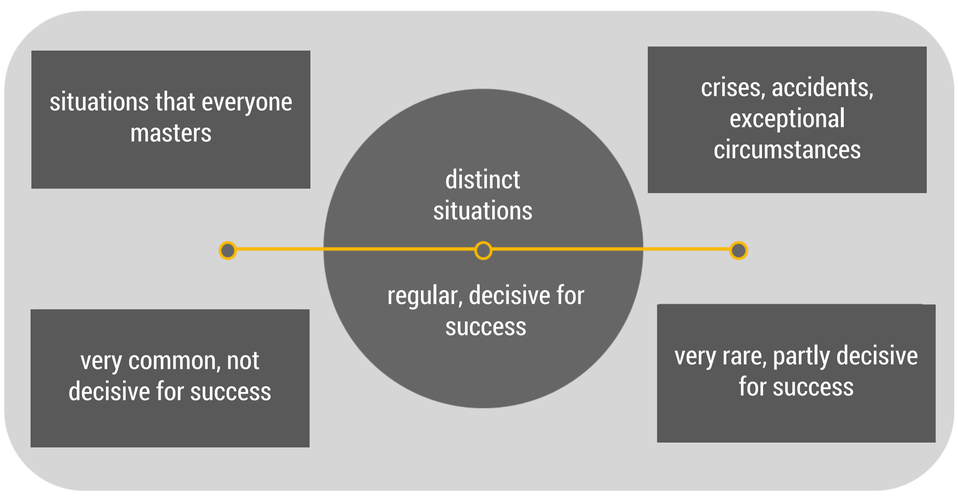
Compile
Situations and habits
conduct
context
result

Value
Criticality
Frequency of result (typical)
Relevance for good performance in the agitating solution (important)

Cluster
Behaviour according to similarity in content to requirements

Evaluate
Assessing of trainability and compensability
CAN
SHOULD
Require-ments

Data Collection



- Situational, direct recording of events that deviate from the normal
- Survey starts at critical events, which show the need for help of the dementia sufferer through signaling.

First Findings and Outlook

- First results from preliminary study — n = 10 caregivers

Dementia user	Caring relatives	Professional caregivers
• support for independence • increased sense of security • prolonged stay in one's own home • participation in social life	• technically supported informative participation • creating a sense of security by setting up automatisms for emergencies	• technically supported informative participation • optimization of the care process

- Structured collection of the needs of dementia users as a basis for the development of specific, weighted technical assistance functions
  ⇒ aspired goal: structured needs model
- Implementation of the derived needs-based assistance functions in the AAL-system
- Evaluation of the limitations of the method and approaches

Literature

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