Own experiences from field work: The collaborative change experiment

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INF5722, Wednesday the 2nd September 2015
My dissertation

• Title "Participatory design of ICT - supported elderly care."

• Main objective: *study introduction of welfare technology / assistive technology use within the overall public elderly care*
  - Understand how welfare technology use can be beneficial or have constrains in the view of organizational implementation processes.
  - Examine how we better can succeed in incorporate welfare technology as an essential part of the future elderly care

• Three research questions:
  - Which problems take place in the introduction of welfare technology?
  - Which design considerations are required in order for the caretaker and caregiver to adapt use of welfare technology?
  - Which organizational changes evolves in the introduction of welfare technology?
The organization of Municipal health care services

- An organization with high complexity and unpredictable work flow
  - Fragmented care services
  - Wide range of different users, and user needs
  - Several stakeholders involved
  - Provide services after the principle of “Lowest Effective Level of Care”
  - The cost and services provided services varies from municipality to municipality
  - Different housing give access to different services (private homes, care homes and nursing homes)
  - Access to services are provided after “formal decisions” according to individual’s application, physical ability evaluation and / or specific formal guidelines.
  - Transition from one municipal housing to another is not a straightforward pathway
Motivation

- Current elderly care is not sustainably:
  - Scares health care resources
  - Increasing elderly population
  - Growth of chronic illness among the overall population
  - Shortfall of health care staff
  - Lack of new housing for all elders

• It’s required to organize elderly care differently.

• Welfare technology is one of several solutions to this socioeconomic issue.

Fig. 1 Gross operating expenses including HVPU 1973–1990 Copyright: Borgan 2012, SSB.
Definition

Welfare technology defined by the Hagen – committee (NoU 2011:11)

“.. technological assistance that improves the safety, security, social participation, mobility and physical and cultural activity, and strengthens the ability of individuals to take care of themselves in everyday life despite illness and social, mental or physical disability. Welfare technology can also act as technical support to relatives and otherwise help to improve availability, resource utilization and quality of services. Welfare Technological solutions can in many cases prevent the need for services or institutionalization.” (NOU 2011:11 p. 90)

FOUR CATEGORIES:

1) SAFETY AND SECURITY TECHNOLOGY
2) COMPENSATION AND WELLNESS TECHNOLOGY
3) TECHNOLOGY FOR SOCIAL CONTACT
4) TECHNOLOGY FOR TREATMENT AND CARE
The collaborative change experiment

5. Post-experiment workshop
4. Diagnostic evaluation in real environments
3. Usability testing in controlled environments
1. Preliminary field studies
2. Task elicitation
Study participants

- Elderly care receivers
- Home care service staff
- Researchers from UiO
## Methods involved

<table>
<thead>
<tr>
<th>#</th>
<th>Method</th>
<th>N</th>
<th>Collected data</th>
<th>Inquiry method</th>
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<tbody>
<tr>
<td>A</td>
<td>Preliminary field studies</td>
<td>15</td>
<td>Photographs, field notes, interview data</td>
<td>Home visit, unstructured interviews</td>
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<td>B</td>
<td>Task elicitation workshop</td>
<td>11</td>
<td>Field notes, problem grading</td>
<td>Open discussion</td>
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<tr>
<td>C</td>
<td>Usability testing</td>
<td>8</td>
<td>Photographs, usability grading, video</td>
<td>Two-sided observation, usability assessment, statistical analysis</td>
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<tr>
<td>D</td>
<td>Diagnostic evaluation</td>
<td>34</td>
<td>Diagnostic grading, photographs, field notes</td>
<td>Post-interview, usability assessment, two-sided observation, questionnaire</td>
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<tr>
<td>E</td>
<td>Post-experimental workshop</td>
<td>6</td>
<td>Field notes, photographs</td>
<td>Categorical labeling, open-ended questions</td>
</tr>
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<td>F</td>
<td>Case study</td>
<td>4</td>
<td>Photographs, field notes, usability grading</td>
<td>Post-interview, questionnaire and observation</td>
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Two – sidedness of care

- Home care take place in the meeting between the care receiver and care giver, and requires several interaction processes between the care giver and care receiver
  - Home care can therefore be viewed as collaborative work
  - Introduction of active use of ICT – supported care require mastery by both the care giver and care taker in order to make the remote care work work in the home.
  - Both local and remote care in the home have dependencies, e.g. require coordination of care, joint understanding of the purpose etc.
  - Remote care such as telecare / video consultation in the home is not appropriate for all elders.
    - Mainly for active elderly with minor health care needs
    - Introduction of welfare technology in the home increase the elders self – care work
    - Those who mastery these responsibilities may be rewarded with a larger flexibility to control their everyday life activities.
**Experienced field work issues:**

**Home care workers**

<table>
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<tr>
<th>Main findings</th>
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<tr>
<td>Health care issues:</td>
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<tr>
<td>Selecting appropriate participants</td>
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<tr>
<td>Recruiting participants are time consuming: oral information and sign consent letter. Non-users of home care services were excluded even if they received practical support in the home.</td>
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<tr>
<td>Scheduling issues</td>
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<tr>
<td>Technical issues</td>
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<tr>
<td>Require access to Internet both at the office, as well as internet in the homes of the care receivers</td>
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<tr>
<td>Technical issues affect the quality of care</td>
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<td>Organizational issues</td>
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## Experienced field work issues: Elderly care receivers

### Main findings

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Individual issues</td>
<td>Different users have different expectations of provided care services.</td>
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<tr>
<td>Selection bias</td>
<td>Social, technical, research, practical motivations</td>
</tr>
<tr>
<td>Health care issues</td>
<td>Cognitive challenges, shifting daily general condition, expanding health care needs limited benefit of telecare.</td>
</tr>
<tr>
<td>Scheduling issues</td>
<td>Interrupting daily life activities and television watching</td>
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<tr>
<td>Technical issues</td>
<td>Limitation of the fixed position of the television</td>
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<td></td>
<td>User challenges by adding additional services to the television</td>
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<tr>
<td></td>
<td>Require access to Internet in the homes of the care receivers</td>
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<tr>
<td></td>
<td>Technical issues, e.g. choppy sound or blurry picture reduces the quality of care</td>
</tr>
<tr>
<td>Organizational issues</td>
<td>New practice of care, new delagation of work tasks, stress of not being up to answer the telecare call</td>
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Overall design challenges: Organizational challenges vs. technical issues

- Isolated technical interaction in controlled environment was experienced as easy.
- Increasing complexity when telecare was integrated into real life (daily life activities of the elderly, and into the daily work flow of the staff).
- Lack of robust infrastructure, support, training.
- Problematic within the municipal health care organization to include non-users of home care services who may have had greater benefit of services for preventive purposes - > postpone their need for home care assistance.
Overall design challenges: Health issues vs. technical issues

• Daily general health condition had high impact on the users capabilities of using telecare.
• Bedridden elderly were immobile – and were not able to reach the stationary television in the living room.
• Other locations in the apartment had impact on their abilities of answering the telecare call (bathroom and sitting at the kitchen table eating)
• As participants had increased health issues over time – some received both telecare and traditional care in the home
Overall design challenges:
Prioritization and potential of ICT – supported care

• A need for improved prioritization of the “core” care services
• Which care services are appropriate and acceptable for delegation to technology?
• Mixing active and passive use of technologies in order to support a heterogeneous group of elderly with various user needs
  – Active elderly with minor health care challenges
  – Elderly with complex health care challenges
• Personalization and module based approach to support individual user needs
• Essential factors for experienced quality of care services where technology can have potential
  – *Timely delivery* of services, e.g. medication on time, blood glucose monitoring, avoid to sit in all day to wait for the nurse etc.
  – Regular nurses for a specific user
  – Limit the amount of “strangers” that arrives on your door on daily basis
Lessons learned from fieldwork: Design considerations before implementation

- First and foremost: **Stable and sufficient network capacity**.
- **Early introduction** of welfare technology use to younger elderly.
- **Allocation of employee resources**.
- **Active end-users involvement**.
- **Active researcher involvement** – field work is highly time-consuming and required active participation.
- Essential for implementation is **establishment of a robust response system** infrastructure, support system and training.
- **Balance active and passive use** of technology according to user needs
- **Build on familiar user interfaces** – to support the ease of use.
- **Universal design** to support individual user needs and changing user needs.
- Design services that work on **both mobile and fixed** devices.
- Design for **privacy**, e.g. curtain in front of the video camera.