User involvement in product design practices: A case study on technologies for older adults

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Introduction

› Background
  › Challenges brought with population aging → Technology as a solution?
  › Limitations (Niemelä-Nyrhinen 2007; Eisma et al. 2004; Essén & Östlund 2011)
    › Gaps between designers and users: experiential, physical, knowledge, etc.
    › Older adults’ needs and expectations not properly assessed
    › Limited roles in the design process
    › Decisions often based on stereotypes and assumptions
    › Low adoption and usage rates

› Objective of the case study
  › Understanding how user-centered design can be applied to technologies targeted for the older population
  › Illustrating how some ideas have been applied in practice
Case selection

- Information-oriented selection based on expected contents  
  (Flyvbjerg 2006)

- Selection criteria: cases having characteristics commonly found in technologies developed for older adults
  - Support for managing health, wellness, and/or daily activities
  - Focus on delivering service and creating value
  - Designed for use in residential environment

Selected cases

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<tr>
<th>MISTY</th>
<th>PARO</th>
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<tr>
<td>by Parental Health</td>
<td>by AIST (Japan National Institute of Advanced Industrial Science and Technology)</td>
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- Health and medication management
- Connecting with family and community
- Management of daily activities
- Dementia care and management
- Emotional support and therapy
- Formal and informal caregiving
Data collection & analysis

Data collection
- In-depth, semi-structured interviews: questions on design activities, distribution strategies, user involvement activities, etc.
- Documents: publications, reports, memos and other written materials
- Physical artifacts and system demonstrations

Content analysis approach
- Summarizing, categorizing and interpreting collected data
- Development of case descriptions using a consistent framework

Planning -> Concept development -> System -level design -> Detail design -> Testing and refinement -> Distribution / post-sales services
Modified from Ulrich & Eppinger (2004)

Key findings
- Users as heterogeneous group of multiple stakeholders
- Continuous user involvement and early prototyping
  - Ensuring ideas are communicated and understood
  - Benefits not readily tangible, target population unfamiliar with systems
- Universal design
  - Designing for universal appeal (“not granny-specific”) and ease-of-use
  - Secondary target markets
- Flexibility and robustness
- Associations and trade-offs between multiple needs
- Cultural aspects to consider in design and distribution
Discussion points & directions for future

› Comparative analysis with additional cases
  › Additional cases for generalizability
  › Cross-domain, cross-industry and cross-culture
  › Two-tail design (success cases vs. failure cases) for developing a more prescriptive and actionable design framework

› For discussion
  › Ideas for design research on technologies for aging population
  › Lessons from inclusive design practices for other underserved populations (e.g. economic strata, access to resources, age, health, physical/cognitive capabilities, etc.)

Thank you!

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