

Building Usability into National eHealth Strategies, an Action Research Approach

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Abstract. Many healthcare organizations are currently committed to organizational change and quality improvement projects. Unfortunately, little effort is put into health information system development according to usability requirements and methodology, leading to bottlenecks in the eHealth systems when implemented into daily practice. This paper presents a national initiative to build usability of eHealth systems into the Swedish national eHealth strategy and its action plan to ensure impact on practice. Action researchers within the health informatics domain collaborated with representatives of different care professions to propose high-priority changes necessary to improve the usability of health information systems.

Introduction

Currently extensive resources are invested in eHealth development at local, regional and national levels of society. However, usability of current eHealth systems is still low (Gartner, 2012; UsersAward, 2010). This presents challenges for local level managers and practitioners. National initiatives are requested. Lack of usability in eHealth is identified as a major obstacle for care professionals to provide good and secure health and social care (Gartner, 2012). The Swedish ministry of health and social affairs acknowledged the need to address usability issues in eHealth from a national perspective, which was the starting point for the project presented in this paper, Usability of eHealth Systems (UeHS). The aim of

this paper is to describe a participatory approach both to building usability into local health information system (HIS) improvements and as a working method to elicit requirements for national eHealth strategies, and their action plans.

Methods

An important requirement for UeHS was that “results should be grounded in real practice and not only research”. Therefore, a participatory action research (PAR) approach was adopted where the major Swedish care profession organizations (e.g. unions) were a driving force, and members (actual end-users) from each union/organization were involved from the start. A team of leading action researchers in eHealth was recruited to design the detailed method and to participate in the work. They all have extensive experience of PAR and usability work in healthcare, including evaluating usability (Scandurra et al., 2008a), developing health information systems using user-centered and participatory methods (FHIS, 2013; Scandurra et al, 2008b), and focusing on supporting patient-centered care processes through HIS (Wangler et al., 2003; Hägglund et. al., 2010). The methodological framework of this work is inspired by a Scandinavian approach emphasizing participation in design (Bødker, Ehn et al. 2000) and based on three principles; (1) the importance of user-centered development process that supports active end-user involvement and focus on usability issues (ISO9241-210, 2010), (2) the importance of supporting cross-organizational health and social care processes involving different care professions that have to collaborate to provide high quality care for the patient, and (3) the importance of providing both involved care providers and care receivers with an overview of the patient care process as well as appropriate and usable support for active collaboration. These guidelines are well-recognized in research, yet not reflected in national policy documents, which may partially, explain the lack of usability.

Results

Experiences of the researchers from development projects (FHIS, 2013; Scandurra et al, 2008b) are that it is crucial to involve real users when designing for daily care routines, but the approach needed to be adapted for eliciting requirements and prioritizing actions at a national level. A workshop series provided the framework (table 1). The steering group [n=6] worked together with the researchers [n=5] to determine focus and objectives, and recruited participants [n=20] for the workshops.

The goals for designing the PAR method was 1) to ground the action plans in concrete experiences of end-users and 2) making the approach acceptable to them.

To cover a spectrum of patients' care processes and situations, professionals from social care, primary and hospital care, both private and public care providers were recruited from different municipalities and county councils in the country.

Workshop	Participants	Content	Results
WS1: Orientation	Care profession organizations, action researchers, repr. from ministry of health [n=10]	Orientation; aim, definitions, delimitations.	Steering group Project organization Common project goal
WS2: Orientation, Concretization	User and care profession organization representatives, action researchers [n=20]	Problem description, future work scenario	Opportunities and barriers r/t system, workplace and communication
WS3: Concretization	User and care profession organization representatives, action researchers [n=20]	Integrated care process, future patients' views on care	Opportunities and barriers r/t process Start prioritizing results
WS4: Vendor perspective: Presentation, Concretization	Vendor organization representatives, care prof. org, action researchers [n=15]	Walk through of results from WS1-3	Opportunities and barriers, Start prioritizing from vendors' point of view
WS 5-7: Feedback tour: National eHealth action researchers	Other action researchers, user representatives, process leader [n=13]	Walk through of results from WS1-4	Feedback on users and vendors work, other perspectives
WS8: Realisation	National committee for eHealth issues, Steering group, action researchers [~30]	Prioritizing of the results from WS1-4	List of prioritized actions
WS9: Presentation	All stakeholders [~60]	Open workshop at national eHealth conference, presentation of work and results	Feedback from other stakeholders before reporting to ministry of health and social affairs

Table 1. Description of the workshops' participants, content and results.

Important actions to perform locally were identified, as well as suggestions of how to operationalize usability improvement work from a national perspective. Further, examples of eHealth systems and services with high usability for care professionals were gathered, as well as descriptions of problems users are experiencing today. Solutions were proposed and prioritized also by other national researchers with experience of usability and action research in eHealth [n=12] and by representatives from HIS vendors [n=22] (UeHS, 2013).

Discussion and conclusion

Lessons learnt are consistent with experiences from using a participatory, group-based approach to requirements gathering (Persson and Stirna, 2010; Stirna, Persson and Sandkuhl, 2007): 1) Participants tend to focus on their personal experiences rather than integrating other views into their own thinking. The approach, therefore, requires experienced group facilitators to capture and visualize the essence of a discussion. 2) It is essential to capture actual user views and experiences and at the same time put them into a broader context. Therefore, it is essential that the composition of the group is considered, both in terms of stakeholder roles and personalities. In this project, for practical reasons, the care profession organizations selected the participants but preferably the group facilitator should be involved, 3) The impact of different participants needs to be balanced, e.g. in terms of time to speak and influence on the result. This is

particularly important when the group consists of people who represent different professions, which traditionally have different power bases in the organization. The technique used allowed participants to first write down their personal ideas, put them up on the board, discuss and compare all ideas in the group, and finally make a joint decision, sometimes by voting. 4) A common way of working is starting with “current state” including problems and barriers and then move to “future state” designing solutions. Starting with problems may cause people to get stuck in current state, particularly in organizations where people feel overwhelmed with problems and feel they have little power to change their situation. If people are allowed to somewhat discuss their problems and challenges, it is easier to proceed to future solutions. Furthermore, this approach helps the facilitator to keep the group focused when discussing solutions.

The goal was to deliver usability perspectives to the national eHealth strategy and to enrich the subsequent action plan with users’ experiences from practice. The designed method involving participants from care profession organizations, clinical and social care practice, vendors and researchers received high acceptance in workshop evaluations. It is however a first step and now the challenge is to implement the results, on national, regional and local levels.

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