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Conflict Resolution Tactics in Participatory Design of Health Information Systems

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Abstract

During the development of health information systems, different types of conflicts arise, and are addressed with suitable conflict resolution tactics. This study examines the tactics used to cope with the antagonisms that occurred during the design of an information system for 175 000 users in an occupational health context. Discourse analysis methods were used for data collection and interpretation. The results display differences in selected resolution tactics based on the nature of the conflict and a preference for low risk tactics associated with an ambition to keep decisions clearly within the given mandate of the design group Further studies comparing conflict resolution tactics and their implications in health service settings are warranted.

Keywords:

information systems development, participatory design, discourse analyses, organizational studies.

Introduction

Health information systems (HISs) are extending their scope towards regional networks and health IT infrastructures. Accordingly, integration, interoperability and interaction design are today's core problems. To produce viable IT solutions, each critical attribute needs to be specifically addressed and prioritized. Recent studies indicate that traditional methods used to derive these requirements and attributes are often inadequate and the risks that are faced in ensuring a safe and secure system are highly application dependent and dynamic [1]. In response to this situation, contextual design methodology in conjunction with participatory design have been introduced for HIS development and showed to be promising tools in several settings [2]. However, there is little knowledge available about the practical use of these methods.

The aim of this study is examine decision-making tactics during participatory design of HISs. The research was performed in an occupational health setting.

Methods

The theoretical approach to the data collection and analysis used in this study was discourse analysis (DA). DA focuses on the interactional accomplishment of specific social activities. Accordingly, the methodology combines a contextual sensitivity of language use with analyses of talk as a means for social action [3]. DA can be performed at different levels, where the lowest levels include lexical choice and turn design. The present analysis was performed at the level of social epistemology and social relations. In the case study setting, conflicts occurring during the system design process and the tactics used to resolve them were identified in the interaction during the design group meeting and thereafter integrated into a strategic framework.

Data collection

All 20 design-meetings in the case study project were videotaped, and the audio track, 65 hours in all, was transcribed. The transcript was detailed with a close-to-verbatim match between audio track and transcripts. The four meetings where the design specification was discussed (no. 7-10) were selected for specific analysis in this study.

Data analysis

Data were first examined to identify conflict instances during the design group meetings. A conflict instance during a meeting was defined as one or a series of utterances that addressed a particular conflict involving the future system.

The technological conflicts identified during the prototype evaluation meeting (n=86) were used for the final analysis of conflict resolution tactics. Specific tactics were first identified as interaction patterns using DA, and these patterns were thereafter associated and aggregated. A second order of analysis was then performed to validate the issue descriptions and associate them to the development of an overall strategy for conflict resolution during health information system design meetings. The last phase of the analysis focused on integrating the micro- and macro-level analyses. Correspondingly, specific attention was paid to the points of passage between the micro- and macro-level findings. The results from these were compared, discussed, and integrated in order to identify specific implications for design method development.

Results

The analysis reconstructed a strategy for conflict resolution used by the design group during the design specification processes. The strategy displays that problem-solving in HIS design is shaped by control, power, and the relationships between interest groups. In order to be permitted access to the important design decisions, a participatory design group has to successfully accommodate the interests of the critical stakeholders. Two basic tactics to resolve conflicts and resume a balance in the design process were identified; change of the design specification and acceptance (and acknowledgement) of the conflict.

Primary tactic: Change design

In accordance with that the nature of system design being construction of artefacts, the natural tactic to resolve conflicts was to change the actual specification at hand. This tactic was further specialized by the case study group into deciding to adjust the design of the actual system, and to stipulate adjustments of conditions external to the system. The latter adjustments were characterized by that they could not be implemented or directly controlled by the design group.

Subtactic 1: system adjustments

The most common way to deal with conflicts was to decide adjustments to the system. These adjustments were in the analysis divided into deletions and modifications,

Subtactic 1.1: Deletion of system component

Design implications: A design group is in total control of the deletion tactic, which also brings immediate closure to a conflict. One negative aspect is that the decision is hard to reverse if it is proven to be wrong.

Subtactic 1.2: Modification of system component

Design implications: A design group is in control of the modification tactic, but the effect may be difficult to evaluate. The decision is less difficult to reverse if shown to be wrong.

Subtactic 2: Adjust organizational environment

Design implications: A proposal to adjust the organizational environment is out of control for a design group, and therefore associated with high risk. If the adjustment fails, serious problems may occur downstream in the design process.

Subtactic 3: Adjust technical environment

Design implications: Also this tactic is associated with risks. Even though the tactic solves the conflict for the design group responsible for the design and implementation of the system, it may endanger the effectiveness of the system if not all potential users can conform to the requirements.

Alternative tactic: Accept conflict

The second, and less common, tactic to resolve conflicts in the system design was to accept and acknowledge the identified antagonisms as a limitation of the design.

Subtactic 1: Allow conflict in system

Design implications: The design group is in control of a decision to allow conflicts in the system design. Verification of the conflict is essential in order to avoid secondary problems for users and during later design stages.

Subtactic 2: Allow conflict between system and organization

Design implications: This tactic is associated with an extremely high risk, due to that the design group cannot control the actions of the organization in conflict with the system. Verification of the conflict is essential

Discussion

The aim of this study is examine decision-making tactics during participatory design of HISs. Previous research has suggested that participatory design of HISs may be less feasible in centralistic environments [4]. Our results display that, given the existing power relations, the continuous engagement with interest groups is a central aspect of decision-making during participatory design in HIS settings. The users that contribute to a design have to be associated to groupings both within and outside the actual design group. We suggest that existing optimistic expectations of user participation in HIS development inhibit acknowledgement of the troubling work of balancing power relations. Rather than denying such power relations, participatory design projects should be expected to plan for them.

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