

Using Convergent Design Processes to Surface Hidden Ambiguity and Conflict in Requirements

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1. Introduction

In a volatile and politically-charged design environment such as healthcare information systems (IS), ambiguity and conflict play significant roles in the success or failure of development efforts. However, the relationship between ambiguity and conflict is complex. Resolving ambiguity during IS requirements analysis may not readily lead to conflict resolution, since even the most innocent and well-intentioned probes for hidden requirements ambiguity can surface a lot of conflict. For example, ambiguity may concern issues as deciding which user constituency will be specifically favored or disfavored, or who will bear ultimate responsibility for system features and functionality, each of which involve potential conflicts of power and control over the project.

The conflict averseness of IS designers may also impede efforts to employ techniques to reduce ambiguity, techniques in which issues involve changing traditional and controversial power structures. Ambiguity may even remain deliberately unresolved to passively suppress conflict, and crucial debates over critical assumptions never materialize. I would like to discuss a strategy for improving the effectiveness of developers in identifying hidden ambiguity and conflict during IS requirements specification.

2. Improving Requirements Specification using Convergent Design Processes

Convergent Design processes are a set of guidelines to help designers identify critical issues and resolve ambiguity early in the design process. The Convergent Design philosophy addresses five top sources of requirements failures: 1) failure to effectively manage conflict, 2) lack of clear statement of the design problem to be solved, 3) too much unrecognized disambiguation, 4) not knowing who is responsible for what, and 5) lack of awareness of requirements risk.

By using Convergent Design processes in developing and verifying system requirements, I hope to surface ambiguity and identify conflicts before they get frozen

into to the system design and emerge as inconsistencies or conflict in the implemented system.

3. The Master Patient Identifier Database.

I will discuss the application of Convergent Design processes during a project I am currently leading at St. Elizabeth's Medical Center in Utica, NY. The project involves implementation of a Master Patient Identifier (MPI) database system. The MPI utilizes fuzzy technology and tools for enabling patient registrars and medical records staff to distinguish between different encounters for a given patient. The MPI system's main advantages are reduced patient registration time through less effort collecting patient demographics, and more accurate entry and update of vital information (life-threatening drug allergies and other special conditions, insurance coverage verification, etc.)

Though the MPI is a canned application from a major healthcare software vendor, implementation entails a fairly involved process of identifying key users and their needs, determining how to clean up the current patient database (repairing bad data and removing duplicate records) and assigning responsibility for setting clean up parameters, as well as training users. There is significant ambiguity among users about what an MPI really is, and how it improves registration and medical records processes. Also, user interests are fairly diverse over issues like control, access and maintenance of patient data. So ample opportunities should exist for evaluating the effectiveness of Convergent Design processes in surfacing unrecognized ambiguity and conflict in MPI requirements.

4. Background of the Presenter

I have worked as an IS instructor and programmer for the last 12 years. I currently work as a Senior Programmer analyst at St. Elizabeth's Medical Center in Utica, NY. I am also completing a Ph.D. in Systems Science and Industrial Engineering at Binghamton University in Binghamton, NY, under the direction of Professor Donald Gause.