The Reality of User-Centered Design

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It has been suggested that user-centered design approaches may be the key to matching the development of organizational information systems to a firm’s business and work requirements. The information systems literature on this topic centers upon methods to support user-centered system development: such approaches assume that the participation of relevant stakeholders will ensure an appropriate design outcome. The reality of this assumption is examined through an interpretive case study. The project team and system development approach were structured around the use of user-centered design methods, yet the initiative failed because of the poor integration of users’ interests. It is concluded that the failure mechanisms observed may be general to most information systems projects: issues more fundamental than the employment of a particular methodology need to be addressed, to achieve user-centered organizational information systems.

Empirical research studies have suggested that user involvement in information system development is related positively to user perceptions of system usefulness (Amoako-Gyampah and White, 1993; Baroudi et al., 1986). This does not mean, however, that user involvement in information systems development is a necessary condition of success. Cavaye (1995) argues that there are also projects where users did not participate in the development but which are nonetheless successful and that the existing body of user participation literature is fragmented, presenting inconclusive results. It has been argued that it is not so much user participation as user involvement, defined as that “state of psychological identification with some object, such that the object is both important and personally relevant” (Kappelman & McLean, 1992), which leads to success (Barki & Hartwick, 1994). Although users may be encouraged to participate in development processes, this does not mean that users are truly involved as equal participants in those processes: implicit power-imbalance and assumptions are embedded in traditional methodologies for IS development which prevent users being involved as co-agents in design (Beath and Orlikowski, 1994; Markus & Bjorn-Andersen, 1987). An ambivalence exists between the recommendation for “strong user involvement” in a particular development methodology and the degree to which users can be expected to be true co-agents with IS developers through the procedures and design mechanisms of that methodology (Beath & Orlikowski, 1994). In response to perceived inequalities of involvement, many ‘alternative’ methodologies have been proposed, based upon a user-centered approach; such approaches are designed to ensure more significant user involvement in the design process (e.g., Avison & Wood-Harper, 1990; Checkland, 1981; Mumford, 1983). The weak point of such studies is that they assume that the use of a user-centered IS development methodology will ensure significant user involvement: the quality and extent of user-involvement outside of the carefully-managed social contexts in which such approaches are tested is not examined.

The IS development literature does not really tell us much about how users are involved in system development practice. Studies of methodology do not often consider user-involvement as separate from the use of a particular development methodology; where they do so, they refer to user-involvement with a single question which asks if users were involved (e.g., Sumner & Sitek, 1986). This paper presents a case study of a user-centered IS development project, to examine whether there are properties of IS development environments which undermine significant user involvement.

Introduction to the Case Study

The case study investigated the design processes involved in a research project to investigate the design and use of a computer-based learning environment system for students at a UK University. The design was highly innovative: no previous system of this kind had been implemented when...
this project was initiated, in 1991. Students would be able to access sources of teaching material from a central data repository, be able to interact with each other and with members of staff over long distances by placing a message in a "mailbox." Students would be able to request help or submit comments on course-related topics, be able to interact with each other and with members of staff over long distances by placing a message in a "mailbox." This research project was therefore focused upon achieving an appropriate information system design. Project deliverables were not clearly specified at the start, since a major part of the project was the exploration of what form this type of system could take, which is why a user-centered design approach was selected by the research project director.

The main interest of this case study was to understand the nature of the user-centered design process in practice and to investigate the constraints of this approach. A process model is distinguished from a factor model in that the former portrays ISD as a dynamic social process where the latter demonstrates a relationship between predictors and outcomes, without explaining how or why the predictors and outcomes are related (Newman & Robey, 1992). Thus, process models are most appropriate to the examination of ISD issues from an interpretivist perspective (c.f., Walsham, 1993), where knowledge is seen as a social construction by human actors. Factor models are more appropriate to a positivist research perspective, which attempts to measure the extent of an assumed dependency relationship between predictors and outcomes (Newman & Robey, 1992).

Because of subjects’ sensibilities, I have refrained from identifying the University at which this study took place, and from using individuals’ names in the descriptions that follow. This is not to imply that I view the problems which this project suffered as pertaining to the individuals involved; on the contrary, the analysis of this design project raises some important issues for structural and integrative constraints upon user-centered design.

The Context of The User-Centered System Design Project

The constitution of the project team over time is shown in Figure 1. It was originally intended that the IS research and development project should have a duration of three years, from January 1992 to December 1994, during which time the form that the new information system would take would be jointly explored by a cross-disciplinary team of organizational psychologists, who would investigate, evaluate and represent user requirements of the system concept, and information technology software developers, who would demonstrate how such requirements could be fulfilled using new forms of information technology. The project terminated after a period of two years, when the Project Director was unable to raise further funding.

The design team at most points in the project consisted of four individuals, two technical developers and two organizational psychologists, reporting to the research Project Director who was himself an organizational psychologist. The membership of the core team varied over time, but its constitution did not: as one member left the team, another was

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Figure 1: Involvement of Main Actors in Project, Over Time
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