ABSTRACT

Anecdotal evidence strongly suggests that Enterprise Resource Planning (ERP) systems have unintuitive user interfaces that hinder usability, frustrate users, and ultimately interfere with their successful adoption and utilization in organizations. Despite the huge costs associated with poorly implemented systems, ERP usability has received little attention from the IS and HCI research communities. We argue in this article that existing theories on usability should be extended in order to address the unique challenges resulting from the size, complexity, and integrated functionality of these industrial behemoths. We believe that collaboration theory is a new and beneficial way to conceptualize the relationship between the user and the system. This theory has the potential to provide a foundation for user-system interaction that enhances user performance and satisfaction with ERP systems.

Keywords: collaboration theory; collaborative user interfaces; enterprise IS; enterprise systems; ERP; usability

INTRODUCTION

A recent study by Forrester Research (Chew, Orlov, & Herbert, 2003) evaluated 11 ERP products, including SAP, PeopleSoft, Oracle, JD Edwards, Microsoft, and Lawson. Its findings suggested that poor usability characteristics and the unintuitive user interfaces of these systems contribute to decreased productivity and increased costs for businesses that use them. In trying to perform a number of standard tasks that should have been straightforward without any training, the analysts from Forrester found that several of these tasks required “inordinate patience and expertise” to complete (Gilbert, 2003). The overall conclusion was that users should demand better usability. Yet, there has been little...
movement to date toward improving the design of the user interface components of these systems either by ERP vendors or by the usability community as a whole. This motivates the research initiative described here.

Given the time, effort, and money expended on implementation and training, it is surprising that so little attention has been focused on understanding the ways in which users interact with ERP software and the degree to which the interaction model supports the tasks being performed. In this article, we suggest that applying the principles of collaboration (Bratman, 1992) to systems development provides a means to address the gap between the capabilities of the ERP system and harnessing those capabilities to meet each user’s individual objectives. By collaboration, we refer to the collaboration between the user and the system as opposed to using computing technology to support collaboration between users, which is commonly referred to as computer-supported cooperative work (CSCW). The novelty of our research lies in its emphasis on the relationship among collaborative support, task performance, and satisfaction. We believe that the more aligned the technology is with the user’s goals, the better able it will be to respond in a collaborative manner to the user’s needs, enhancing both task performance and satisfaction with the process.

Our long-term research goal is to improve the usability of enterprise systems by increasing the collaborative capabilities of their interfaces. This research currently includes the following components:

- Field studies that focus on the nature of the users’ everyday needs and interactions with these systems
- Development of enterprise system design guidelines based on collaboration theory
- Development of interface evaluation techniques based on collaboration theory
- Implementation of prototype ERP interfaces for validating the design and evaluation methodologies that we are developing

In this article, we elucidate the role of collaboration theory in our research and illustrate the benefits gained by using it for ERP design and evaluation. The rest of this article is organized as follows. The next section describes the principles of collaborative behavior and illustrates how they can be used to establish guidelines for usability design and evaluation. Then we present a review of related literature. Next, we provide an example scenario of a user performing a typical ERP task and demonstrate how the interface being used could be improved by taking a collaboration-based approach to its design. The last section draws conclusions and outlines future work to be done in this area.

**COLLABORATION THEORY FOR INTERFACE DESIGN AND EVALUATION**

The core thesis of this article is that collaboration theory can be applied as a set of guiding principles to the design and evaluation of ERP systems. In this section, we discuss the overall characteristics of this theory and illustrate how taking a collaborative view of user-system interactions influences design and evaluation processes and leads to enhanced system usability.

Grosz (1996) and Shieber (1996) suggest that human-computer interaction

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Identifying and Managing Stakeholders in Enterprise Information System Projects

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