Task Constraints as Determinants of E-Collaboration Technology Usefulness

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INTRODUCTION

As anyone who looks at the history of research on e-collaboration technologies can attest, much is yet unknown about the impacts of those technologies on people (Kock, 2005; Kock & D’Arcy, 2002; Kock, Davison, Ocker, & Wazlawick, 2001). The development and test of pioneering theoretical models from the 1970s and 1980s, such as the social presence and media richness theories (Daft & Lengel, 1986; Short, Williams, & Christie, 1976), has led to the realization that e-collaboration is a complex phenomenon. This perception of complexity has been met by the development of taxonomies, or classifications, of e-collaboration scenarios.

Since e-collaboration technologies have normally been used to accomplish tasks, hopefully with some advantages over plain face-to-face interaction, taxonomies of both e-collaboration technologies and tasks have emerged (Kock, 2005). The following natural step was the development of theories that proposed that certain types of e-collaboration technologies are better matched with certain types of tasks. Some of those theories hypothesized their e-collaboration technology-task fit links explicitly, which make them easier to test and refine, whereas others have not.

This article provides a brief review of one e-collaboration technology-task fit theory, and argues that it focuses (like most technology-task fit theories) on what can be accomplished through tasks, as opposed to what cannot—that is, the tasks’ constraints. The article also argues that task constraints are important explanatory and predictive elements, illustrating that point through an example of a car racing team that employs text-based instant messaging for communication between pilots and support team during races.

BACKGROUND

Zigurs and Buckland’s (1998) theory stands out among the task-technology fit theories that can explain and predict human behavior toward e-collaboration tools. The reason is the theory’s clarity and parsimony, which are desirable components of any theory that aims to be testable. And, as Popper (1992) pointed out in one of his main contributions to the philosophy of science, a theory that is not testable is not very useful either.

The theory proposed by Zigurs and Buckland (1998) classifies tasks into five main types: simple tasks, problem tasks, decision tasks, judgment tasks, and fuzzy tasks. E-collaboration technologies are differentiated from each other based on three key dimensions, which can be measured in terms of the degree to which each dimension is present in a certain e-collaboration tool. The three dimensions are communication support, process structuring, and information processing. For example, an instant messaging system would provide a higher degree of communication support than a Web-based workflow control system, and a lower degree of process structuring. A group decision support system would generally provide a higher degree of information processing (the compilation, aggregation, presentation, etc., of complex information) than e-mail.

The theory proposed by Zigurs and Buckland (1998) is one of the best developed and, as mentioned before, testable theories of task-technology fit applied to e-collaboration. It highlights e-collaboration technology types and support dimensions that are arguably important in the decision to use this or that type of e-collaboration system (or this or that brand and model of e-collaboration system). The theory places emphasis on what e-collaboration technologies can offer to accomplish certain tasks.

One could argue, however, that the taxonomy of tasks proposed by the theory is missing one key element, which under some circumstances may be