Chapter 6
Understanding Collaboration Success in Context of Cognitive and Social Presence

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ABSTRACT
Collaboration and the success of collaborative efforts has been the focus of much information systems research. Recent measures of collaboration success include effectiveness, efficiency, productivity, commitment, satisfaction with the process, and satisfaction with the outcome. While the possible antecedents of collaboration success are varied, this paper suggests that constructs from the e-learning literature that evolved independently from the information systems collaboration literature can be used to explain differences in perceived collaboration success. Results from a recent exploratory study demonstrate that cognitive presence and social presence explain a large amount of the variance of different collaboration success metrics.

1. INTRODUCTION
The emergence of new technologies and a convergence on the Internet as a productivity tool has given birth to a grass-roots collaboration effort that has spread into many organizations. This form of collaboration looks very different from the collaboration efforts of the past. Previously, much of the information systems collaboration literature had focused on groupware facilitated, synchronous, face-to-face (FTF) environments (Fjermestad, 1998), with success often based on satisfaction with the collaborative process or the outcome of the collaborative effort (Reinig, 2003).
While collaboration as a research topic continues to enjoy significant coverage in the information systems literature (Sidorova, Evangelopoulos, Valacich, & Ramakrishnan, 2008), this specific form of collaboration has never broken out of its niche positioning to achieve widespread implementation in the day-to-day activities of many organizations (Briggs, de Vreede, & Nunamaker, 2003).

Instead, today’s emerging collaborative systems often lack explicit process structure needed to create collaborative artifacts or reach collaborative solutions, or simply address a very narrow aspect of the collaborative endeavor. Several technologies (such as discussion groups, forums, instant messaging, and wikis (CyberSmart, 2009)) have emerged and have been adopted at organizations in order to share a wide variety of information between individuals and groups. While many tend to lump all collaboration technologies into a single grouping, more accurately these tools can be seen as lying on a continuum of complexity in terms of the collaboration supported (Denning & Yaholkovsky, 2008). Where the aforementioned groupware tools are designed to support complicated products and processes, these new tools tend to support unstructured use and generally excel in more simple information sharing tasks.

Indeed, most of the collaborative technologies that are being widely adopted are not structured in a way to support highly complex group collaboration. Thus, lessons from the information systems collaboration literature do not directly translate to these new technologies. However, insights may be drawn from other disciplines that are either related to collaboration or provide support for it. Two examples of these supporting disciplines are human communication and education. In education, for example, e-learning literature investigates how participants use analogous technologies to support distributed, asynchronous learning with minimal input from a facilitator/moderator (i.e., the instructor).

This paper outlines the investigation of constructs adapted from the e-learning literature with respect to collaboration. Specifically, we look at cognitive presence and social presence and their ability to explain a large amount of the variance in measures of collaborative success. Cognitive and social presence may provide an additional avenue for examining the success of collaborative efforts and tools. To achieve these ends, a collaborative system for e-learning was developed and deployed in an exploratory study in order to assess the system’s impact on collaboration and e-learning success.

The paper is organized as follows. Section 2 discusses the related work from the collaboration literature as well as the e-learning literature. Section 3 presents the integrated collaboration research model. Section 4 discusses the methodology followed in conducting an exploratory study to test the integrated model; followed by results and discussion in Section 5. Section 6 concludes by summarizing the contributions of the paper, some limitations and prospects for future work.

2. RELATED WORK

2.1. Collaboration Success

Collaboration success factors have been extensively studied in the information systems collaboration literature. We propose that success factors are much richer than just satisfaction with the collaborative effort or satisfaction with whomever is facilitating the discussion. Success of a collaborative effort may be assessed from multiple dimensions. Duvenvoorde, Kolschoten, Briggs, and de Vreede (2009) recently reported a meta-analysis of collaboration outcomes described in several research studies to propose the following key dimensions for measuring successful collaboration from a participant perspective: group effectiveness, group efficiency, group productivity, commitment of resources, and satisfaction with process and outcome.