# Adaptations that Virtual Teams Make so that Complex Tasks Can Be Performed Using Simple E-Collaboration Technologies

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## ABSTRACT

*Using the theoretical lens of compensatory adaptation theory, this study examines how organizational problem-solving teams adapt to lean media and effectively communicate. We examined several successful virtual teams using a bulletin board as their primary communication medium to perform complex process improvement tasks in their natural business environment. Although some established theories predict failure using lean media, savings from use of simple e-collaboration technologies provide motivation for conduct of virtual teams. Compensatory adaptation theory argues that e-collaboration technologies often pose obstacles to communication, and yet also lead to better team outcomes than the face-to-face medium. This study provides support for that theory. Members of the virtual teams reported adapting their communication to be more focused, clear, precise, neutral, concrete, concise, persuasive, considerate, and complete in order to overcome the obstacles posed by media of low richness. As a result of those adaptations, the teams perceived better quality and achieved success of the team outcome.*

*Keywords:   action research; asynchronous electronic communication media; compensatory adaptation theory; e-collaboration; process improvement; virtual teams; qualitative methods*

## INTRODUCTION

Business process improvement in dispersed organizations creates special problems for information systems (IS) management. The multiple cultures and local goals of global organizations add to the problems of geographically and temporally distributed IS management. A single stake-holder or group cannot explore business process interconnectedness without collaborating with other stakeholder groups. Such collaboration requires knowledge transformation and transfer across organizational boundaries; therefore, the best team of people from an enterprise with the variety of expertise necessary to address a

complex problem may be geographically and/or temporally distributed across the organization (Carlile & Rebentisch, 2003; Gasson, 2005). Internal competition for resources may provide one reason for the high failure rate of business process improvement projects, generally reported at 70% (Malhotra, 1998). The varying availability of team members, the conflicting priorities of functional task performance with business process improvement, and the high cost of convening process improvement teams combine to provide a *disincentive* to calling a series of face-to-face meetings.

Increased globalization of enterprises combined with widespread adoption of simple, low-cost, asynchronous e-collaboration technologies (e.g., bulletin board, e-mail) for organizational communication provides *incentive* to attempt increasingly complex problem solving with virtual teams. Virtual teams allow "organizing work groups by electronic workflow, not physical location" (Dutton, 1999, p. 132). If complex business process improvement activities could be conducted using e-collaboration, especially asynchronous e-collaboration, the potential to reduce competition for resources by reducing travel time and increasing the communication window to 24/7 improves the ability to address the multiple priorities of daily business and business process improvement simultaneously.

The knowledge that other virtual process improvement teams have been successful (DeLuca, 2003; Kock, 2005c) and lessons learned from those teams may be what is needed to provide confidence to organizations that their efforts would come to fruition. But we need to understand how these virtual teams are successful, especially how they overcome the difficulties of using asynchronous electronic communication media (AECM), to manage such

initiatives effectively. Existing theories of information processing in organizations do not scale well to the complex forms of knowledge integration required at the boundary between the diverse teams found in virtual organizations. Thus, we investigate a new theory of communication behavior, compensatory adaptation theory (CAT) (Kock, 2005b).

We believe it is difficult to do research on social phenomena without changing the phenomena by studying it, so we study interactively and report our interactions. A goal of this paper is to report on a study of virtual process improvement teams in their natural environment that used AECM to redesign their chosen business processes. We report on one cycle of a study that employed a canonical action research approach (Baskerville & Wood-Harper, 1998), using a postpositivist epistemology, with primarily qualitative methodology, reported using applicable elements of a structure suggested by DeLuca (2005) and DeLuca and Kock (forthcoming). Postpositivist is a term used by Lincoln and Guba (2000) to indicate, among other things, use of a different type of hypothesis other than a null hypothesis and support of hypotheses with qualitative evidence. The hypotheses in this study are based on the theoretical lens of CAT and the relationships suggested by it, explained in the next section. We also operationalize a key construct, compensatory adaptations.

## COMPENSATORY ADAPTATION THEORY

### Effective Asynchronous Electronic Communication

To be effective, virtual process innovation teams must negotiate and define best practices (Malhotra, 1998). Team members

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