Chapter 37
Inter–Group Collaboration:
Factoring Technology Characteristics and Task Type

Wesley Shu
National Central University, Taiwan

Hota Chia-Sheng Lin
National Central University, Taiwan

George Wang
National Tsing Hua University, Taiwan

ABSTRACT

The purpose of this paper is to extend the theory of task/technology fit by exploring the impact of different technology characteristics on performance of preference and intellective tasks in an inter-group context. The authors tested 80 participants on group performance using a 2x2 factorial design with task type and mode of collaboration as the independent variables. Structural equation modeling was employed to test the research model and t-tests to evaluate their hypotheses. The authors confirmed their hypothesis that the use of wiki, a technology with many elaborate technology characteristics, created a better task/ technology fit than use of the more conventional email/word processor. The wiki group also demonstrated better productivity, decision quality, and satisfaction than the email/word processor group. Differences in task type, intellective vs. preference, had no effect on group performance. The authors extended the task/technology fit model by examining how different combinations of task type and technology characteristics affect team performance in the context of inter-group collaboration.

INTRODUCTION

The advent of Internet technology has enabled corporations of all sizes to expand beyond their geographical boundaries. Along with such global expansion comes the increasing complexity of managing inter-group relationships and the decision-making process. Past studies have shown that most corporate decisions are the result of collaboration among groups.

Inter-group collaboration studies predating the standardization of electronic mail protocols were based largely on such collaboration modalities as face-to-face meetings, memoranda, and phone calls. When personal workstations gained popularity in the mid-1980s, technologies such as teleconferencing and email became the primary choices of communication for corporate departments. Research then expanded to the study of group support systems, computer-mediated communication, and virtual teams. (Thatcher, Brown, & Jenkins, 2012)Although the importance of collaborative communication has been recognized in these studies, the characteristics that enable the technology to support successful collaboration have not received adequate attention in research. The purpose of this paper is to extend the theory of task/technology fit in an inter-group context by examining the effect of technology characteristics on collaborative performance.

We chose wiki for our study because it is a proven mass collaboration platform, made famous by Wikipedia. Past wiki researchers have concentrated mainly on its application as an online collaborative writing tool (Parker & Chao, 2007; Shu & Chuang, 2012). As wiki technology matured, it has become a desirable platform for knowledge sharing, report assessment, and online learning (Ansarimoghaddam, Tan, Yong, & Kasim, 2012). The versatility of wiki is attributable to its core collaborative characteristics, such as synchronous or asynchronous editing, topic association and linkage, a history of change, and a centralized relational database management system. Yet most off-location or virtual team studies still treat wiki as a collaborative writing tool, even though its characteristics can be viewed as tools for collaborative tasking (Wagner, 2004). Among the exceptions are recent studies by Hester (Hester, 2012) that supported positively the relationship between wiki technology and task structure and by Silvia and Iryna (Silvia & Iryna, 2012), who found that wiki is a suitable platform for collaborative problem solving.

Our study extends the findings of Goodhue (Goodhue & Thompson, 1995), whose TTF model assesses individual performance by measuring group performance. The latter type of performance is particularly important in the corporate environment of the 21st century, where tasks are often performed by groups rather than individuals (Zigurs & Buckland, 1998). For this purpose, we used scales developed by Shu and Chuang (2012) as well as other researchers (Dennis, Wixom, & Vandenberg, 2001; Gallupe, De-Sanctis, & Dickson, 1988; Letzring, Wells, & Funder, 2006; Murthy & Kerr, 2003; Ocker, Fjermestad, Hiltz, & Johnson, 1998) to measure three wiki-related performance variables that have been tested in previous teamwork research: productivity, decision quality, and satisfaction.

The purpose of the present study was to explore, in an inter-group context, whether the collaborative technology characteristics typified by wiki facilitate cohesive tasking that leads to improved team performance. To achieve this purpose, we attempted to answer two specific questions: 1. How well do the characteristics of wiki fit with the types of tasks being performed in the context of inter-group collaboration? 2. Do differences in collaborative technology characteristics and the nature of the task affect team performance in this context?

LITERATURE REVIEW

Inter-Group Collaboration

Researchers have tried to understand what it takes to make inter-group collaboration more efficient. Nauta (Nauta, De Dreu, & van der Vaart, 2002) found that communication plays an important role in inter-group cooperation, problem solving, and goal setting. Goodhue et al. (Goodhue, 2007) analyzed

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