Virtual Teams: What We Know, What We Don’t Know

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ABSTRACT

This article reviews the extant empirical literature on virtual teams and presents what we know and what we don’t know about them. Drawing upon the literature from both organization behavior (OB) and information systems (IS), we propose a framework that integrates the most important variables affecting virtual teams. The framework is then used to assess the effects of virtual teamwork on group processes and outcomes. The paper also discusses the challenges facing researchers studying virtual teams and presents an agenda for future research.

Keywords: computer supported cooperative work; electronic collaboration; virtual teams

INTRODUCTION

Throughout the last decade, virtual teams (VT) have gained significant interest from both academic and managerial communities. Due to recent breakthroughs in telecommunication and information technologies, organizations are no longer constrained by geographical distance or time zone differences, enabling managers to access previously unavailable expertise, enhance cross-functional interactions necessary to deal with today’s highly dynamic business environment, and form the best possible groups (Griffith, Sawyer & Neale, 2003; Powell, Piccoli & Ives, 2004; Sole & Edmondson, 2002; Townsend, deMarie & Hendrickson, 1998). While many researchers claim that we still know little about the idiosyncratic nature of virtual teamwork (Lurey & Raisinghani, 2001; Maznevski & Chudoba, 2000), the recent research efforts on this topic have generated a significant body of knowledge that needs to be synthesized and assessed.

The objective of this paper is two-fold. First, it aims at synthesizing the extant empirical evidence on virtual teams. Second, it develops an agenda for future research on virtual teams. The paper is organized into three sections and a conclusion. The first section presents a conceptual framework that integrates the OB and IS literature and serves as the basis for assessing the empirical literature. The sec-
ond section describes the method used to conduct our review, and the third section presents the results of our assessment. The paper concludes by discussing the findings and suggesting an agenda for future research.

FRAMEWORK OF VIRTUAL TEAM RESEARCH

Virtual Teams: A Definition

In this paper, we adopt Hinds and Bailey’s (2003) conceptualization of virtual teams: in virtual teams: (1) members are separated by distance; and (2) members are forced to rely on technologies to mediate communication and to coordinate work. Virtual teams can be distributed culturally (Jarvenpaa, Knoll & Leidner, 1998; Kayworth & Leidner, 2001-2002), spread across multiple time zones (Massey, Montoya-Weiss & Hung, 2003; Piccoli & Ives, 2003), functionally (Malhotra, Majchrzak, Carman & Lott (2001); Zolin, Hinds, Fruchter & Levitt, 2004), organizationally (Majchrzak, Rice, Malhotra & King, 2000), or present combinations of these distribution modes (Maznevski & Chudoba, 2000). These team arrangements are also referred to as geographically dispersed teams, geographically distributed teams, and dispersed teams.

Framework for Analysis

The framework we propose is based upon the input-process-output model (see Figure 1) traditionally adopted in research on groups (Guzzo & Shea, 1992). This general conceptualization has been used widely in research on traditional groups (Littlepage, 1995) and in GSS (Pinsonneault & Kraemer, 1990; Powell et al., 2004) and hcan be used to organize the variables that have been studied over the years. The fundamental logic underlying this framework is that properties of the group, its members, and the context (input variables) influence how the work is executed within a group (group process variables), which, in turn, influences the results or outcomes of the group (output variables).

Input Variables

Input variables refer to the general working conditions under which virtual teams coworkers operate as well as the main characteristics of the group. Based upon the research of Pinsonneault and Kraemer (1990), we have identified five main categories of input variables relevant to virtual team research: (1) personal factors (characteristics of the group members including traits such as personality, roles, and other elements relevant to individuals within the virtual groups); (2) situational factors (elements of the environment and the broader work setting); (3) task characteristics (attributes of the task(s) performed by the group); (4) group structure (the nature of the relationships among group members); and (5) technology support (main characteristics and functions of the technological media used by the virtual team members).

Process

Group process variables represent the interactions occurring within the group once it begins working. These variables capture the main characteristics of the group dynamics experienced by virtual team coworkers. There are five main categories of group process variables: (1) group dynamics (group-level constructs that emerge from the interactions among coworkers); (2) interpersonal behaviors (specific types of behavior acted out by virtual team members); (3) interpersonal conflicts and
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