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Chapter X

Virtual Team Trust: Instrument Development and Validation in an IS Educational Environment

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ABSTRACT

Trust is a major factor influencing the cohesiveness among virtual team members. While recent research in the fields of information systems and management has examined this construct, there are no existing instruments that measure all the different bases of trust. Drawing on the literature, three different bases of trust applicable to virtual teams have been identified: personality-based, institutional-based, and cognitive trust, with cognitive trust further subdivided into three dimensions: stereotyping, unit grouping, and reputation categorization. This chapter reports on the development of an instrument to capture these three bases of trust. Using exploratory, and thereafter, confirmatory factor analysis, the instrument is validated, and the psychometric properties of the construct(s) are verified in the context of

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U.S.-Canadian student virtual teams engaged in systems development projects. In addition to confirming the conceptual bases of trust, the instrument validation process found that stereotyping in virtual teams can be of three distinct types: message-based, physical appearance/behavior-based, and technology-based. The development and validation of this instrument should enable future researchers to measure virtual team trust in a broad range of technology and team configurations.

INTRODUCTION

Cohen and Bailey (1997) suggest that cohesion is a critical factor influencing the effectiveness of groups/teams. They concluded that a primary factor leading to team cohesion is the degree of trust among team members. Given the widespread recognition in the organizational literature about the importance and pervasiveness of teams (e.g., Bettenhausen, 1991), and the emergence of different types of technology-mediated distributed workgroups, such as virtual teams (e.g., DeSanctis & Monge, 1999; Belanger, 1999; Jarvenpaa, Knoll, & Leidner, 1998), this chapter reports on the development of an instrument to measure trust in virtual teams. For the purpose of this study, we define a virtual team as a temporary collection of individuals linked primarily through computer and communication technologies working across space and time to complete a specific project.

The issue of trust is particularly important in the context of virtual teams because virtual team members are "geographically dispersed," and lack "shared social context" and "face-to-face encounters," that are considered by many researchers as "irreplaceable for both building trust and repairing shattered trust" (Jarvenpaa & Leidner, 1999; Rogers & Albritton, 1995). O'Hara-Devereaux and Johansen (1994) view trust as a "glue" that helps in creating virtual team relationships. Further, Handy (1995) suggests that trust is required for virtual teams to succeed. However, in spite of this recognition, little research is currently known to have investigated trust in virtual teams (Jarvenpaa et al., 1998). We believe that one of the reasons for this lack of research is the absence of a comprehensive and rigorously validated instrument that draws on all the bases of trust as identified in the literature. The work of Jarvenpaa and colleagues (Knoll & Jarvenpaa, 1998; Jarvenpaa et al., 1998; Jarvenpaa & Leidner, 1999) on trust in virtual teams has provided the IS community with an initial instrument for measuring trust. This instrument focuses primarily on measuring the ability, benevolence, and integrity of the trustee as perceived by the trustor, and the trustor's propensity to trust, all of which are seen as determinants of overall trust. However, no known work has systematically examined the broader bases of trust as put forth in the organizational behavior literature—i.e., personality-based, institutional-based, and cognitive trust. In this study, we extend the work of