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An Exploration of Trust in Virtual Teams Using Three Perspectives

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Abstract

With the recent advancements in technology and the development of sophisticated tools for collaborative work, the use of computer-mediated groups in organizations has increased rapidly. Further, the need for globalization has forced members of such teams to be dispersed in both time and space, and has paved the way for the development and implementation of the concept of “virtual teams.” In this paper, we examine one of the primary factors leading to virtual team effectiveness, namely, the issue of trust. One of the objectives of this paper is to investigate the applicability of the research findings on trust in traditional face-to-face teams in a virtual context. Drawing on prior literature, the present study uses three perspectives to trust and proposes a model for trust development in virtual teams. Further, prior research has always treated trust as a static concept, and researchers appear to have assumed that it is always the same factors that influence trust at any point in a cooperative interaction. In this paper, a more dynamic model is proposed, which suggests that, different factors explain the level of trust in different points of team development. By uncovering some unique concepts leading to trust development in virtual teams, it is hoped that a contribution will be made to the existing literature on factors leading to virtual team effectiveness and success. Future research directions include an attempt to validate this dynamic model in a quasi-experimental setting of virtual teamwork.

Introduction

In the current decade, many researchers have suggested that organizational effectiveness and competitive challenges are enhanced by the use of organizational groups or teams (Bettenhausen, 1991). The enormous growth in various types of computer

related technologies have changed the nature of organizational teams, where the concept of virtual teams has rapidly become important (Lipnack and Stamps, 1997). Earlier, teams members had to be physically co-present in order to communicate (Rogers and Albritton, 1995). Now, technology has enabled the communication among team members, even when they are separated in time and space.

Most of the traditional research on teams has concerned itself with team effectiveness. Cohen and Bailey (1997) have proposed that group cohesion is one of the critical factors that influence group effectiveness. In this paper, we focus on one of the factors that can lead to team cohesiveness, namely the issue of trust among team members. Our objective in this paper is to investigate the applicability of the research findings on trust for traditional face-to-face teams in the virtual context and extend the literature on trust by identifying certain unique issues regarding the construct, which emerge in the virtual context.

The next section discusses important aspects of teams in general, and then introduces the concept of virtual teams. This is followed by an examination of trust and its importance to teams, which will be used to generate our hypotheses about how trust manifests itself in various stages of team development.

Teams and Virtual Teams

Wellins, Byham, and Wilson (1991) indicate that 27 percent of American companies have implemented work teams in their organization. In an organizational setting, teams have been defined as a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, and who see themselves and are seen by others as an intact social entity embedded in a larger social system (Cohen and Bailey, 1997).

Recently, advancements in technology and increased competition have brought in changes in the organizations, and this has triggered the development of flat structures and the dispersion of employees, both geographically and organizationally (Townsend, DeMarie and Hendrickson, 1998). Teams no longer necessarily consist of members that are co-located in time and space. Many teams today are *virtual teams*, which consist of geographically and/or organizationally dispersed coworkers who are assembled using a combination of telecommunications and information technologies to accomplish an organizational task (Townsend, DeMarie and Hendrickson, 1998). Knoll and Jarvenpaa (1998, p. 3) suggest that a distinctive characteristic of most virtual teams is the fact that "they do not have a physical instantiation; they do not exist except in a digital or electronic form."

A Brief Review of the Team Literature

Research examining the factors leading to team effectiveness has concluded, that group cohesion can lead to higher team performance (Hoogstraten and Harrie, 1978). Korsgaard, Schweiger and Sapienza (1995, p. 2) define cohesiveness as the "collective motivation of the group to remain together." Trust has been defined as one factor that has a significant effect on group cohesion (Roark and Sharah, 1989). In the context of groups, trust also has an effect on overall group performance and effectiveness. Trust has also been seen as an important factor influencing effectiveness and cohesion in virtual teams. Jarvenpaa, Knoll and Leidner (1998, p. 1) studied an eight week virtual collaboration of graduate students to conclude that in "virtual teams coordination is accomplished via trust and shared communication systems." In the context of virtual teams, where the absence of face-to-face contact further complicates the situation and interaction, trust can hence have a similar antidotal effect.

An Overview of Trust

Trust has been defined as the "willingness of a party to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Davies and Schoomar, 1995, p. 3). Trust can be seen in a dyadic relationship (among two people) or on a collective level, such as in teams or groups (Jarvenpaa et al, 1998).

A review of the literature reveals three streams of thought on trust. They are: (1) personality based trust (which refers to trust that develops due to a person's trusting nature), (2) institution based trust (which refers to individual's trust that is a function of his/her belief in the

norms and procedures that are followed in an institution), and (3) cognition based trust (which refers to trust that develops from social cues and impression that an individual gets from the other).

The *personality based trust* researchers believe that trust develops during infancy when one seeks and receives help from one's caretakers (Bowlby, 1982) and for many individuals, this results in a general propensity to trust others (Rotter, 1967). Trusting nature of an individual is one of the key traits under Norman's (1963) personality dimension of agreeableness and likeability (Barrick and Mount, 1991).

Researchers adopting an *institutional approach to trust* believe in the existence of norms and rules that guide human behavior. Scott (1992), one of the proponents of institutional theory on which this approach is based, suggests that, human beings hold beliefs about the nature of the world and the way things happen in it. Such a belief is pervasive in the organization also, where the administrative structures embody the essence of "proper procedures, orderliness, predictability and an attitude of moralized anonymity" (Berger, Berger, and Kellner, 1973). Organization is seen as an umbrella that precludes people from exhibiting opportunism that go against the institutional norm. Faith in the institution and the belief that the institution demands conformity to rules, makes team members trust each other.

The *cognition-based approach to trust* was defined by Lewis and Weigert (1985, p. 970) as "we choose whom we will trust in which respects and under what circumstances, and we base the choice on what we take to be 'good reasons,' constituting evidence of trustworthiness." As individuals get to know the other party, they gain more information about the other, which is processed to develop schemas or stereotypes about the other. Trust in this context is based on these schemas that individuals develop about their team members based on the cognitive cues they receive (Brewer, 1981).

Previous research on trust has focused primarily on exploring the importance of trust in organizations, and has concluded that trust is an important issue in organizations, especially in cooperative interactions (Zaheer et al., 1998). In another research, Nootebloom (1996) realized that trust plays an important role in inter-firm relations. In most trust research, trust has been treated as a static concept, and researchers seem to assume that it is always the same factors that influence or trigger it at any point in a cooperative interaction.

Early researchers had also proposed that trust develops over time, and during the initial interaction between members, there is no existing trust (Blau, 1964). However, recently, a stream of empirical research surprisingly concluded that team members can have very

high levels of trust even in the early phases of the team project (Kramer, 1994).

The present study proposes a model for trust development in virtual teams, and attempts to explain that different factors explain the level of trust in different points of team development. One of the objectives of the paper is also to investigate which of the three perspectives on trust best explains the level of trust among virtual team members in various phases of a virtual team project.

Group/Team Development Stages

Traditional research on groups and teams has suggested that groups develop in different stages. Tuckman (1965) was among the very first to develop a model for group development, and proposed that groups develop in four stages-- forming, storming, norming and performing. Later on, Tuckman and Jensen (1977) added the adjourning stage to make this model a five-stage process.

Though there has been widespread support for the five stage models, many researchers such as Gersick (1988) suggested that groups essentially go through three different stages -- initial encounter or Phase 1, the middle transition phase, and the completion phase.

Virtual teams are often formed as temporary structures, operate in a limited time span, and often need to focus primarily on the tasks (i.e., move to the producing stage). Based on the findings of Gersick (1988), in this paper, a three-stage model of development is used, which appears to be most practical for studying virtual teams. The first stage is the *forming* or initial encounter stage, where virtual team members are introduced to each other through electronic media, and the team is "formed." The middle stage is a combination of the *norming* and the *producing* stages¹, where rapport among team members are developed, while at the same time focusing on the task and accomplishing the job. Finally, since virtual team members are usually disbanded or geared towards another project at the end of the current one, it is reasonable to think that virtual teams transition through the *ending* stage also.

In each of three stages, the impact of the three perspectives to trust (discussed in an earlier section of the paper) on group members' actual trust formation and development is discussed.

Propositions on Trust Formation in Different Stages of Virtual Team Development

This section presents propositions regarding trust for each of the three stages of development of virtual teams. It is important to note that, *not all propositions are unique*

¹ Because of the temporary nature and flat organizational structure of most virtual teams, storming would not be a significant process in the development of virtual teams.

to virtual teams. In fact, in *some aspects*, virtual teams are indeed quite similar to face-to-face teams. As discussed earlier, the objective in this paper is to explore whether some theories of trust formation (as identified from prior literature and suitably modified) are applicable in the context of virtual teams.

Forming Stage

We refer to the trust in this stage as *initial trust* (See Figure 1). In the forming stage, the virtual team members are introduced to each other through electronic media. Since virtual teams are often formed by drawing on members from different organizations (or organizational sub-units that are separated by geographical distances), in most cases, this will be the members' first introduction to each other. In the absence of prior information about each other, trust in this phase will be determined by members' personalities, where some individuals will generally have a high propensity to trust. Further, drawing from the impression management literature (Goffman, 1959), it is proposed that in order to form a favorable first impression and be considered agreeable, individuals will be attempting to appear at their very best, exhibiting their cooperative, courteous, and trusting nature.

Proposition 1a: In the forming stage of a virtual team project, trust is formed due to members' general propensity to trust.

Proposition 1b: In the forming stage of virtual team project, trust is formed due to members' high affinity for creating a favorable impression on the other.

At the same time, trust will also be explained by the team members' faith in the institution. Institutional based researchers of trust place significant value on the institution and believe that trust is a result of the security that one feels due to guarantees in an organization (Zucker, 1986).

Proposition 1c: In the forming stage of the project, trust among team members is based on institution's values and norms.

Norming and Producing Stage

We refer to the trust in these stages as *project trust* (See Figure 1). In the norming and producing stages, sophisticated communication technologies would be successful in overcoming the barriers of physical distance (Rogers and Albritton, 1995). Moreover, since sufficient time has passed, it can be assumed that virtual team members can communicate as effectively as face-to-face teams and develop strong intra-team relations (Chidambaram, 1996). As they gain more information about other team members, they form cognitive schemas

and stereotypes about their teammates, which are used to make the decision to trust the other.

Proposition 2a: As virtual team members get to know each other and as the project starts to develop, trust among team members is based largely on the cognitive evaluation of the team members.

At the same time, since traits are recurring trends in a person that have a lasting effect (Hogan, 1991), trust in this phase will be partially determined by the personality-based factors.

Proposition 2b: Trust will also be determined partially by the individuals' propensity to trust.

Also, as long as the virtual project is being supported by the respective organization(s), institutional factor based trust will continue.

Proposition 2c: In this stage, trust among team members will be partially determined by the local norms established by the team in the initial stage of group development.

Ending Stage

We refer to the trust in this stage as *parting trust* (See Figure 1). Trust formation in the ending stage will be fairly similar to the trust formation in the second stage. As the team members continue to interact, they will form impressions and schemas about one another, and hence the cognition-based trust will continue to dominate in this phase. However, as the social cognition literature suggests, as people gain more and more information about others, their stereotypes and schemas of others continue to change (Fiske and Neuberg, 1990). Hence, in this stage, members can develop trust for a different set of individuals than those trusted initially, after being exposed to certain untrustworthy attributes of the initial trustee.

Proposition 3a: In this stage, trust will largely be due to cognitive reprocessing of the information that individuals gain about their team members.

Apart from the cognition approach, the personality based trust will also continue to partially explain the trust formation in this stage, though personality factors are not expected to be as significant as the cognition approach.

Proposition 3b: In this stage, trust will be partially explained by a person's propensity to trust.

The institutional factors will play little role in explaining trust in the final stage of the project. Towards the end of the project, when members are aware that the

team will be disbanded soon, the institutional context will have little effect on their behaviors and attitudes.

Conclusion

The concept of virtual teams is new, and consequently, there is a lack of literature examining factors that lead to successful group processes in virtual teams. Snow, Snell, and Davidson (1996) suggest that, the issue of trust is pivotal in the context of virtual teams. Though the literature on trust has explored the issue of interpersonal trust in a dyadic situation, few studies have been conducted to understand trust in the context of teams, and more specifically, in the context of virtual teams. This paper is an attempt at understanding trust from multiple theoretical perspectives. It also explores how trust manifests itself in various stages of team development among team members in a virtual team project, which has not been examined in prior studies (theoretically or empirically). In addition to the theoretical implications outlined above, this paper is also likely to have some practical implications. By being sensitive to the theory developed in this paper, managers in-charge of virtual collaboration will be able to isolate specific bases of trust that their virtual team is deficient in (as compared to the normative expectations outlined in the theory) at different stages of team development. Isolating the deficient bases will allow managers to devise focused strategies to enhance the desired components of trust at different points of time. However, it must be emphasized that further research is needed, especially in operationalizing the constructs discussed in the paper and then empirically testing the hypothesized relationships, in order to get a definitive grasp over the issue of trust among members of computer-mediated teams who are dispersed in time and space.

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Figure 1:
FORMATION OF TRUST IN VIRTUAL TEAMS

➡ -- Refers to a transition from one stage to another

→ -- Shows the direction of causality

INITIAL TRUST PROJECT TRUST PARTING TRUST

