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Virtual Team performance: the effect of Trust on team cooperation: a longitudinal view

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Introduction

Communication and Information Technologies have rapidly changed the process of team formation and collaboration in organizations by extending the geographical boundaries of the workplace (Ahuja and Carley, forthcoming). The ability to form virtual teams that communicate and coordinate their activities using information technology (IT) continues to increase as an organizational form.

A second factor affecting organizations and teams is the ever-increasing rate of environmental changes to which the firms today must respond (Gailbraith and Lawler 1993). These changes have the potential for altering many of the processes currently used in teams.

Because virtual team members have less face-to-face interactions than collocated teams, the communication technologies form the context in which members convey social as well as technical information to one another. Prior research, however, provides little insight into how individuals within these groups use IT as a means for building intra-group relationships. One interesting question is how trust develops among virtual team members and the relationship of trust to team performance. This research intends to examine how trust is built in virtual teams and what impact it has on virtual team cooperation.

Motivation

Teams perform their best when its members cooperate and support each other (Tuckman 1965). Trust establishes the framework for achieving this condition within and between members when there is a common belief that others will a) make good-faith efforts to behave in accordance with any commitments, explicit or implicit, b) be honest in whatever negotiations precede such

commitments, and c) will not take advantage of another member even when the opportunity is available (Cummings and Bromiley 1996). Thus, *trust* is an important contributor to team performance since it affects the level of cooperation and support behavior within the team.

With the emergence of virtual teams as an organizational form, there is a need to understand how trust is built when Face-to-Face interaction is minimal. Jarvenpaa and Leidner (1998) state: "...systematic research is needed on the virtual team member profile, task requirements, technology capabilities, and other environmental circumstances that allow the team members to react in such a manner as to strengthen rather than enervate the team in the face of the inevitable crises that occur in global settings."

Research Model

This research is grounded in the Theory of Planned Behavior (TPB) (Ajzen 1991) with extensions that incorporate the effects of communications media, task interdependence and outcome experiences, both past and present. The research model is shown in Figure 1, followed by the construct definitions.

Using the Theory of Planned Behavior (TPB) as a model for predicting behavioral actions, attitudes, beliefs, norms, and intentions of virtual team members will be examined in a longitudinal study. Specific hypothesis are developed relating to how these factors relate to each other in determining trust and team in a virtual work team.

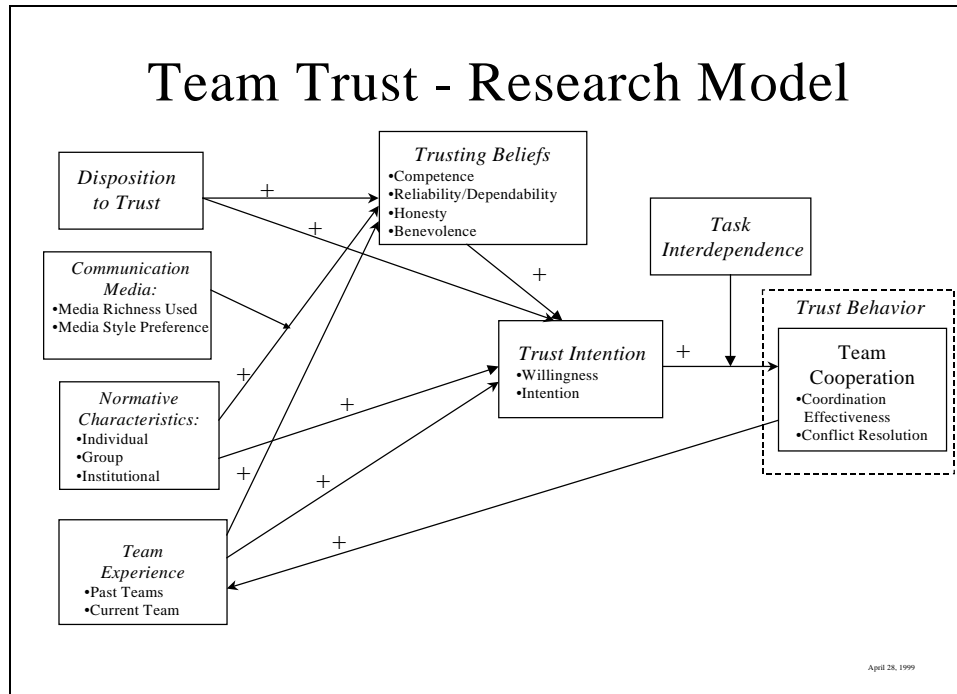


Figure 1 - Research Model

Construct	Definition	Reference
Disposition to Trust	An individual's general willingness and "expectancy that the word, promise, or verbal or written statement of an individual or group, can be relied on" in situations that involve dependence and risk.	(Stack 1978, p567; Mayer, Davis et al. 1995)
Media Richness	The perceived capability of a communication channel to reduce message ambiguity.	(Daft and Lengel 1984)
Media Style	"a marked personal preference or organizational role requirement for using a communication medium in getting one's task done"	(Rice and Case 1983, p. 143)
Peer Influence (i.e. Subjective Norms)	The effect that important other individuals have on a person's actions or beliefs.	(Ajzen and Fisbein 1980)
Group Cohesion	The "attraction" an individual feels for being involved with a group of other individuals.	(Seashore 1954; Steiner 1972)
Structural Normality(e.g. Procedural Justice)	The belief that organizational processes and/or procedures exist that support or encourage the fair treatment of individuals in their workplace	(Korsgaard, Schweiger et al. 1995)
Task Interdependence	The extent to which an individual's work activities are dependent on others for successful completion	(Liden, Wayne et al. 1997)
Collaboration Experience - <i>Prior Teams</i>	An individual's feeling about the past (historical) success of working with team members in the accomplishment of interdependent tasks or goals	
Collaboration Experience - <i>Current Team</i>	An individual's feeling about the current success of working with team members in the accomplishment of interdependent tasks or goals	
Trusting Belief - <i>Competence</i>	An individual's feeling that others have the necessary skills for accomplishing domain specific interdependent tasks or goals.	(Mayer, Davis et al. 1995)
Trusting Belief - <i>Reliability/Dependability</i>	An individual's feeling that others can be relied upon when it matters.	(Mayer, Davis et al. 1995)
Trusting Belief - <i>Honesty</i>	An individual's feeling that others can be relied upon to tell the truth and not mislead.	(Mayer, Davis et al. 1995)
Trusting Belief - <i>Benevolence</i>	An individual's feeling that others will care enough to behave in the individual's best interest even in difficult situations.	(Mayer, Davis et al. 1995)
Trust Intention	The willingness of an individual to engage in "trusting behavior" towards others in a given situation	(Currall and Judge 1995)
Team Cooperation	The ability of individuals who work together to effectively coordinate their work tasks and to positively and constructively resolve conflicts.	

Research Model Definitions

Methodology

In this field study, the model will be tested using three points of survey data from distributed work teams in in several business organizations over a six to nine-month period. Twelve to fifteen virtual teams that have a deliverable outcome at the end of their assignment will be selected from several organizations. The criteria for selection will include: 1) team work schedule is at least 6 months in duration, 2) the work product requires collaboration among team members, and 3) the team is in the initial formation stage (i.e. has not been at work as a team longer than one month). Each respondent will complete a maximum of three surveys during a six to nine-month period at three-month intervals. Managers as well as team members will complete the surveys.

At two points during the study period each individual will be asked to keep a daylong communication log detailing interactions. Selected individuals may be requested to participate in an interview in order to clarify or expand on survey results. These interviews will take no longer than one-hour and will be conducted via telephone or in person depending on individual preferences.

Pilot Study

A pilot study is in progress to test the model presented above. Phase one of the study, that administered the first survey, is complete. The sample consisted of 83 university students that formed a total of 23 project teams consisting of 3 – 5 individuals each. A second phase of the pilot is planned that will occur approximately ten weeks after phase one . Although these are not virtual teams, this pilot study was undertaken to validate the constructs and provide a preliminary assessment of the research model. Preliminary results validate the constructs and provide considerable support for the model. A second pilot study, utilizing virtual teams from a business corporation, is planned following the student pilot study.

Summary

This dissertation makes both theoretical and practical contributions. From a theoretical perspective, this study contributes to the body of knowledge by providing insights into the individual effects of trust on group performance when face time is limited. Practical implications will be derived as to how technology helps or inhibits the development of work relationships that in turn may guide the development of future technology.

Virtual teams are useful as a form of organizational design in highly competitive environments. In these teams, as well as in traditional teams, trust plays a major role in determining team performance. The initial level of team trust is especially important because it affects the assessment of future task performance by team members. By better understanding the drivers and outcomes of team trust, firms can develop teams that have a higher likelihood of success. For example, by selecting individuals that are more likely to trust, by focusing on early task success and by stimulating positive reinforcements, firms may be able to influence the level of trust in virtual teams.

Bibliography

References available from the author upon request