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TRUST DEVELOPMENT IN VIRTUAL TEAMS: UNDERSTANDING THE DEVELOPMENT OF TRUST AND THE ROLE OF TEAM GOALS AND TECHNOLOGY

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ABSTRACT

Virtual teams benefit both organizations and academic institutions by bringing together team members from different areas of expertise. This practice is rapidly gaining popularity; however, understanding how trust is formed among team members has yet to be fully understood. Using a qualitative research method of in-depth interviews, three research questions explore the definition and development of trust in virtual teams as well as the role that team goals and technology play in the development of trust in virtual teams. This study shows that the development of trust is complex, team goals contribute in developing that trust, and technology is also an enabler in that development.

KEYWORDS

Trust, Virtual Teams, Computer-mediated Teams, Dispersed Work Groups, Distributed Collaborative Teams

INTRODUCTION

Organizations exist to create value for stakeholders and teams exist to create value for organizations. Virtual teams are used to benefit organizations by bringing together team members from different areas of expertise. This is becoming commonplace in educational institutions as well as organizations (Beranek 2005). Organizations are relying on virtual teams due to a competitive global market, the benefits that can be achieved by integrating the work of specialized employees who might be dispersed, and the need to save time and money (DeRosa et al. 2004). When teams trust one another, they produce higher quality outputs (Sarker et al. 2001). By learning how team members define and view trust, organizations will be one step closer to learning how to create a virtual environment that fosters trust for these teams to work in.

One of the most cited definitions suggests that trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al.

1995). Additionally, virtual teams can be defined as teams who work predominantly through the use of information and communication technology (Dubé et al. 2004). These teams of people work interdependently across space, time, and organizational boundaries through the use of technology in order to facilitate communication and collaboration (Lipnack et al. 1997).

This study presents exploratory research using an interpretive paradigm that addresses the following questions:

1. How does trust develop in a virtual setting? What are the factors that contribute to trust development? What is similar or different about the ways team members develop trust?
2. How does the goal of the virtual team positively or negatively impact team trust?
3. How does technology play a role of an enabler or barrier in the development of trust?

Interviews of individuals on their views on trust in virtual teams leads to an identification of categories of issues and provides a model for future empirical research. This study is important for two reasons. First, as the concepts of virtual teams become more and more common in organizations, team trust has become central to team development and has been found to be highly beneficial to the functioning of organizations (Dirks et al. 2001; Khazanchi et al. 2006). Second, overall trusting behaviors among individuals appear to be in decline in both online and offline interactions (Boyd 2003; Fukuyama 1995). If it is true that trusting relationships are on the decline and trust is an important variable in organizational relationships, it is necessary that research be done in this area to identify the challenges and solutions related to trust.

The next section introduces and summarizes earlier work in the area of trust in virtual teams as well as presents the theoretical lens for this study. The following section discusses the methodology of the research followed by the results from this study. The final section presents a summary and concludes with an agenda for future research.

BACKGROUND

Framework for Understanding Literature on Trust

The phenomenon of trust has been studied in various ways and in various disciplines. In an analysis of how researchers have operationalized the variable of trust, a natural framework that allows for understanding the literature on trust was uncovered (Sitkin et al. 1993). The four clusters in the framework include individual attributes, behaviors, situations, and institutional arrangements.

1. *Trust as Individual Attributes*. This stream focuses on an individual's trust in another person. The argument that organizational trust has its basis in individuals exists because it is the individual members of organizations who trust, not the organizations (Zaheer et al. 1998). This trust can often be shaped or influenced by a society's culture as well (Fukuyama 1995). One recent example of this category can be illustrated by a study that used teams to develop computer-based application systems to solve business problems for organizations located in different parts of the world (i.e., the U.S. and Hong Kong) (Sarker 2005). Participants or individuals who extensively participated in the electronic conversations were perceived as having the individual attributes of credibility and trustworthiness because of their high participation.

2. *Trust as Behaviors*. This type of trust relates high trust with cooperation and low trust with competition (Sitkin et al. 1993). In a study of risk and reliance during a stock market game, it was

found that trust started low in the computer-mediated teams but over time increased to levels comparable with the face–to-face teams due to the cooperation (Wilson et al. 2006).

3. *Trust as Situations*. This category suggests that trust is only necessary in cases of interdependence, or when the completion of one's task depends on another. This type of Prisoner's Dilemma task has been studied numerous times. In one study the amount of money won or lost by two study participants was a function of the combination of choices that the participants made, therefore dependant on another person (Deutsch 1958). A second example concluded that if participants are not able to meet before playing a similar game online but do engage in some form of "get to know each other" text chat, they show the same kinds of trust of participants who play the game in face-to-face meetings (Zheng et al. 2001). Furthermore, the degree of trust a person has in a team member or partner has been shown to either directly or indirectly affect a number of work outcomes, including performance, organizational citizenship behaviors, organizational commitment, turnover intentions, satisfaction, and group performance (Dirks et al. 2001; Kramer 1999).

4. *Trust as Institutional Arrangements*. The final stream of literature on trust identifies trust as an institutional arrangement. This category views trust as an arrangement through the "use of contracts, sanctioning capabilities, or legalistic procedures as formal substitutes for interpersonal trust" (Sitkin et al. 1993). Illustrations of this may include the practice of parents trusting their children to stay all day with teachers or day care workers as well as the practice of employers trusting their property to employees (Shapiro 1987).

The four clusters provide a background for understanding the meaning of trust in virtual teams in the words of the study participants. The clusters are also useful for identifying the categories that emerge from virtual team participants in relation to their own virtual team work.

Theoretical Lens

The theoretical lens for this research differs from other research in this domain because it uses goal setting theory (Locke 1964). Goal setting theory suggests that specific and difficult goals lead to improved task performance over vague or easy goals. Goal setting affects the behavior of individuals and their job-related performance. Furthermore, goal setting theory states that individuals make calculated decisions about their desired goals. Once the intended goal is determined by an individual, achievement intentions direct and motivate efforts to attain the goal. Goal setting theory was chosen as the theoretical lens for this research because of the fact that virtual team collaboration efforts are joint and not individual. Team efforts must be directed toward a group goal (Briggs et al. 2006). Specifically, team efforts must be directed toward a group goal of establishing team trust. In addition to the use of goal setting theory as the theoretical lens for this research, the second research question seeks to understand how goals impact trust in virtual teams.

METHODOLOGY

The intent of this study was to document ways in which virtual team members, in their own words, develop trust with their team members in the virtual projects of which they have been a part. The research methodology selected for this research was qualitative. The qualitative method seeks to understand human behavior, using an interpretive paradigm (Baxter et al. 2004). This qualitative approach relies on in-depth interviews as the main source of information.

Participants

Members of different organizations were selected for interviews based on their interest in the research topic and their willingness to participate in the interviews required for the qualitative methodology. All participants had been members of their respective organizations for at least three years, ranging up to 10 years. The selected participants included two males and one female. Since this is a foundational study, only three participants were included.

At the time of the study, Interviewee #1 was a developer from an e-commerce company, Interviewee #2 was a developer from an international manufacturer, and Interviewee #3 was a project manager from an insurance company. Participants were originally contacted through e-mail in order to schedule interviews. At that time they were informed of the research topic.

Interview Protocol

The interview protocol reflected the three main research questions in this study. Initially, in order to find answers to the research questions, participants were asked the following four background questions: How many virtual team projects have you been involved with? How many people are on your virtual project teams? What is your personal definition of trust? How have you found trust to be a factor in the virtual team projects you have been a part of? After background information was uncovered the questions were geared in order to answer the research questions.

The first research question sought to answer how trust develops in a virtual setting. In order to answer this question, participants were asked the following four questions: What do you do as an individual to establish trust? What do you and your teammates do to establish trust with each other as a team? What is similar about what you do individually and what is done as a team to develop trust? What is dissimilar about what you do individually to develop trust and what is done as a team?

The second question asked how the goal of the virtual team impacted the team trust. Participants were asked to think of one particular group task, describe the task, and how it began. They were then asked about the goal of the project and how it related to the teams' trust. Specifically, the participants were asked the following questions: How did the goal of that virtual team project impact the teams' trust? Positively or negatively?

Finally, this research sought to understand how technology played a role in the development of trust, either as an enabler or a barrier. Participants were asked the following eight questions: What collaboration tools/technologies did your team rely on? How did those tools/technologies effect the development of trust? Were they helpful? Not helpful? Would you consider them an enabler or a barrier to the development of trust? What functionality could the tools/technologies have provided that would have made trust develop quickly? Easier? What functionality did the tools/technologies provide that was not necessary for the development of trust?

Data Gathering

Structured interviews were held with each participant based on the interview protocol. The interviews were all done individually and lasted between 30 to 45 minutes with each study participant. The interviews were taped in order to allow for full engagement of the researcher during the interviewing process (Baxter et al. 2004). The taped interviews were then transcribed immediately following the taping. The recordings were transcribed verbatim in the "uttered talk" format, which includes all verbal expressions. The verbatim transcripts were then reviewed and coded using Strauss and Corbin's (1998)

open coding method in order to identify the similarities, differences, themes, and patterns among the interviews. During open coding, the raw data was broken down into parts and closely examined and compared for similarities and differences. The results section of this research relies on the transcribed interviews.

RESULTS AND DISCUSSION

Trust Development in Virtual Teams

The first research question was: How does trust develop in a virtual setting? The findings of this question identified factors that make trust development difficult and factors that make trust development easier. Poor communication and organizational politics are the two factors that were identified as making the development of trust difficult. Trust as an institutional arrangement, good communication, feedback, and team-building are the categories that relate to making the development of trust in virtual teams easier. It is interesting to note that communication is a category in both areas.

The first category of factors that make trust development difficult is poor communication. To illustrate this, one participant commented on how he spoke cautiously in open discussions he had with other team members for fear that he would be misunderstood or misrepresented in other conversations that he was not a part of. Building on that example is the idea of poor communication about schedules in virtual teams. This topic was uncovered from both the perspective of a team member and the perspective of a project manager. The team member felt like he had to go out of his way in some cases to communicate and show that his work was getting done. On the other side, the project manager felt like it was the job of everyone to stay on top of the schedule and communication of that status.

Politics, often found in organizations, is the second category identified as a factor that makes the development of trust difficult. This factor was only identified by the project manager.

In contrast to factors that make trust development difficult are the factors that make trust development easier. In this case four categories were identified. The first category relates to the literature and the idea that trust can be formed as an institutional arrangement. One participant noted that he only trusted his teammates (from another organization) because he trusted the organization they were a part of.

The second category in this area is a combination of both good communication and shared knowledge. One participant referred to how important he found it was to keep everyone in the loop. Later on, the same participant mentioned that things break down in the team communication. Another participant supported this idea by saying she strives to communicate effectively with her teammates and it all comes down to that communication.

The third category of factors that make trust development easier is feedback. This idea was only mentioned by one participant (the project manager). She mentioned that it is much more difficult to establish trust without the physical reactions and she finds that providing and asking for feedback can help ease the pain.

The final category in this section includes team-building. Two of the three participants mentioned team-building activities as one of the things their organization stresses for virtual team members. One participant mentioned cases where traveling at the beginning of a project to meet team members helped him establish a working relationship. Similarly, another participant mentioned traveling and getting together for team-building social activities. She mentioned that the organization thinks it's important for social activities to take place when team members are together and that is stressed more than the actual

work activities. Additionally, one participant mentioned having off-task conversations with other team members before meetings begin in order to find out about his team members outside of work life.

Goal Impact on Virtual Team Trust

The second research question was: How does the goal of the virtual team impact team trust? The findings of this question identified the categories of trust as an institutional arrangement, team-building, and goal pressure.

Trust as an institutional arrangement is consistent with the literature and was identified as a category under the first research question as well as the second research question. In terms of playing a role towards the team's goal, this situation emerged from Interviewee #1. The participant found that the two organizations came together to work on a project and they are equally invested in that project's outcome; therefore they share the same goals and trust that those goals will be met.

The second category that emerged was the concept of team-building. One participant found that using a kick-off activity to lay out project goals is helpful in getting buy-in from all of the participants and gaining trust even before the project starts. Another participant mentioned the team-building activities are important when setting the goals of the project team. Once the goals are set, the team sets the bar high and works to achieve those goals.

The final category that emerged to answer the question of how the goal is impacted by trust is the idea of goal pressure. This idea only emerged from one interview, but makes sense because when a virtual team project has high visibility among executives and therefore high pressure, it is even more essential for that team to establish trust and complete the objectives.

Technology Role Related to Virtual Team Trust

The final research question was: How does technology play a role in the development of trust? The findings of this question identified tools that were helpful in establishing trust, tools that are not used that could be helpful, and the general idea that trust should be or is often established before the tools are chosen and used.

The first category that emerged covers tools that were found helpful by the study participants in establishing trust. Here each participant identified all of the tools that their virtual teams had access to and used. Tools and technologies such as e-mail, instant messenger (and variations like Skype), VPN, version control, file repositories, and others were mentioned. All of the participants agreed that the tools and technologies that they relied on were an enabler in helping them develop trust. Another participant mentioned the tools were important because they eliminated distance. Additionally, the tools and technologies were considered helpful because they allowed for a higher level of detail and assisted in putting "hands" on what's going on.

A second category of tools and technologies that are not presently used by the virtual teams represented, but could potentially be helpful were also identified. Here it was interesting that the two participants who do not have access to videoconferencing thought that videoconferencing might be a beneficial tool to use when establishing trust; however, the participant who did have access to videoconferencing felt differently and she mentioned that it was only used once or twice a month. A second participant thought that videoconference or face-to-face interaction might also be beneficial. However, overall he did not think that the currently used tools were lacking in any way. The participant that did have access to

videoconferencing thought that a collaborative tool for working on Gantt charts might be helpful from a project manager perspective.

Finally, the general idea emerged that trust should be or is often established before the tools are chosen and used. Interestingly, all participants mentioned something about trust already being in place before they began working on their projects. Another participant mentioned that all of the virtual team members come from the same organizational pool and in their organization they put an emphasis on trying to know everyone.

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

Virtual teams benefit all kinds of organizations by bringing together team members from different areas of expertise. This practice is rapidly gaining popularity; however understanding how trust is formed among team members has yet to be fully understood. Using the qualitative research method of in-depth interviews, this study explored the definition and development of trust in virtual teams as well as the role that team goals and technology play in the development of trust in virtual teams. The study showed that the development of trust is complex, team goals contribute in developing that trust, and technology is also an enabler in that development.

One major contribution from this study is the categories that emerged from answering the research questions. When looking at how trust develops, factors that make trust development difficult and easier were identified. Poor communication and politics were the two factors that were identified as making the development of trust difficult. The category of communication relates back to what the literature suggests in terms of understanding trust as an individual attribute and trust as situations of interdependence where one person is relying on another. Additionally, the category of politics relates back to the literature and the idea of trust developing due to an institutional arrangement. Trust as an institutional arrangement, good communication, feedback, and team-building were the categories that relate to making the development of trust in virtual teams easier. Again, these categories relate to the literature and understanding trust as an institutional arrangement and trust as a situation (i.e. good communication). The categories of feedback and team-building correspond to the stream of trust as a behavior and relating cooperation (through feedback and team-building) with high trust.

When looking at the impact of the team's goal on team trust, categories of trust as an institutional arrangement, team-building, and goal pressure were all identified. Goal pressure falls into the literature stream of trust as situations and the idea that one task is dependent on another.

Finally, tools were identified that were helpful in establishing trust, unused tools that could be helpful were identified, and the general idea that trust should be or is often established before the tools are chosen and used. Additionally, the interviews uncovered different perceptions of videoconferencing. Participants who did not rely on videoconferencing assumed that its use would increase trust and the participant that did use it did not put much value on its use. Future research should look into the trust benefits or perception of benefits when using videoconferencing in virtual teams.

A second contribution from this study is the idea that trust definitions relate to organizational roles of the participants. Reviewing the transcribed interviews, I found it interesting that participants' personal definitions of trust line up with their organizational roles. For example, the study participant who was a virtual team project manager defined trust as a confidence in all team members completing their duties whereas another participant who was not a project manager related his definition to having his ideas accepted and not having repercussions. I also found it interesting that one participant did not believe that virtual team trust was a factor in his experiences; however, later in the interview the participant stated that trust was important and its establishment was necessary before teamwork ever began. Since this research

shows an apparent difference in the definitions of trust, additional research should explore this gap in greater detail in order to identify what other differences in trust exist between virtual team managers and team members.

One limitation of this study is that the findings are not able to be generalized beyond the specific situation. However, a third major contribution from this study is the fact that the research path is traceable. An interview protocol was used to hold structured interviews and the results from these interviews were typed, coded, and analyzed. The result of this process does answer the research questions and could be replicated by another researcher. In fact, future research can be completed holding additional interviews in order to determine the strength of the identified categories.

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