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Developing and Maintaining Trust in Virtual Teams: A Case Study of Distance Education Methods

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Abstract

Organizational and psychological studies show that behaviors and perceptions of others tend to be different in computer-mediated communications when compared to face-to-face communication. These behaviors can cause virtual teams to have an elevated amount of distrust compared to teams that function primarily through face-to-face communication. This case study focuses on an on-line course in which students work in virtual teams. In structuring the course, we used methods that have been recommended in the literature to enhance the effectiveness of virtual teams. We also examined how trust was developed and maintained among the virtual teams in the course. Later, measurements were taken to determine the effectiveness of these methods for this specific case. Because the course was still in session at the time of this writing, results are reported for the pre-class assessment only. By the time of the conference (i.e., January 2003), additional data will have been gathered on the levels and different types of trust and will be reported at the conference.

Managers are increasingly supporting and interacting with employees who telecommute from home or work in geographically dispersed locations, using email, voicemail, the Internet, and various forms of remote conferencing (see, e.g. Coover, 1995). According to the U.S. Department of Labor, in 2001 19.8 million people usually performed at least some work at home as part of their primary job (*Work at Home in 2001*, 2001). Organizational and psychological studies show that behaviors and perceptions of others tend to be different in computer-mediated communications when compared to face-to-face communication. In particular, computer-mediated communications tend to be more open and emotionally expressive than written and face-to-face communications (Baron, 1998; Zimmerman, 1987). Computer-mediated groups tend to exhibit more uninhibited behavior, such as using strong, rude, and inflammatory expressions in their interpersonal interactions (Kiesler & Sproull, 1992; Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Thompson, 1998). These behaviors can cause virtual teams to have an elevated amount of distrust compared to teams that function primarily through face-to-face communication.

This case study focuses on an on-line course in which students work in virtual teams. The course is offered in an organizational psychology program and is about virtual team management. In this context, students are being trained to work with organizations, either as inside or outside consultants. Therefore, our interests are twofold. First, because the course topic is virtual team management, we are interested in providing an experiential learning opportunity for students that places them in virtual teams. In structuring the course, we used methods that have been recommended in the literature to enhance the effectiveness of remote teams. Later, measurements were taken

to determine the effectiveness of these methods for this specific case. Secondly, we are interested in how virtual teams fare in an educational environment, specifically, in an on-line course. Even more specifically, we examined how trust was developed and maintained among the virtual teams in the on-line course. Thus, this paper begins with an overview of trust in organizations, trust in virtual teams, and trust in distance education.

Trust

Trust in Organizations

Trust is vital for business success (Shaw, 1997). Organizational consultants, Culbert and McDonough (1985), consider a trusting relationship one of the most effective management tools. Trust not only saves time and promotes organizational effectiveness, but also creates the requisite environment needed for organizational success. Similar to the wealth of research on trust that exists in the economics and social psychological fields, research on trust in organizational settings now spans more than 40 years (Lewicki, McAllister and Bies, 1998). Early research on trust in organizational settings operationalized trust as an individual's expressions of confidence in another's motives and intentions (e.g., Deutsch, 1958). More recent research has focused on the behavioral component of trust (e.g., Mayer, Davis, and Schoorman, 1995). Mayer, Davis, and Schoorman (1995) suggest, "trust . . . is 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 party" (p. 712).

When one considers the simplistic definition of an organization as two or more people working together to achieve a common goal (Blood, Graham, and Zedeck, 1987), it becomes obvious that trust is the foundation for all business activity. Without trust, collaboration is impossible (Costigan, Ilter, and Berman, 1998). Shaw (1997) considers trust to be a structural and cultural characteristic of organizations, which influences performance on four levels including organizational success, team effectiveness, one-on-one collaboration, and individual credibility.

As a result, organizations are finding that trust is becoming more elusive (Caudron, 1996). Employees are less inclined to trust organizations, given the recent waves of downsizing and restructuring that have occurred in organizations throughout the United States. Even Japan, which at one time guaranteed lifetime employment, has moved away from such promises (Schlender, 1994). Thus, employees who were once promised job security, perceive organizations as being less loyal, and ultimately, less trustworthy. A survey by Industry Week magazine found that only 39% of workers surveyed believe that management is honest, upright and ethical (Sonnenberg, 1994). Yet, without trust as well as cooperation and collaboration, many predict organizations will have a much harder time remaining competitive in this rapidly changing economy (Shaw, 1997).

Types of Trust

The research on trust can be categorized based on the various types of trust that have been studied. Rousseau, Sitkin, Burt and Camerer (1998) suggest that early research conducted by social psychologists viewed trust as a static state where one either trusts or does not trust. In support of this summary, they cite much of the early research,

which involved highly structured games, such as the Prisoners' Dilemma game, where the level of trust is viewed as a single point rather than a distribution along a continuum (Rousseau et al, 1998). In a review of some of the early trust literature Rotter (1971), suggests such studies explore trust in a relatively specific situation (i.e., a competitive situation) that may not be characteristic of other kinds of interpersonal interactions. Furthermore, much of the early research, he suggests, virtually ignores the impact of individual difference factors on trust.

Rousseau et al. (1998) note that more recent research emphasizes the dynamic nature of trust. In these works, trust is no longer viewed as an all-or-nothing state, instead, suggesting that there are phases of trust (e.g., building, stability and dissolution) as well as varying levels and different types of trust.

McAllister (1995) is one of the few researchers who focused specifically on interpersonal trust within organizations. Thus, he is one of the few researchers who addresses the nature and functioning of interpersonal trust between managers and professionals in organizations. In addition, McAllister is one of the first to propose that there are different types of trust. Using a sample of managers and professionals in his study, he suggests there are two types of trust: (1) cognition-based trust and (2) affect-based trust. Cognition-based trust, as its name implies, is grounded in cognitive judgments of the trustor's competence or reliability, and is an antecedent of affect-based trust. On the other hand, affect-based trust is grounded in the affective bonds between the trustor and trustee. Based on his research, McAllister found strong support for these two distinct bases of trust.

Trust and Remote Workers

Many recent trends continue to emphasize trust as a necessary component of effective organizations. The rapid explosion of technological advances is one key trend. As technology continues to develop, organizations will alter the way work is done. Thus far, technological advances have increased the usage of self-managed teams, telecommuting, and virtual offices; all of which can decrease the amount of physical interaction between a supervisor and subordinate. The combination of advances in technology and less frequent physical interactions will make the issue of trust more salient as the work force becomes more empowered and control mechanisms are reduced or removed and direct observation becomes less practical (Mayer et al., 1995).

In fact, one of the most critical issues for virtual teams is developing trust among team members (Jarvenpaa & Leidner, 1998; Moore, Kurtzberg, Thompson, & Morris, 1999; Rocco, 1998). When people interact via email and telephone, they lack the social cues that facilitate trust. For instance, research shows worse outcomes for the participants in computer-mediated negotiations compared to face-to-face negotiations (Arunachalam, 1992; Moore et al., 1999; Rocco, 1998). Lower amounts of trust and rapport have been shown to be causal factors in the negotiation outcomes in computer-mediated communications. However, there has been little research around understanding the development and maintenance of trust in a virtual context. More specifically, there is little understanding of what types of trust (e.g., cognition-based trust, affect-based trust) develop in virtual relationships and in what order the different types of trust develop.

To date, only one published study has explored cognition-based trust and affective-based trust in a remote worker setting (Staples, 2001). Staples explored the role of trust for both remote workers and non-remote workers, and found that trust was related

to perceptions of performance, job satisfaction and job stress. Through additional post hoc analyses, Staples was able to differentiate between the two types of trust: cognition-based trust and affect-based trust. Interestingly, Staples found that the relationship between the different types of trust and perceptions of performance, job satisfaction and job stress did vary for remote workers versus non-remote workers. Specifically, it was found that both cognition-and affect-based trust play a role in the remote worker and non-remote worker setting. However, the role for affect-based trust is stronger for non-remote employees than it is for remote employees. In addition, while affect-based trust was related to performance and job satisfaction for remote workers, the effects were not as strong as the effects seen with non-remote workers. Further, affect-based trust was not related to job stress for remote workers. Perhaps affect-based trust is less prevalent or hard to build in a remote worker setting, especially given the lack of physical cues and less face-to-face interaction. On the other hand, Staples' study suggests that cognition-based trust is more prevalent in a remote worker setting than affect-based trust.

However, given that this is just one study and the analyses were post hoc, further research on the type of trust and how the various types of trust develop in a remote environment is warranted. In addition, further research that explores how one might build affect-based trust in a remote worker setting could aid organizations substantially.

Distance Education and Trust

Distance education contends with many of the same challenges as virtual teams in organizations, including building trust and relationships among group members. A recent study on group dynamics in a graduate level on-line course on telecommunications (Murphy, 2001) found that students had more difficulty building consensus when they

did not know each other. This further supports a closer look at trust, as consensus is a necessary condition for groups to function effectively and make progress toward group goals. Students in the course recommended that honesty and respect for team members should have been made a policy, and that students should have had the opportunity to get to know each other in a face-to-face meeting at the beginning of the course. In addition, the Sense of Classroom Community Index (Rovai, 2001) was developed to assess classroom community in on-line courses and includes trust as one of four major components. In other words, trust is an important factor in determining the success of with distance education courses.

The Present Study

The California School of Organizational Studies at Alliant International University specializes in applied courses in organizational consulting. For the first time, the advanced seminar “Remote Management and Virtual Teams” was offered virtually. This was an opportunity to practice—and assess—recommended virtual team practices, particularly building and maintaining trust.

The course was offered “executive style,” meaning that while the preponderance of the interactions were on-line; there were two face-to-face meetings at the beginning and middle of the course. Since the accumulation of research results and consulting experience show that it is important to have face-to-face interaction to develop and maintain an overall sense of trust among the group (Connell, 2002), the course was conducted in that manner. Another issue that has an effect on trust and ability to succeed in virtual teams and in on-line courses, is technical savvy. It has been shown that students must feel comfortable with the technology used in the courses to be able to

participate effectively (Connell, 2002; Murphy, 2001; Schrum & Hong, 2002). To address this issue, the initial face-to-face meeting included a training session on Blackboard, the web-based tool that was used to teach the course.

Prior to the commencement of the course, students were asked to take several assessments, including personality and communication style inventories, as well as a survey of their expectations of the course. The findings from these assessments are reported in this paper. Results of the subsequent interventions and assessments will be reported at the Hawaii International Conference on Education 2003 because the course was still in progress at the time of this writing.

Method

Our study focused on the interpersonal interactions among students and between students and instructors. It specifically probed into trust in these relationships. Data were collected using a 36-item, pencil and paper survey instrument developed especially to measure student expectations of their future interactions in the course, as compared to their experiences in traditional, in-person courses. The survey questions focused on trust and the interpersonal elements of the course. Results were analyzed qualitatively (descriptively) because the sample was limited by the small class size that was optimized for an on-line course.

Students were asked to participate in the study at the beginning of the face-to-face meeting, during the second week of class. Students picked random numbers “out of a hat” to use as anonymous identifiers for this research. The survey was distributed to all students and they had the opportunity to fill it out while the instructors stepped out of the

room. Students were instructed to note their identifier number for future data collections in the course.

Results

One hundred percent of the students in the course responded to the survey (N=18). Twelve of the students were female and six were male. The students were all in at least their second year of graduate school, and all except one were in doctorate programs in organizational psychology. (One student was in the master's degree program in organizational psychology.) Based upon students' responses regarding how well they knew the other students in class, we found that generally, people were acquainted with less than half of the students in the class. All students reported being previously unacquainted with at least some of the students in the class. Reported percentages of the class that students did not know ranged from 10 to 98 %. Ten of the eighteen students reported that they did not know at least 50% and at most 98% of the class. Of the remaining eight students, four reported that they did not know between 30 and 45% of the class.

Student Expectations with Technology and Technology-Supported Classes

Six students (34%) indicated that they had taken one other on-line class. However, based upon comments, it was determined that one of those six had taken a "web supported" class as opposed to a pure on-line class. All students said they were at least "fairly" familiar with email, and over half (56%) reported being "extremely" familiar with email. Ninety-four percent (n = 17) of the students indicated being at least "somewhat familiar" with chat and instant messaging.

Student Expectations of Effectiveness and Satisfaction in the On-line Class Environment

Students' expectations of the class were positive. Most students (78%) felt that the on-line teaching method used in this class would be "the same"(39%) to "somewhat more" effective (39%) as a traditional, in-person class. A majority of students (72%) also felt that their enjoyment level would be at least "somewhat more" (28%) to "much more" (44%) than the traditional classroom format. Furthermore, most students (86%) felt that the instructor's accessibility would be "the same" (33%) to "somewhat more accessible" (56%) than in a traditional classroom.

Communicating and Resolving Differences in this Forum

A statistical majority felt that both interacting with team members (61%) and getting their ideas across (61%) would be "somewhat harder" to do on-line. However, a little over a quarter of the students (28%) felt that it would be "somewhat easier" to interact with team members on-line, and 22% said it would be "somewhat easier" to get their ideas across on-line. A higher degree of consensus was found for the question about resolving differences on-line. Eighty-four percent of the students said that resolving differences would be "much harder" (17%) or "somewhat harder" (61%) to do using the Internet. Over three-quarters (78%) of the students said that it would be important to interact with team members face-to-face.

Likelihood of Forming Close Bonds (Social Isolation)

A little over half of the students (61%) believed that they would be able to get an idea of others' personalities "fairly well" (50%) or "very well" (11%) while interacting with them on-line. But, 61% also said that they would be somewhat less likely to form close bonds while working together on-line than they would be working together face-to-face.

Expectations of Trust

Nearly half the students (44%) believed that others would be either somewhat more (33%) or much more (11%) honest when interacting on-line. Only 22% reported that they thought that classmates would represent themselves somewhat less accurately in an on-line course. The rest (78%) believed others would represent themselves “somewhat more” accurately (39%) or “the same” (39%) as in a traditional course.

Most students (72%) reported an expectation to trust their teammates about “the same” as in a traditional course. Even more students (83%) said they would trust their teammates to cooperate “the same” as in a traditional course. Sixteen of the eighteen students (89%) reported having no concern about project team members “pulling their own weight.” Eighty-three percent indicated that they would trust their teammates to follow through on commitments about “the same” as they would in a traditional course.

Overall, students were very trusting of others. In fact, 67% indicated their level of trust of others in general as a “4” on a scale of 1 being “not trusting” and 5 being “very trusting.” In addition, on a scale of 1 to 5, with 1 being “not at all” and 5 being “a great deal,” 67% of students reported that “4” was the extent that they trusted their classmates.

Discussion

Students had high expectations for the course. The majority of students expected the course to be effectively taught on-line and they expected to enjoy it more than a traditional course. Students also expected their classmates to be at least as honest, hardworking, and cooperative as in a traditional course. On the other hand, students expected to have more difficulty resolving differences and forming close bonds with their classmates in an on-line course, compared to a traditional course. This might suggest that

there is a higher potential for cognition-based trust to develop, but a lower potential for affective-based trust to develop in an on-line course, compared to face to face. By the time of the conference (i.e., January 2003), additional data will have been gathered on the levels and different types of trust and will be reported at the conference.

Because previous research has shown that the affective components of interpersonal interactions are more difficult to convey and assess in computer-mediated communications, it seems important to address this aspect directly. We required students to participate in two face-to-face meetings to help them develop interpersonal relationships with their classmates. The first face-to-face meeting was held during the second week of class, and included plenty of time for students to mingle. In addition, students were encouraged to share their “temperaments” with each other, based on the individual assessments they took during the first week of class.

This study adds to the bodies of knowledge on virtual teams, distance education, and trust. Specifically, it provides some preliminary insight into what types of trust are expected to develop in a virtual setting. Subsequent assessments will ascertain the extent to which face-to-face interactions increase the level of trust in a virtual relationship as well as the type of trust. Further understanding of the development and maintenance of trust in a virtual relationship will aid educators as we move more towards more on-line and virtual learning environments. Furthermore, this research is essential for organizational administrators who must carefully institute remote worker policies and practices that will sustain their business objectives.

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