

Effects of Cultural Differences on Trust Reparation in a Computer Mediated Communication Setting

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Abstract

Trust development is a critical aspect of computer-supported cooperative work (CSCW). Trust is especially important in distributed work environments because of the limited amount of social presence afforded by computer-based communication media. Although several studies have studied trust development in computer-mediated environments, very few have researched the reparation of trust, following a breach. Users from different cultural backgrounds may react in very different ways in a trust breach situation. This paper focuses on the effect of cultural differences on how people reconcile following a breach of trust in a computer-mediated exchange. Preliminary results from the study are reported here, involving American and Chinese participants in a trust game. Results from this research have significant implications for CSCW, especially when users come from different cultural backgrounds. The findings also have implications for the design of CSCW interfaces.

1. Introduction

The widespread and pervasive adoption of computer media has opened up new avenues for distributed work. Corporations must distribute decisions and tasks across a global workforce. As a result work groups often involve team members from different parts of the world, with different cultures. Members of such distributed work groups have to rely on computer-mediated communication (CMC) technologies such as e-mail, instant messaging, or teleconferencing to accomplish organizational tasks. These communications media may lack the social presence afforded by the more traditional face-to-face (FTF) communication.

Trust is an essential component of any social system [2]. To accomplish a group task effectively, the people involved must be able to trust each other. Although people working together develop a rapport, there are inevitably situations where members from a work-group are in conflict with each other. Cultural differences, to a large extent, influence how people perceive a conflict situation and the degree to which breaches of trust may be overcome.

Several studies have researched trust development in computer-mediated settings [6, 21, 29, 18]. However, research on how people reconcile their differences in a CMC setting has been sparse. The ways in which people from different cultural backgrounds respond to a trust breach situation has not been researched widely. This paper attempts to fill these lacunae.

2. Background

2.1. Trust and communication media

Current day communication technologies allow people to work together even when they are not collocated. Past research [3, 15, 16] has shown that trust development can be fostered in virtual environments. The exchange of information in a CMC setting may be accomplished using a variety of media: audio, audio and video, or text messaging, each of which has a different degree of richness in supporting communications.

Media richness refers to the amount of richness that can be conveyed through the communication medium [19]. FTF communication remains the gold standard in terms of richness [8]. Features of different communication media are depicted in table 1 and discussed in the following paragraphs. But media richness theory does not entirely explain differences

between the ways that various media channels are used. Social presence theories [22, 23] adds to our understanding by determining how people present themselves in different ways to overcome various media limitations, while additional research suggests that people adapt their behavior when using lean media, to overcome perceptions of ambiguity [10].

To better understand media choice, Short [22] administered twenty-two 7-point rating scales to assess participants' perception of one another following a dyadic negotiation task either using the phone, video or face-to-face. Scales included items such as trustworthy-untrustworthy, friendly-unfriendly, pleasant-unpleasant, reasonable-unreasonable etc. Participants in the audio condition rated more favorably than participants in the other two conditions. Specifically, there was a significant effect of medium on the trust rating with participants in the audio condition rating their opponents as highly trustworthy suggesting that conversations that people might prefer the audio channel to communicate when the task involves confrontation or interpersonal tension.

Table 1. Features of different communication media

	Aural Cues	Visual Cues	Non-verbal Cues (e.g. body language)
FTF	✓es	✓es	✓es
Video and Audio	✓es	Partial	Partial
Audio (Telephone)	✓es	-	-
Instant messaging	None	✓es (e.g. smiley face)	None

Rice [20] used Short et al's [23] social presence theory to compare traditional with new organizational media. Rice [20] conducted a survey at six different sites of various sizes and structures. Respondents were asked to rate the appropriateness of different media for each of ten communication activities: exchanging information, negotiating or bargaining, getting to know someone, asking questions, staying in touch, exchanging time-sensitive information, generating ideas, resolving disagreements, making decisions, and exchanging confidential information. Means ratings showed that respondents ranked face-to-face as the most appropriate means of communication for all but two (staying in touch and exchanging time-sensitive

information) of the above communication activities, followed by phone, meeting, desktop video, voicemail, text, and email. Results of this study suggest that people consider the face-to-face medium as the gold standard when it comes to social presence.

Further, communication media vary in the degree of social presence. Short, Williams and Christie [23] define social presence as the subjective quality of the medium. Attributes of a medium such as capacity to transmit information about facial expressions, direction of looking, posture, attire and non-verbal vocal cues contribute towards the degree of social presence afforded by the medium. However, the weights for each of the above attributes are determined by the user. The degree of social presence is also related to two other socio-psychological concepts. These are intimacy [1] and technological immediacy [12]. Argyle and Dean [1] propose that there are both approach and avoidance drives when people converse with each other. The approach component is primed by the need to receive feedback and reinforcement from the addressee. The avoidance component arises from the fear of being seen and the fear of revealing one's inner states to the addressee. Specifically, two people engaged in a face-to-face conversation will settle at a level of intimacy based on factors such as eye-contact, physical proximity, and topic of discussion. For example, people may want to avoid eye-contact and increase physical separation when affective topics are discussed. This situation may arise following breach of trust.

After a breakdown in trust if the people are allowed to communicate their intent and clear misunderstandings with their opponents, it is anticipated that the media richness (or media) will affect the trust recovery process. The media richness theory [7] posits that communication media differ in the extent to which they can (a) overcome constraints of time, location, permanence, distribution, and distance; (b) transmit the social, symbolic, and non-verbal cues of communication; and (c) convey equivocal information. However, as discussed above, people may consider a trust violation situation as embarrassing and that involving affect and hence prefer poorer and more task-oriented media for reconciliation. The confrontational nature of the trust reparation process is another reason why people would prefer less richer media as predicted by Short et al [23]. Based on this argument, the following is hypothesized.

Hypothesis 1:
Individuals are likely to achieve a higher degree of reconciliation following an untrustworthy behavior

when they receive clarifications from their opponents over a less rich media as compared to individuals communicated to, over a richer media.

2.2. Trust and Cultural Differences

Culture is to society what is memory is to self [26]. Culture forms the basis for guidelines and ways to think about self and social behavior. Typically, these guidelines are the ones that have been proved to be effective in the past. Individuals may use the guidelines when confronted with social situations. Some guidelines are universal while other not. Distinct patterns of social behavior are synonymous with cultural differences. For example, in India it is common practice to remove footwear immediately upon entering one's home while in the U.S. it may not be a common practice.

The significance of culture in researching trust violation and reconciliation arises from a basic tenet: culture shapes behavior [28]. Hofstede [13] proposed two broad dimensions for defining cultural differences: collectivism and individualism. People in the collectivist culture prioritize group welfare over the welfare of the self. Individuals are interdependent and develop strong and deep rooted ties with others. Individualistic societies tend to be independent in thought and action. The focus is more on the goals and accomplishment of the self rather than the group. Apart from subordinating their individual goals with those of the group, collectivists also tend to be concerned about the result of their actions on members of their group [26]. In individualistic societies individuals attempt to act in a way that is different from others. Being distinct is valued. In collectivist cultures, conforming to established social norms is a common practice. For example, Eby and Dobbins [11] studied 33 groups (a total of 148 participants) who were involved in a complex interdependent task of developing a marketing plans, schedules, raw material purchase, and sales strategies. Results showed that teams with members having a collectivist orientation exhibited high degree of cooperation which in turn affected their overall performance.

Ting-Toomey's [24] face negotiation theory needs to be visited here. In a conflict situation, such as breach of trust, the parties involved may be concerned with the following: (a) *self-face*; concern for own's image and, (b) *other-face*; concern for another's image. Cultural background influences which one of the above an individual may be more concerned with. For example, Ting-Toomey et al [25] compared face concerns of student from the U.S. (individualistic) with

those of students from China, Japan, South Korea and Taiwan (Collectivists). Results from this study showed that, with the exception of the Japanese, all students from collectivist countries showed more concern for other's-face. Whereas, students from the U.S showed more concern for self-face. To summarize, independence is associated with self-face whereas interdependence is associated with other-face.

When it comes to cultural research it is safe to consider country as the equivalent of a culture [27]. Hofstede [14] showed the distribution of several countries along the individualism collectivism continuum. The U.S., U.K., Australia, Denmark, Sweden, and New Zealand are rated as individualistic societies on this continuum. Countries including India, Singapore, China, Indonesia, and several east African nations are rated as collectivist in nature.

In the discussion above we have seen how culture affects social behavior. Trust violation, the desire to get even, and the role of remorse are part of human social behavior. The theories outlined in the preceding suggest that task oriented people from individualistic cultures may believe in equity and retaliation for wrong done to them. On the other hand, individuals from collectivist societies may aim at developing long term relationships and pay close attention to the explanations and apologies for wrong-doings. In other words, individuals from collectivist cultures may be more forgiving and willing to overlook trust violations as compared to individuals from individualistic cultures. Based on this argument, the following is hypothesized.

Hypothesis 2: Individuals from collectivist cultures are more likely to achieve higher degree of reconciliation following an untrustworthy behavior when they receive a clarification from their partners as compared to individuals from individualistic cultures.

3. Method

CMC may exist in several forms such as email, instant messaging, bulletin board, online blogs or WIKIs. The scope of this research is limited to synchronous communication such as instant messaging, telephone, or web conferencing.

Note that this is an ongoing research effort. Here, we report results from only one of the computer media conditions namely: text-based with study participants from two countries, namely U.S. and China,

representing individualist and collectivist cultures respectively.

We recruited 7 Chinese and 4 American graduate students. The Chinese have known to be collectivists, while the U.S. is an individualistic society [14]. Participants completed 30 rounds of a variant of Prisoner's Dilemma game [29] using an instant messenger software. Each participant first received an overview of the study and explanation pertaining to the informed consent. Each participant was paired with a confederate to complete the experiment. Participants, however, were made to believe that they were interacting with another participant recruited for the study. This allowed the experimenter to manipulate trust development and breach. The game used here is called Trust Game and is widely used in Economics research [9, 5, 4].

The Trust game is played by amongst two people one of whom is a sender and the other, receiver. All participants assume that they have \$40 per round for investment purposes. The sender initiates the game by offering to send some or all of the \$40 to the receiver via a text message using the instant messenger. Any money sent by the sender is tripled before the receiver receives it. The receiver then decides to return some of the money received in an attempt to develop trust. The game is illustrated in table 2 using a hypothetical offer. For the first 10 rounds, the confederate acts as the sender. For rounds 11-20, participant is the sender and for the last 10 rounds confederate is the sender, once again. For the example in table 2, the confederate acts as the sender.

Table 2. Trust game overview

Confederate sends (Sender)	Money sent is multiplied by 3x	Participant receives (Receiver)
\$10	→ \$30	\$30
\$15 Receives	←	\$15 Sends back
Confederate gains 15-10 = \$5		Participant gains 30-15 = \$15

Participants were asked to maximize their gains for each round. Also, to keep the game more interesting, participants were told that their remuneration for participating in the game would depend on how well they performed in the game. However, all participants

received the same remuneration regardless of their performance.

The confederate always adopted a set of pre-programmed offers regardless of participant's response. To simulate trust development, the confederate (sender) increasingly sent higher amounts for rounds 1-10. For rounds 11-20, the confederate (receiver) sent back smaller amounts to facilitate trust breach. At this point, the confederate and the participant were requested to chat via instant messenger and clear out any differences. Once, again the confederate was trained to send pre-scripted messages offering explanations for not sending back more money for rounds 11-20. Primarily, the confederate claimed to have not understood the game and hence sent back smaller amounts. The chat sessions ended with the confederate committing to cooperate in the remaining 10 rounds (rounds 21-30). For rounds 21-30 the confederate (sender) sent amounts as high as \$40, the maximum available for each round. We were more interested in the amount sent back by the participants for rounds 21 onwards because these amounts were used as a measure of reconciliation following trust breach in the previous ten rounds. In addition, we collected subjective measures from the participants at the end of rounds 10, 20 and 30. For example, one question asked the participant whether they perceive their opponent as trustworthy or untrustworthy. At the end of the experiment we asked the participants if they knew their opponent was a confederate.

4. Results

Figure 1 shows the average amount returned for each round by participants in the two cultural groups.

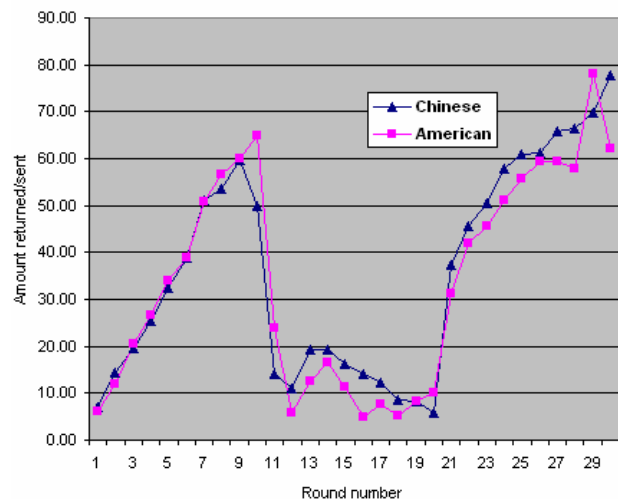


Figure 1. Average amount returned by participants

Note the amounts gradually increase in the first ten rounds representing steady development of trust and then drop down in the next ten rounds reaching close to zero representing trust violation. Following text-based communication with the confederate, the amount returned increase gradually once again representing reconciliation following trust breach. In particular, for rounds 21 onwards, note that the amount returned by Chinese participants is marginally more than the amount returned by American participants. Specifically, for the very first round (round 21) following breach of trust, the Chinese participants, on an average, sent back more money (\$37.29) than American participants (\$31.25). This provides some support to the claim made in the second hypothesis. However, one-way analysis of variance showed no significant differences ($F=0.028$, $p=0.87$) in the amounts returned for rounds 21 onwards for the two cultural groups. This could be because of the small sample size used in this preliminary study.

Table 3. Subjective rating of participants' perception of their opponent

	Average rating after round 10	Average rating after round 20	Average rating after round 30
Chinese	5.14	2.71	4.71
American	4.5	2.75	5

Subjective ratings of participants' perception of their opponents as trustworthy on a six-point scale (1=untrustworthy, 6=very trustworthy) are given in table 3. These ratings indicated that participants change their opinion about their opponent from trustworthy to untrustworthy and back to trustworthy over the course of 30 rounds. Once again, because of the small sample size the difference in ratings by the two cultural groups is minimal. None of the students suspected use of a confederate when asked at the end of the experiment.

5. Discussion

It can be seen from Table 3 that individuals appear likely to reinstitute trust following an untrustworthy behavior when they receive clarifications from their opponents. The effects of different media channels on trust restitution have not yet been tested, because of the small number of participants available for the preliminary study. Further experiments are in progress to investigate the effect of media conditions, e.g. text vs. video, that relate to Hypothesis 1.

Our preliminary findings indicate some support for Hypothesis 2. It appears that individuals from collectivist cultures may be more likely to reconcile differences because of explanations that clarify the reason for an untrustworthy behavior than individuals from individualistic cultures. But again the small sample size of our preliminary study prevents us from assessing whether this finding is significant. Research on a much larger sample of participants is in progress.

We simulated a breach of trust in a two-person game. The game is representative of several trust breach situations in a CSCW environment, especially those involving negotiation tasks. However not all trust-violation situations in CSCW environments may fall in this class. We will investigate other situations of trust violation and restitution in further studies.

Increased globalization has increased workforce diversity in organizations. Workforce diversity may cause parties with different backgrounds to rely less on cultural similarity [17] and more on interpersonal relationships. CSCW tools and techniques that support the reconciliation process may go a long way in repairing broken down trust and re-establishing interpersonal relationships. This research is a step in this direction. Most research in CSCW tends to focus on studies involving participants with very similar cultural backgrounds, or else the studies ignore cultural differences. By comparing trust restitution behavior across cultures in further studies, we may discover more "universals": those principles that explain the behaviors of individuals across societies and between contexts of action.

6. References

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