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Communication Media and Interpersonal History: Their Effects on Negotiation

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ABSTRACT

Employing media richness theory and social information processing theory, a model is developed and tested to understand the impact of communication media and bargainers’ interpersonal history on negotiation processes and outcomes. In a laboratory experiment, common multi-media combinations and the interpersonal histories of subjects were manipulated to examine their effects on task performance and on socio-relational perceptions of the process, communication environment, and outcomes. The results provide consistent support for media richness and social information processing theories and the research model. Richer media are perceived to facilitate increased levels of socio-relational cue support. Established dyads perceived the communication environment as more supportive of cues which engender cooperation regardless of the medium used for negotiation. They also experienced more conflict over the state of the relationship and less over the issues themselves than did zero-history dyads. However, the nature of the interaction depends on the richness of the particular communication setting.

KEYWORDS
Social Information Processing Theory, Computer-Mediated Communication, Media Richness, Negotiation

INTRODUCTION

Negotiation constitutes only a small part of all communications. However, this activity has an exceedingly large financial influence on an organization with respect to the acquisition of materials, services, and supplies. Successful negotiation does not happen in a social vacuum. Yet studies of communication media and decision-making generally have avoided the consideration of the influence of the potential effects of social cognition on bargaining processes and outcomes. The paucity of such research is troublesome given the conspicuous role which interpersonal relationships play in many negotiations (Morey and Luthans, 1991). More often than not, negotiating parties have developed a working relationship with each other prior to the introduction of any newly developed communication media into an organization. They also likely anticipate working with each other in the future beyond the incident of a particular negotiation session. This anticipation for future interaction has been shown to have an important influence on bargaining behaviors and attitudes (Purdy, Nye and Balakrishnan, 2000). Thus, in order to deploy successfully various communication media, it is an imperative that we broaden our understanding of their effects on the decision-making processes and outcomes of bargainers who have an established history of interaction with each other.

In this paper, a research framework is presented which investigates directly the impact of communication technologies on negotiators’ attitudes and decision-making outcomes and compares the results for bargainers who have an established interpersonal relationship with those who do not. The goal of the study is to contribute to the body of literature on media effects and to provide assistance to negotiators when making choices of use concerning communication technologies.

BACKGROUND

The negotiation process entails the communication of not only preferences but of values, attitudes, and affective messages which are conveyed through a variety of verbal and non-verbal cues. Crucial to the success of a negotiation is the ability of parties to interpret intent and meaning and to assimilate these into their decision-making frameworks (Putnam and Poole, 1986).

Media researchers have theorized that a lack of non-verbal cues reduces the richness of a communication medium and diminishes the “social presence” or intimacy which the medium provides. According to this line of thought, as the cues are filtered out, it becomes more difficult for communicating parties to effectively convey important context-building messages.
and behaviors. As a result, task performance will necessarily be diminished (Daft, Lengel and Trevino, 1987; Short, Williams and Christie, 1976). It has been posited that more restrictive media (such as the telephone) were inappropriate for the equivocal tasks of conflict resolution and persuasion (Hollingshead, McGrath and O'Connor, 1993).

However, the theorized effects of media on negotiation have not been fully empirically supported. Early negotiation research which focuses on the filtering out of verbal and non-verbal cues suggests that negotiation performance might actually suffer diminution in a rich communication environment. Negotiating parties seek several cue sources to provide evidence, real or imagined, as to the intent of the other party. For instance, aggressive gazing and a defensive body stance (e.g., crossed arms) by one party might serve to reinforce perceptions of competitiveness in the other. Several studies have found that the absence of visual cues might enable negotiators to focus on the issues at hand and not on the personalities (Sheffield, 1995; Rutter and Robinson, 1981).

The preexistence of an interpersonal relationship between negotiators might further confound the interaction between communication media and bargaining outcomes and attitudes. A Social Information Processing (SIP) perspective of communication posits that the social environment provides cues which individuals use to construct and interpret events (Salanick and Pfeffer, 1978; Walther, 1995). Communicators with an established interpersonal history possess prior knowledge of each other's behaviors, skills, and abilities. Two aspects of this knowledge are important. First, the prior knowledge enables more implicit and efficient forms of communication (Wilmont, 1987). Second, the prior knowledge enables the development of norms and rules by which to structure their relationship and decision-making (Sillars and Kalbflesch, 1989). Therefore, a communication medium which offers fewer cues might well not reduce the effectiveness of the interactions of people as long as the parties have developed a priori a working relationship with each other. Conversely, people who are meeting each other for the first time (zero-history) might be much more dependent on the existence of a multiplicity of cues to form favorable impressions of each other and to perform effectively together.

The equivocal findings of media-effects research on negotiation and the insights provided by SIP theory suggest that we know very little about negotiating the resolution of disputes via electronic media. This study extends the media and negotiation research by providing additional insight into the nature of the relationship between communication media and interpersonal history and of the effects which they exert on negotiation. The research hypotheses and rationales are presented in the following sections.

RESEARCH FRAMEWORK

In this study, both media and interpersonal history are manipulated to test their effects on the attitudes and performances of negotiators. The effects on objective and perceived outcomes are examined. The research framework can be found in Figure 1.

![Figure 1: Research Framework](image_url)

**Media Hypotheses**

The richness of the communication medium might affect the perceptions of the medium itself and of the negotiation process and outcome in the following manner. Effective bargaining depends on the exchange of sufficient credible information (Putnam and Poole, 1986). If it appears that received information is distorted or insufficient, then there is little basis on which to judge the intentions of the participants. Bargainers without a working history with one another may feel, for example, that the visual channel in the face-to-face condition allows them to accurately ascertain the intentions of the other party regardless of the actual accuracy of their observations (Rubin and Brown, 1975). Similarly, negotiators with an established relationship will likely have sociable, warm interactions which would be enhanced by the multiple and
reinforcing cues found in a face-to-face encounter. As the number of available communication channels decreases, the less able will be the bargainers to correspondingly perceive the communications environment as supportive of relational cues (Hollingshead et al., 1993).

Leaner media offer fewer structural capabilities to support information sharing (Valacich, George, Paranka and Nunamaker, 1993). Consider that computer-mediated communication has been demonstrated to take significantly longer than communication via face-to-face or via telephone (Purdy et al., 2000; Poole, Shannon and DeSanctis, 1992). Technical issues also can limit the development of rapport (Drolet and Morris, 1995; Wilson, 2003), diminish the perceived influence of parties over one another (Dorado, Medina, Munduate, Cisneros et al., 2002), and increase rates of impasse in the negotiation process (Moore, Kurtzberg, Thompson and Morris, 1999). Thus, the fewer communication cues permitted by the medium, the lower will negotiators evaluate their satisfaction with the process and outcome. These factors lead to the following hypotheses.

**Hypothesis 1:** The communication environment will be perceived as less capable of conveying relational cues as media richness decreases.

**Hypothesis 2a:** Satisfaction with the process will decrease as media richness decreases.

**Hypothesis 2b:** Satisfaction with the outcome will decrease as media richness decreases.

**Interpersonal History Hypotheses**

Empirical research on SIP theory and communication media indicates that perceptions of a medium’s “leaness” might not be uniform across all populations. Specifically, there is some evidence that people possessing an established relationship might perceive the supposedly leaner media as being more effective for communication than do those who share a zero-history. Walther (1995) found that the socio-relational richness of communications via “lean” media can be increased over time as individuals develop an interpersonal and working relationship. The intimacy helps parties to develop more implicit and efficient forms of communication (Sillars and Kalbflesch, 1989). Thus, it is suggested that negotiators with an established history will perceive communication environments as better able to convey socio-relational cues than do negotiators with zero-history. This leads to the hypothesis:

**Hypothesis 3:** Negotiators with an established history will perceive the communication environment across all media as better able to convey relational cues than those with zero-history.

The literature provides evidence that satisfaction with the negotiation process should be greater for bargainers enjoying an established relationship than for those who do not. It has been found that negotiators with a favorable interpersonal history tend to rate each other’s behaviors and intentions more positively. This solidarity leads them to evaluate their partners more highly, exchange more information, give a greater number of emotional responses, and rate themselves as less dissatisfied with bargaining outcomes (Benton, 1971; Morgan and Sawyer, 1967). These factors suggest the following hypotheses.

**Hypothesis 4a:** Negotiators with an established history will be more satisfied with the process across all media than will those with zero-history.

**Hypothesis 4b:** Negotiators with an established history will be more satisfied with the outcome across all media than those with zero-history.

**Hypothesis 5:** Negotiators with an established history will experience less conflict over issues across all media than those with zero-history.

One serious consequence of familiarity is that conflict over content issues can escalate into disagreement over the conduct of the relationship itself. Relational issues (such as who is in control) can surface during the discourse about substantive issues (such as who will work overtime to finish the reports). Bargainers with zero-interpersonal history tend to be less encumbered about concerns over the future state of the relationship, and disagreements about content issues are less likely to spill over into tangential relational issues (Altman and Taylor, 1973; Sillars and Kalbflesch, 1989). Thus:
Hypothesis 6: Negotiators with an established history will experience more relational conflict across all media than those with zero-history.

Media – History Interaction

There is evidence that the cooperative orientation of bargainers with an established history may achieve less than optimal outcomes. “One of the potential pathologies of an otherwise beneficial, mutually cooperative relationship is the possibility that cooperators, in their concern with taking the role of the other, may develop and act upon incorrect expectations about the other's preferences and intentions, and the result may be mutually detrimental mis-coordination” (Rubin & Brown, 1975, p. 272). The preservation of the relationship means more than the rewards from a single transaction. Thus the parties often try too hard not to take advantage of each other, the result being poorer outcomes (Schenitzki, 1963; Halpern, 1994).

The obstacles frequently encountered by bargainers with zero-interpersonal history are exactly opposite to those of bargainers who are known to each other. Without the prior establishment of a familiar and trusting relationship, bargainers tend to approach the negotiation with a competitive orientation (Thompson and Hastie, 1990). The potential aggressiveness of bargainers who are unfamiliar with each other might only be accentuated as the availability of communication cues increases. Richer media enable already competitive bargainers to reconfirm that the other party is indeed “out to take” him/her (Lewis and Fry, 1977; Carnevale, Pruitt and Seilheimer, 1981).

Under conditions of high conflict, the presence of a barrier tends to enable bargainers who do not know each other to focus on the issues and not on the personalities (Wilmont, 1987). An elimination of the visual and other reinforcing behavioral cues offered by a very rich medium might allow negotiating strangers to more readily explore opportunities to their joint benefit. It is expected, on the other hand, that negotiators with an interpersonal history will remain hampered by conflict of relational and substantive nature. Thus, it is posited that negotiators with zero-history, under conditions of leaner communication, might actually surpass established dyads in their performance. These factors lead to the following hypotheses.

Hypothesis 7: There will be an interaction between interpersonal history and media richness for negotiation outcomes.

Hypothesis 7a: Negotiators who have an established history will have better outcomes than those with zero-history when bargaining face-to-face.

Hypothesis 7b: Negotiators who have an established history will have poorer outcomes than those with zero-history when bargaining in the VideoPhone, telephone, and computer-mediated modes.

METHODOLOGY

Experimental Design - This study examines two variables -- 1) the presence of an interpersonal history between communicators and 2) media richness, or the number of communication and coordination cues afforded by the medium. The design of the experiment can be seen in Table 1.

<table>
<thead>
<tr>
<th>Interpersonal History</th>
<th>Communication Media</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Face-to-Face</td>
</tr>
<tr>
<td>Established History</td>
<td></td>
</tr>
<tr>
<td>Zero-history</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Experimental Design

Subjects consisted of 690 upper-level undergraduate students enrolled in introductory speech communication and information systems classes at a mid-western university. Subjects received course credit for their participation. The technique used in this study to form dyads with an interpersonal history is the same manner as that used by psychologists studying relationships. Subjects were asked to bring a friend to the session. A pre-session questionnaire, Wheeless’ (1978) measure of interpersonal solidarity, was used as a manipulation check to ensure that there existed a continuing personal relationship in the established pairs.
**Media Conditions** - The media chosen for this study provided a range of support for audio and non-audio communication. Face-to-face communication allowed the greatest amount of both types of communication. The telephone was selected because it isolates audio communication. The VideoPhone was a unique medium which delivered both verbal and non-verbal communication through the video display. It consisted of a telephone set to which was attached a 3" x 3" flip-up video display. The computer-mediated mode via electronic chat was chosen to allow synchronous, text-only communication.

**Task** - The particular task employed in this study is one which has been used to study conflict in information systems and in negotiation research and was chosen because the quality of the outcome could be established objectively. Parties negotiate four issues of a three-year contract for the purchase of engine parts. Other important characteristics of the task include: 1) parties are joined together in a voluntary relationship and are able to push for a possible agreement or they are able to dissolve the relationship by accepting an alternate default contract with another vendor; 2) the activity focuses on the resolution of one or more tangible or intangible issues; 3) the activity involves the sequential exchange of offers and counter-offers, and 4) it is designed so that subjects could consider tradeoffs on several issues simultaneously.

**Procedures** - To ensure procedural consistency, the experimenter followed a script. Upon arrival at the experimental session, subjects were assigned randomly to a communication medium treatment. Face-to-face bargainers were positioned fifteen feet distant from one another. Before engaging in the task, subjects were asked to fill out a consent form and a pre-session questionnaire which directed them to answer background questions and the interpersonal solidarity questionnaire. Subjects in a technology treatment were provided with instructions on the use of the equipment. Subjects then were given the task and received time to request clarifications. The subjects had scratch paper and a pencil with which to make calculations during the session. The subjects were given as much time as they needed to come to an agreement. A deadlock meant that they must each take his/her alternative contract. When subjects signaled that they were finished, they were instructed to complete a post-session questionnaire.

**Measures**

**Objective Measures of Performance**

**Joint Outcome** - Overall success of the negotiation session was measured by joint outcome. The points achieved by both parties in the final contract were added together. If they failed to reach an agreement or voluntarily decided to opt out of the relationship, the joint outcome was equal to the sum of the alternative contracts for the parties.

Contract Balance - While joint outcome measured the overall success of the negotiation session, it was a biased measure in that one member of a dyad might have been much more successful than the other. The balance score was the absolute value of the difference between the total points for the buyer and the total points for the seller. The smaller the difference, the more balanced the contract.

**Process Measures**

Burgoon and Hale (1987) have identified and validated seven distinct but interrelated message themes which are central to the definition of interpersonal relationships. The seven dimensions through which people define their relationships and exchange messages concerning them are: 1) affection, 2) composure, 3) dominance, 4) equality, 5) formality, 6) similarity, and 7) trust. The original Burgoon and Hale scale was altered so that the questions elicited responses about the ability of the communication environment to facilitate or to hinder the particular behavior or attitude. The coefficients of reliability were: affection (.81), composure (.80), dominance (.70), equality (.70), formality (.75), similarity (.79), and trust (.76). Low scores indicate a more positive evaluation of the communication environment.

Satisfaction with both the outcome and the process was assessed using scales developed by Green and Taber (1980). These scales have been used extensively in information systems research on group support systems and communications media. Their coefficients of reliability were .85 and .80 respectively. Low scores indicate greater satisfaction. The measures used to assess the degree of interpersonal and issues-based conflict came from Miranda and Bostrom (1993). These scales have had reported coefficients of reliability of .84 for issue-based conflict and .80 for interpersonal conflict. Low scores indicate low perceived conflict.

Information on academic performance was collected to check for outcome differences as a result of motivation (e.g., low bargaining outcomes associated with less-capable students). Information was also collected on subjects' typing ability and experience with electronic mail. The role to which a person was assigned was run as a covariate.
RESULTS

The t-test which was run to determine whether the requirement to bring a friend was a successful manipulation indicated that the established and zero-history pairs were different according to Wheeless' interpersonal solidarity measure ($t=25.59, 672$ d.f., $p<.001$). Several analyses of variance were run to test the effects of the independent variables (media and history) on the independent measures. There were no significant differences found for the background variables and for the roles to which people were assigned. The analyses were run a second time to increase the power of the tests. These results are presented in Table 2. The attitudinal variables are reported at the individual level. Results for outcome balance and joint score are reported at the group level.

Hypothesis 1 posited that as richness decreased, so also will decline perceptions of the ability of the medium to convey socio-relational cues. There is a significant main effect found for all dimensions of relational communication -- affect, composure, dominance, equality, formality, and trust. Post hoc Scheffe tests were run to examine where the significant differences existed. The results of the tests can be found in Table 3 and are described below.

**Affect** - Face-to-face (FTF) pairs rated the environment more positively than for all other media, followed by the VideoPhone, the telephone, and the computer. The telephone and the computer environments were not significantly different from each other.

**Composure** - FTF and computer environments were rated more positively and were different from the VideoPhone and telephone conditions. The VideoPhone and telephone were significantly different also.

**Dominance** - The FTF, telephone, and VideoPhones were considered equal, and were rated more positively than the computer condition.

**Equality** - The FTF and computer conditions were evaluated more favorably and significantly different from the VideoPhone condition and telephone condition.

**Formality** - The FTF and VideoPhone environments were assessed more favorably and significantly different from the other environments.

**Similarity** - The FTF condition was ranked highest and was significantly different from all other conditions.

**Trust** - The FTF condition was evaluated more favorably and significantly different from the VideoPhone and other environments.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Effect</th>
<th>Prob F</th>
<th>Outcome</th>
<th>Effect</th>
<th>Prob F</th>
</tr>
</thead>
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<td>.70</td>
<td>Issue Conflict</td>
<td>History</td>
<td>.09</td>
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<td></td>
<td>Media</td>
<td>.00*</td>
<td></td>
<td>Media</td>
<td>.00*</td>
</tr>
<tr>
<td></td>
<td>History*Media</td>
<td>.52</td>
<td></td>
<td>History*Media</td>
<td>.02*</td>
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<tr>
<td>Composure</td>
<td>History</td>
<td>.05*</td>
<td>Relational Conflict</td>
<td>History</td>
<td>.00*</td>
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<td>Media</td>
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<td>History*Media</td>
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<td>Process Satisfaction</td>
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<td>Outcome Satisfaction</td>
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<td></td>
<td>History*Media</td>
<td>.32</td>
</tr>
</tbody>
</table>

* significant at .05 level

Table 2: ANOVA Results
There are no differences among media for perceived satisfaction with the outcome. However, there are reported differences for satisfaction with the process. *Post hoc* analysis indicates that the differences are caused primarily by the telephone condition, it being rated lower than the other media conditions. Hypothesis 2 is only partially supported.

Hypothesis 3 posed that an existence of a prior relationship between negotiating parties will affect their perceptions of the communication environment. Established pairs who negotiated evaluated all media higher for their ability to convey socio-relational cues than did those with zero-history. The hypothesis is supported on the dimensions of composure, similarity, and trust.

<table>
<thead>
<tr>
<th>Affect</th>
<th>F 13.74</th>
<th>V 16.03</th>
<th>T 17.53</th>
<th>C 18.02</th>
<th>Sat. w/Process</th>
<th>C 2.28</th>
<th>V 2.34</th>
<th>T 2.34</th>
<th>1 2</th>
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<table>
<thead>
<tr>
<th>Composure</th>
<th>C 8.86</th>
<th>F 9.23</th>
<th>V 10.28</th>
<th>T 10.58</th>
<th>Sat. w/Solution</th>
<th>F 2.28</th>
<th>V 3.65</th>
<th>T 3.61</th>
<th>1 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dominance</th>
<th>F 21.96</th>
<th>V 21.98</th>
<th>T 22.17</th>
<th>C 23.41</th>
<th>Interaction Means</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>Zero-History</td>
<td>F 34.06</td>
<td>V 37.81</td>
<td>T 37.00</td>
<td>C 37.79</td>
<td>Value</td>
<td>86</td>
</tr>
<tr>
<td>Established History</td>
<td>F 35.39</td>
<td>V 34.84</td>
<td>T 36.67</td>
<td>C 37.13</td>
<td>Level</td>
<td>86</td>
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<table>
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<tr>
<th>Equality</th>
<th>C 7.52</th>
<th>F 7.88</th>
<th>V 8.53</th>
<th>T 9.02</th>
<th>Interac</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>F = FTF</td>
<td>V = VideoPhone</td>
<td>T = Telephone</td>
<td>C = Computer</td>
<td>All groups</td>
<td>different at .05</td>
<td>Value</td>
</tr>
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<table>
<thead>
<tr>
<th>Similarity</th>
<th>F 10.97</th>
<th>V 12.36</th>
<th>C 12.58</th>
<th>T 13.30</th>
<th>Key:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Trust</th>
<th>F 15.45</th>
<th>V 17.56</th>
<th>C 19.36</th>
<th>T 20.10</th>
<th>Level</th>
</tr>
</thead>
</table>

Table 3: Homogeneous Subgroups and Treatment Means

In Hypothesis 4, it was put forth that negotiators with an established history will experience greater satisfaction with the process and outcome. This hypothesis is not supported.

There is an interaction between the communication medium and the history of the dyad with respect to issue-based conflict (see Table 3). In the face-to-face condition, people with an established history reported more issue-based conflict than did those with zero-history. For the other conditions, they reported less issue-based conflict, particularly in the VideoPhone condition. Hypothesis 5 generally is supported.

Hypothesis 6 posited that negotiators with an established relationship will experience a greater degree of relational conflict across all media than will pairs unfamiliar with each other. Hypothesis 6 is supported.

Hypothesis 7 predicted an interaction between the communication medium and the interpersonal history of the dyad on objective measures of performance. There are no significant differences for the media and history manipulations on the outcomes (joint score or balance) of the negotiation sessions. Hypothesis 7 is not supported.
DISCUSSION

The results of the research presented here indicate that negotiators who have an established history of working together can consider and use the same technology differently than those without any past history. It also is clear that, regardless of interpersonal history, negotiators evaluated media as being more supportive of some relational behaviors than of others.

Negotiators rated the media which provided a visual channel as more supportive of many of the relational behaviors concerning the development of cooperation. The FTF and VideoPhone media were ranked highest for their capability to facilitate parties to demonstrate affection, similarity, and trust. Each of these conditions makes an important contribution toward the resolution of conflict. Relational communication concerning position and status was reported as being best supported by either the FTF or computer condition. These are the media which provide respectively the greatest number and the fewest number of communication cues. Communicators who sat opposite each other could manipulate their positions to a greater degree through body stance, facial expression, and verbal tone. The computer condition created an even playing field by causing the interaction to occur in text form, thereby denying the utilization of many substantial status cues.

Negotiators with an established history reported a more supportive communication environment for composure, similarity, and trust. Two of these three represent the cooperative/affective aspect of the interaction. The prior notion is supported which suggests that people with established relationships develop implicit forms of communication and, in turn, can provide each other with more effective forms of communication even in a restricted environment. There were no differences in the quality of the outcomes across media or history. However, it seems apparent that if socialization were not effectively supported, it would be difficult for people to develop long-term cooperative relationships if that relationship has not already been established. This study suggests that face-to-face meetings still will be necessary means by which to establish trust.

Consistent with prior research, negotiators with an established relationship reported greater levels of relational conflict when forced to confront issue conflict in the task. This suggests that content issues were conflated with relationship issues during decision-making. The level of issue-based conflict reported in the FTF condition suggests that the additional communication cues caused established pairs to sense the conflict more intensely than did those with zero-history. The implication is that, for negotiators with a history, perhaps conflict is best resolved in more restrictive communication environments. For people unfamiliar with each other, only the face-to-face condition lessened the impact of the issue conflict, and reaffirms the notion that a fuller range of socio-emotional cues is necessary to establish trust.

As with all controlled experiments using students, generalization of the findings is limited. Furthermore, the subjects were available only for a restricted period of time. It was not possible to examine attitudes and performance with repeated use of media over a long span of time. Nevertheless, we believe that the results reported here provide insight into the effect which the communication environment (the technology) has on the resolution of conflict and on the importance of relationship- and trust-building. This study should also provide a basis for future extensions of this research.

REFERENCES