Collaborative and Competitive E-negotiations: An Analysis of Communication Modes on Concessions

Eva Chen

InterNeg Research Centre, Concordia University, Montreal, Canada

Abstract

It is often said that: "communication is key". This is especially true in negotiations. As negotiators exchange information, through offers and/or messages, they inadvertently or purposefully reveal their preferences, intentions and even social perspectives to each other. The information revealed can be constructive by helping parties arrive at a mutually favorable solution, or it can be destructive by contributing to conflict escalation and communication breakdown. This study examines the different communication features of an ENS, in terms of information presentation as offers and/or messages, used by negotiators with different social motivations. Specifically, we look at how collaborative and competitive dyads negotiate with offers, offers with messages and message communication on a multi-issue case, in a laboratory setting. Our findings suggest that collaborators who use offers are more likely to make destructive concessions, but messages leads to integrative concessions. However, competitors who focused on messages are more prone to make destructive concessions, and communication based on offers with messages allows for integrative concessions.

Keywords: Electronic negotiation system features, communication mode, collaboration, competition.

Acknowledgments: The publication of the InterNeg Research Papers has been supported by the Natural Sciences and Engineering Research Council, the Social Sciences and Humanities Research Council, and the J. Molson School of Business, Concordia University.

1. Introduction

Electronic negotiation systems (ENSs) are created to enhance online trading involving complex transactions of goods and services (Kersten et al. 2004). They reduce transaction and coordination costs often associated with face-two-face negotiations, they allow for greater participation in the marketplace, and thus foster economic growth (Guttman et al. 1998). Governments and financial institutions have a vested interest in research associated with electronic exchange systems as these systems have regulatory and transactional implications on the market infrastructure (Bakos 1998).

From the economic literature, inter-firm relationships have been assumed to be based on transactions that are the result of loose collections of self-interested firms, who uphold impersonal, arm's length ties, and constantly shift to new exchange partners to capture market gains generated by new comers and avoid commitment or social attachments. However, the concept that economic actions are embedded in social structure has gained popularity with organization theorists, who consider that not all economic actions necessarily occur in competitive markets, but that some take place in stable networks of exchange partners with whom there exist close social relationships. Case studies of supply chain partnerships have shown that trust and personal ties are far more valuable than explicit contracts that require high monitoring costs. Firms sacrifice immediate gains in the market for long-term relationships that lead to future economic opportunities provided by network alliances (Malone et al. 1987).

The notion of embeddedness, by which firms depend on each other to exist in the market, lends to different inter-firm relationships that can be described as strategic alliances characterized by exchanges that promote integrative agreements. These relationships are very different from the first conceived notion of arm's-length ties that center on self-serving goals to squeeze the most out of the other party. Embeddedness introduces different relationships that are the result of different goals underlining the logic of exchange, whereby networks are typified by collaborative members focused on maximizing the benefits for the dyad, versus markets that are characterized by competitive members seeking only to maximize their revenues at each transaction (Uzzi 1997).

As research on electronic markets shows that not all relationships between trade partners are purely competitive, this study aims to examine how market participants with different motivations use ENSs to make concessions and arrive at superior joint gains. A laboratory experiment involving 94 undergraduate business students is used to investigate the research objective. The participants are induced to negotiate following either a collaborative or competitive orientation with three different communication formats (offer, message and offer with message templates). Their negotiation transcripts are analyzed for usage and different concessions made (integrative, distributive and destructive) in relation to their joint gains.

2. Literature Review

2.1 Motivational Orientation

The core paradigm underlying behavior analysis in negotiation is that individuals behave according to their motivation. Thereby they develop a motivational orientation, which guides their strategies and drives their behavior towards resolving the conflict (Kilmann and Thomas 1977). The study of motivational orientation began with Deutsch (1949), who suggested that managers should analyze conflict styles (i.e., approaches) based on two axes: concern for self interest and concern for other party's interest. This dual concern model maps five conflict styles depending on the degree of concern, as shown in Figure 1. These orientation are: *competing*, which reflects individuals who are focused on dominating the distribution of resources; *collaborating*, which depicts individuals who strive to maximize the gains of all parties searching for new value opportunities; *accommodating*, which represents individuals who see the sacrifice of their own outcome to please the other; *compromising*, which relates to individuals who focus on splitting the difference; and *avoiding*, which shows individuals who withdraw from the conflict and wish to not confront with other party. These approaches have been assessed in various research fields (Womack 1988) from clinical psychology (Bordone 2000) to IS project management (Barki and Hartwick 2001).

From an economic context, game theorists ascertain that people behave along two poles, from the competitive extreme as in "zero-sum games" to that of cooperative (i.e., collaborating) as in "nonzero-sum games" (Schelling 1960). The discord between the two fields pertains to the bargaining situation. In a study of over 1600 global executives, Shell (2001) found that competitive and collaborative orientations are mostly exhibited in a trading environment, where people actively engage in the bargaining process. Moreover, in a business setting, a competitive approach reflects not only concern for self interest, but also dominance over competitors, suppliers and customers (Porter 1980). On one hand, the aggressive nature of e-negotiations engenders biases that lead to competitive behavior (Delaney et al. 1997). Competitors exhibit over optimism about the likelihood of achieving favorable outcomes, reactively devaluate actions of the opponent (i.e., they see their concessions as being greater than those of the other), and falsely assume that preferences are incompatible such that excess gains made by the other party are harmful for them (Bazerman et al. 2000). On the other hand, the marketplace also enables cooperation pinned by the underlining assumption that "my survival is dependent or yours", whereby one can only attain a favorable agreement if one makes an offer that creates value for the other (Sebenius 1992).

From a behavioral perspective, individuals are motivated to behave depending on their preference structure, which is an aggregate between self gains and those of the other. They can be **collaborative**, when they favor the enlargement of both their and the other's value or **competitive**, when they seek to extend their shares while preventing the other party from expanding (Rubin and Brown 1975). At present, there is little research in the area of motivational orientation and ENS, but face-to-face negotiations have shown that different orientations generate different outcomes depending on the orientation of the other party and the context (degree of conflict, possibility of expanding the problem, etc) (Bazerman et al. 2000). As knowing the bargaining approach is essential to evaluating the negotiation situation, researchers recommend that knowing the negotiator's orientation will serve to provide better support for negotiators on-line (Kersten and Lo 2001).

2.2 ENS Mediating Communication

In negotiation, communication allows the (1) coordination of outcomes, (2) exchange of information, (3) expression of strategic action, and (4) identification of patterns or regularities of behavior (Putman and Jones 1982). The information communicated reveals the preferences, intentions and social perceptions of the participants, and defines the process that eventually shapes the outcomes (Rubin and Brown 1975). Hence, the interest in communication through ENS has been the focus on many studies, which seek to describe and predict the outcomes related to different types of communication (Foroughi 1995).

Social presence theory (Short et al. 1976) and media richness theory (Daft and Kengel 1986) have been extensively employed to examine the ENS medium most suitable for different negotiation tasks. The social presence theory describes the ability of the communication medium to convey social cues that improvement understanding of the information transmitted. Likewise, media richness theory refers to the complexity of information transmitted in relation to the ambivalence or uncertainty of the task. The combination of both theories points to the value of face-to-face communication in conveying important social, visual and other cues, which are essential to effectively reaching an agreement in complex, multi-issue negotiations.

Empirical studies using both theories (Suh 1999; Mennecke et al. 2000; Purdy et al. 2000) show that, although a richer media reduce effort (e.g., time required and number of offers), joint outcome does not differ among the media text, audio, video or face-to-face, with the exception of Croson (1999). In Croson's study (1999), email required more time for communication, but it provided higher joint outcomes by reducing social cues that appeared to cause greater conflict for face-to-face negotiators. In order to expand on the theory, different conflict levels were introduced in the task as a moderator between ENS and objective outcomes (e.g., joint outcome and number of agreements). The results from Sheffield (1995) demonstrated that negotiators in lower levels of conflict benefit from increase medium richness. Specifically, collaborative negotiators obtained higher joint gains when they could see their counterpart because they benefited by building trust from social cues. However, competitors reached lower joint gains as visual presence only distracted them from the negotiation task. When the level of conflict was varied within competitors (i.e., the level of conflict among negotiation issues), the findings from Foroughi et al. (2001) suggested that high conflict situations required competitors to use a richer medium to increased joint gains.

Using repeated measures, video, audio and text media were compared to assess their impact on subjective variables (Yuan et al. 2003). The findings point to equivalency between video and audio, both of which are superior to text in terms of evaluation of efficiency and effectiveness of communication medium. Perhaps the difference rests more on the characteristic of the medium rather than the type, as video and audio provide immediate feedback as opposed to necessary delays imposed by text-based communication. When comparing synchronous and asynchronous text-based communication, Psendorfer and Koeszegi (2006) found that uninhibited and competitive behaviors were more present in synchronous dyads, and affected their assessment of discussion climate and outcome satisfaction.

Overall, an increase in media rich does reduce effort but it does not necessarily lead to increase gains, because the relationship maybe moderated by conflict intensity embedded in the context. The intervals

between messages appear to have a greater effect than the richness of the message conveyed, lending partial support for media richness theory. As these studies span over ten years, the change in people's abilities, habits and perceptions of electronic communication may contribute to the discrepancy among studies.

Although social presence theory and media richness theory provide some insight the medium of communication, very little research deals with the format and structure of communication implemented by ENS. Specifically, the templates used to capture information can be restricted to numeric values or be broadened to text-based communication. Three widely used formats in ENS studies are:

1. Offer package box, in short **offer**, sets the parameters for issues and options. The user needs only to select the parameters that best define their preferences for issues and proposes these to the counterpart. In Fig. 1, an example illustrates an offer that is based on the negotiators selection for delivery time, discount terms and financial terms.
2. Message box, in short **message**, allows text-based information to be conveyed, without the limitations set by the parameters of an offer. The users write text into a box template that is sent to the counterpart. An example of a message sent by a negotiator is depicted in Fig. 2.
3. **Offer with message** combines the parameters of the offer with text-based communication. The user makes an offer from the set parameters and writes a text associated with the offer. In Fig. 3, a screenshot shows the feature of offer with message.

The format of communication in terms of system features has been examined in a study that involved collaborative and non-collaborative negotiators use these features very differently. Based on cluster analysis of motivational orientations, Lai et al. (2006) classified negotiators into collaborative and non-collaborative individuals. The collaborators send more messages, which led them to report that using the system permitted them to feel in greater control of the process and to achieve more agreements than the non-collaborators. However, the quality of the agreements was not measured. Building on this work, the integration of motivational orientation and system communication features can provide a better understanding of usage and how it contributes to superior joint gains.

HYPERFLIC's offer: 2009-11-13 20:28:08(GMT)

Issue	Option
Delivery time	0 days
Discount terms	10%
Financial terms	0%

Your profit for this offer: 0

Fig. 1. Example of an offer

HYPERFLIC's(you) message: 2009-11-20 18:43:49(GMT)

oh
ok, gimme a second to see if I can come up with something that gives us a lower than 50,000 expense. If not, we should settle on the 50/50.
I'll respond in like 2 mins with a possible offer. If its no good,
let's go 50/50

Fig. 2. Example of a message

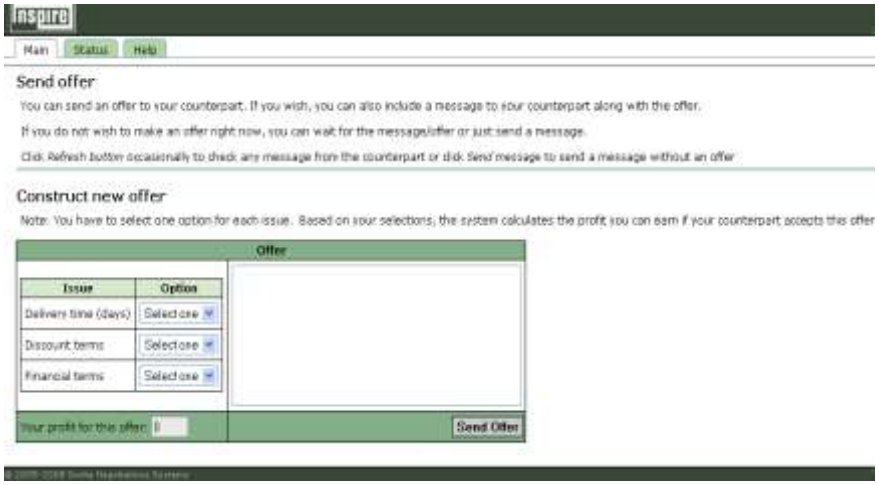

Fig. 3. Screenshot of an offer with message feature

2.3 Concession

Negotiation is a process by which parties with conflicting preferences exchange information in hopes of reaching an agreement. It requires that parties cooperate on building a solution and compete to secure the distribution of resources. Concession is a movement made by one negotiator as a magnitude of the difference between the last offers proposed (Vetchera 2007). These movements are evaluated based on the last offer, and they can be classified accordingly:

1. **Integrative concession**, or win-win, allows both parties to increase their value based on the last offer. The idea of integrative movements is based on activities that enable mutual gains through the creation of value (Lax and Sebenius 1986). Fig. 4 depicts an offer A on the table, followed by which an offer A' is proposed in the II quadrant of the graph in relation to the values of both negotiators. The change from A to A' permits both sides to increase their value, and thus any movement from A to a point in the II quadrant is an integrative concession.
2. **Distributive concession**, or win-lose, relates to an increase of value for one side but a decrease for the other. Distributive concessions are the norm expected by negotiators, where the benefit for one party means a loss for the other (Raiffa 1982). In Fig. 4, any movement from offer A to A' in the quadrant I or IV is a distributive concession. Specifically, a change to quadrant I gives more value to Negotiator B, while reducing value to Negotiator A. However, a change to quadrant IV allocates more value to Negotiator A by diminishing that for Negotiator B. Lax and Sebenius (1986) refer to such movements as one negotiator claiming value over the other.
3. **Destructive concession**, or lose-lose, represents a decrease in value for both negotiators. As the preferences of the counterpart are unknown, a decrease in benefit for one side can cause also a decrease for the other side. Fig. 4 illustrates this movement from offer A to A' in the III quadrant.

Most discussions on negotiation activities revolve around the concepts of creating value and claiming value, such as with integrative and distributive concessions. Nevertheless, in multi-issue negotiations, where parties can have dissimilar preferences, destructive concessions are also possible when both sides are exchanging offers and trying to discover each other's preferences.

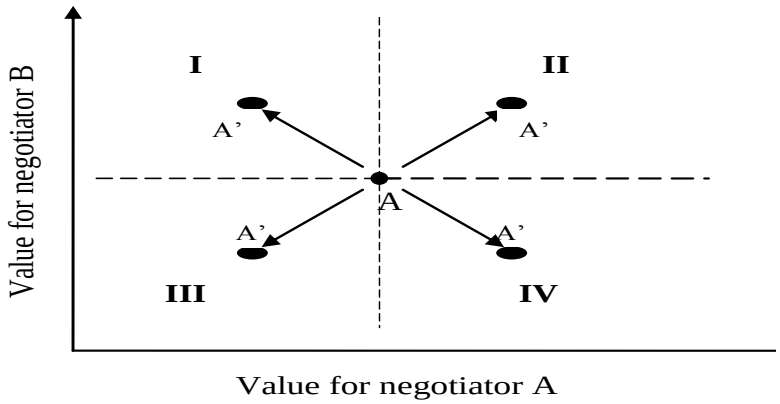

Fig. 4. Concession types: Integrative (II), distributive (I and IV) and destructive (III)

3. Research Model and Hypotheses

The research model attempts to understand how collaborative and competitive dyads reach higher joint gains using ENS. Fig. 5 shows the interaction between motivational orientation (collaborative and competitive) and communication modes (offer, message and offer with message) to produce different types of concessions (destructive, distributive and integrative) that eventually influences joint gains.

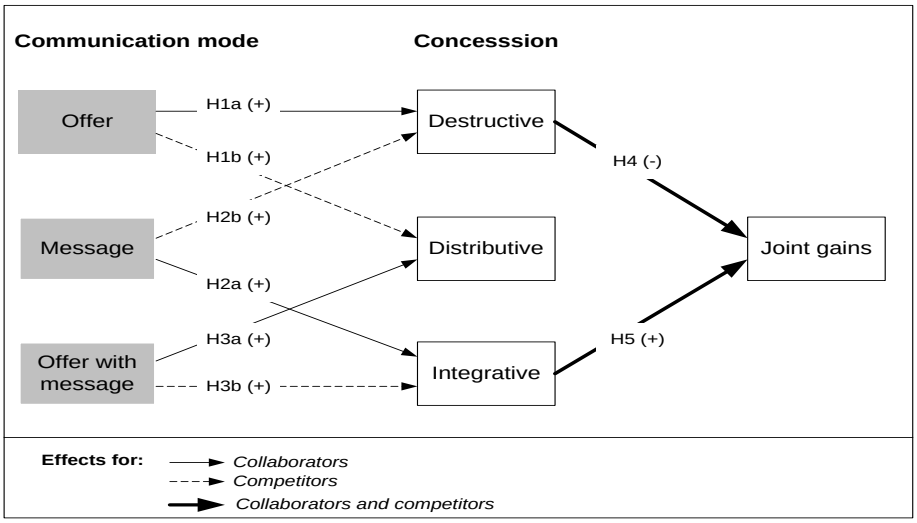

Fig. 5. Research framework

3.1 Hypothesis Development

The hypotheses are founded on the characteristics of collaborative and competitive negotiations. In collaborative negotiations, the dyads easily find common ground and reach a consensus, but they often concede to position that they believe are beneficial for the other side

(De Dreu et al. 1995). In order to circumvent such calamity, negotiators need to exchange explicit information on their preferences. Olekalns and Smith (2003) found that when collaborators engaged in proposal modification, such as offers, they reached inferior joint gains. In fact, offers contain explicit information about positions and not the interests or preferences of the negotiators, such that both sides are in the dark on mutually beneficial solutions. The following is proposed:

H1a: Offers will allow for destructive concessions for collaborators.

Conversely, messages allow preferences to be expressed that may lead to discussions on overall cooperation or preferences of issues. Therefore, messages can convey their preference structure and lead to integrative concessions. Lai et al. (2006) found that collaborators who sent more messages during negotiation achieved a higher rate of agreement. Therefore, the subsequent hypothesis is made:

H2a: Messages will lead to integrative concessions for collaborators.

Offer with messages allows only preferences to be expressed relative to the offer proposed, which may not lead to discussions on interests or preferences of issues. For collaborators, this mode of communication was found to be more informative than simple proposal modification, but not enough to create integrative concessions (Olekalns and Smith 2003). The following is proposed:

H3a: Offer with messages will lead to distributive concessions for collaborators.

For competitive dyads, the difficulty is cooperation. They generally have no problem holding firm to their position, but they are less willing to forgo gains. Yet, by and larger, the agreements that they obtain have higher value than collaborative dyads because they have pushed each other to efficient solutions (De Dreu and Beersma 2006). As competitors are less implied to forgo large potential gains, offers lead to distributive concessions. Therefore, the following hypothesis is made:

H1b: Offers will permit distributive concessions for competitors.

Contrary to collaborators, messages by competitors are not employed to discover each other's preferences. Messages are used for positioning and even intimidation (Olekalns and Smith 2003). Messages can cause contention and escalation of conflict, whereby each party is preoccupied by explaining their position and not proposing solutions for a settlement. The following is proposed:

H2b: Messages will allow for destructive concessions for competitors.

Given competitors' resistance to concede, offer with messages allow positioning while explaining their preferences relative to the position. Olekalns and Smith (2003) found that competitors who stated their position (through an offer) with an explanation of preferences relative to the position (with an accompanying message) were more successful at obtaining higher joint gains. The subsequent hypothesis is proposed:

H3b: Offer with messages will promote integrative concessions for competitors.

As joint gains are the results of an agreement between the two parties, integrative concessions are likely to increase joint gains but destructive ones promote decrease in joint gains for collaborative and competitive dyads. The hypotheses on joint gains are as follows:

H4: Destructive concessions will lead to lower joint gains.

H5: Integrative concessions will give higher joint gains.

4. Research Methodology

The methodology consists on a laboratory experiment involving 94 business students taking an introductory to information systems course (41 percent females, 97 percent under the age of 25). Each participant was randomly assigned to either a collaborative or competitive negotiations. A total of five sessions were held with an average of 18 participants per session. In following sections, the experimental task, procedure, and operationalization of the constructs are described.

4.1 Task

The task involves an online retailer negotiating a contract with an independent film producer to distribute movies on the retailer's website. The negotiation requires that both sides reach an agreement on three issues (delivery time, discount term and financial term). Each party is given a profit schedule (see Table 1) that indicates the potential gains of options for the issues. The two sides have different values for each issue and options, and they are not aware of the other's values. Two of the issues (delivery time and financial terms) are integrative, which implies that negotiators can logroll (i.e., concede on the less valued issue for a higher agreement on a more valuable issue) to get higher joint gains. The third issue (discount terms) is distributive (i.e., the lost on one side is a gain for the other). The case is an adaptation from that of Bazerman et al (1985), but the roles of buyer and seller were avoided to prevent prejudices towards one side (Olekalns 1994; Olekalns 1997).

Table 1. Profit schedule

Profit Schedule of Retailer		
Delivery time	Discount terms	Financial terms
0 day $20,000	10% $30,000	0 % $50,000
1 day $17,500	9 % $26,250	13 % $43,750
2 day $15,000	8 % $22,500	25 % $37,500
3 day $12,500	7 % $18,750	38 % $31,250
4 day $10,000	6 % $15,000	50 % $25,000

5 day $7,500	5 % $11,250	63 % $18,750
6 day $5,000	4 % $7,500	75 % $12,500
7 day $2,500	3 % $3,750	88 % $6,250
8 day $0	2 % $0	100% $0

Profit Schedule of Producer

Delivery time	Discount terms	Financial terms
8 day $50,000	2 % $30,000	100 % $20,000
7 day $43,750	3 % $26,250	88 % $17,500
6 day $37,500	4 % $22,500	75 % $15,000
5 day $31,250	5 % $18,750	63 % $12,500
4 day $25,000	6 % $15,000	50 % $10,000
3 day $18,750	7 % $11,250	38 % $7,500
2 day $12,500	8 % $7,500	25 % $5,000
1 day $6,250	9 % $3,750	13 % $2,500
0 day $0	10 % $0	0% $0

4.2 Procedure

Before the experiment, three pre-tests are conducted to (1) assess that the appropriate motivational orientations can be selected for (Pretest 1), and (2) test the workflow of the experiment (Pretest 2 and 3). Pretest 1 found that the participants' inherent orientation did not affect the orientation induced by the investigator. Furthermore, manipulation check showed that the induced orientation was understood and followed in the pretest. Pretest 2 and 3 provided refinement of the procedure, by first using experts in laboratory experiments on negotiation (Pretest 2) followed by novice users (Pretest 3), to ensure that enough time was given for negotiations and that the instructions were understandable.

Undergraduate business students were recruited through the use of a class assignment in an introductory course to Management Information Systems. The students signed up for the experiment and answered a background questionnaire related to their age, gender, negotiation experience and English proficiency. Upon starting the experiment, students arrived at an office where they were asked for their consent and given a number that would randomly placed then in either one of two laboratories, one laboratory for each side of the negotiation.

During the experiment, a facilitator guided then through the activities. This ensured the pace of flow of activities and synchronization of negotiation between the two laboratories. The

facilitators were allowed to answer general questions on the experimental process and ENS. A facilitator guide served to standardize the procedure. The students answered two questionnaires in the experiment. In ex-ante, a questionnaire on their inherent orientation is given based on nine decomposed games by Van Lange et al. (1997). The case was presented followed by a quiz to measure their understanding of the case and the objectives. A system overview was provided to expose the subjects to the features (offer, message and offer-message). An explanation of the experimental rules was given before subjects start negotiations. In ex-post, a questionnaire served to check the manipulation and ascertain their perceptions on the system and negotiation experience.

4.3 Operationalization of Motivational Orientation

The motivational orientation is induced in this study through instructions given in the case. The collaboratively oriented negotiators are those, who are asked to maximize profits for both parties, in this case Hyperflic and Ubershift. Conversely, competitive negotiators are those, who are asked to maximize profits for themselves. This form of manipulation has been used extensively in motivational research, and it is considered effective at inducing collaborative and competitive orientations (De Dreu et al. 2000). A manipulation check was performed after the experiment to verify that the orientation was followed by the participants.

4.4 Operationalization of Communication Mode

In order to test the effects offer, message and offer with message, the ENS, Inspire, was given to the participants to mediate communication. Inspire is a well established system that helps users engage in multi-issue negotiations (Kersten and Noranha 1999). All features (offers, messages and offer with messages) were provided to the participants and they were free to use whichever one to communicate with their counterpart. The system recorded usage through the negotiation transcripts (Appendix A is an example of a transcript for a collaborative negotiation).

4.5 Operationalization of Concessions

The concessions are measured based on the transcripts provided by the system. Each offer is evaluated, based on the last offer in terms of a profit increase or decrease, for the negotiators. An integrative concession is one that engenders either an increase to both negotiators or an increase to one negotiator without a decrease to the counterpart. A distributive concession allows an increase to one side but a decrease to the other. A destructive concession consists of either a decrease to both negotiators or to one side and no change on the other.

4.6 Operationalization of Joint Gains

Joint gain is assessed as a product of profits by the dyad. The product of profits embodies two concepts of economic measure: efficiency (i.e., maximizing allocation of profits) and equity (i.e., distribution of profits between both sides). The sum of profits, which is most often measured in motivational experiments (De Dreu et al. 2000), captures efficiency, but it does not distinguish solutions that allow fairer distribution of profits between the negotiators, such as with the Nash solution (Nash 1950). The product of profits allows agreements to be scored

against an ideal solution rather than just the Pareto frontier, such that efficiency and equity is captured in one variable.

5. Data Analysis

5.1 Control Check

Each participant was asked about their age, gender, inherent orientation, negotiation experience and English proficiency, all of which are found to insignificantly affect communication mode, concession type and join gains.

5.2 Manipulation Check

The manipulation checks on motivational orientation consisted of: (1) verifying the participants' understanding of the motivational objectives given in the case, and (2) examining the motive underlying the strategies used by the participants. Regarding the motivational instructions, participants who were provided with competitive objectives answered positively to the question relating to competitive instructions (mean values of 1.56), but negatively to the question relating to collaborative instructions (mean value of -0.62). Collaboratively induced participants gave the reverse answers: mean value of 1.03 for collaborative instructions and -0.25 for competitive instructions. When asked about their strategy, participants in the competitive treatments reported the positive use of competitive strategies (mean value of 0.31) and the negative use of collaborative strategies (mean value of -0.46). Again, the collaborative treatments had the reverse results with the mean value of 0.18 for collaborative strategies and -0.18 for competitive ones. The p-values for all checks were significant (p-value < 0.001). This shows that participants understood their motivational objectives and acted towards the goals of the induced orientation.

5.3 Descriptive statistics

To examine the effects of the different communication modes provided by the ENS, univariate ANOVAs were conducted. The different communication modes were found to have statistical significant effects on the concessions. Separate linear regressions were carried out to measure the impact of different concessions on joint gains. The descriptive statistics for collaborative and competitive dyads are presented in Table2.

Table 2. Descriptive Statistic: Mean (SD, n)

	Motivational Orientation	
	Collaborators	Competitors
Offer	2.52 (1.99, 21)	6.54 (9.24, 26)
Message	4.76 (4.24, 21)	8.04 (4.92, 26)
Offer with message	4.14 (5.10, 21)	6.19 (5.59, 26)
Destructive concession	0.48 (0.60, 21)	0.96 (1.11, 26)
Distributive concession	5.81 (3.37, 21)	12.54 (8.66, 26)
Integrative concession	0.95 (1.143, 21)	1.15 (1.22, 26)
Joint gains (in $1000)	2868.260 (751.41, 21)	3245.140 (627.31, 26)

Overall, competitive dyads achieved higher joint gains through greater usage of the communications modes. They sent more offers, messages and offers with messages, which have led them to make more concessions in all types.

5.4 Hypothesis Testing

Tables 3, 4 and 5 report the results of the univariate ANOVA for destructive, distributive and integrative concessions respectively. For collaborative dyads, offers were significantly linked to destructive (p-value < 0.001) and distributive concessions (p-value = 0.012), messages allowed for integrative concessions (p-value = 0.002), and offer with messages caused distributive concessions (p-value < 0.001). For the competitive dyads, offers led to distributive concessions (p-value < 0.001), messages permitted destructive concessions (p-value < 0.001), and offers with messages were linked to integrative (p-value = 0.043) and distributive concessions (p-value < 0.001).

Table 3. Effect on Destructive Concessions

	SS	df	F	p
Collaborators				
Offer	3.041	1	15.042	0.001**
Message	0.241	1	1.192	0.290
Offer with message	0.021	1	0.101	0.754
Competitors				
Offer	1.174	1	1.415	0.247
Message	12.158	1	14.661	0.001**
Offer with message	0.539	1	0.650	0.429

** significant at 0.01 level.

Table 4. Effect on Distributive Concessions

	SS	df	F	p
Collaborators				
Offer	13.952	1	7.930	0.012*
Message	0.644	1	0.366	0.553
Offer with message	156.324	1	88.852	0.001**
Competitors				
Offer	1535.555	1	654.184	0.001**
Message	0.663	1	0.282	0.600
Offer with message	376.881	1	160.560	0.001**

* significant at 0.05 level and ** significant at 0.01 level.

Table 5. Effect on Integrative Concessions

	SS	df	F	p
Collaborators				
Offer	1.935	1	1.945	0.181
Message	13.504	1	13.574	0.002**
Offer with message	0.865	1	0.869	0.364
Competitors				
Offer	1.027	1	0.858	0.364
Message	4.917	1	4.108	0.055
Offer with message	5.510	1	4.603	0.043*

* significant at 0.05 level and ** significant at 0.01 level.

The tables show that hypotheses H1a, H2a and H3a for collaborators are supported, as well as H1b, H2b and H3b for competitors.

The final testing of hypotheses involved the regression of each type of concessions on joint gains. The findings indicate that destructive concessions led to a decrease of joint gains, while integrative concessions promoted positive joint gains for both motivational orientations. As expected, distributive concessions did not affect joint gains because an increase of profits for one side caused a decrease of profits for the other. Table 6 summarizes the regressions for both orientations. Therefore Hypotheses H4 and H5 are supported.

Table 6. Multiple Regression on Joint Gains

	Standardized coefficient	t	p
Collaborators			
Destructive concession	-0.517	-3.794	0.001**
Distributive concession	0.189	1.327	0.202
Integrative concession	0.477	3.351	0.004**
Competitors			
Destructive concession	-0.530	-5.079	0.001**
Distributive concession	0.007	0.063	0.950
Integrative concession	0.665	6.375	0.001**

** significant at 0.01 level.

6. Discussion

The purpose of this study is to examine the different communication modes provided by an ENS on the negotiation process and outcome for collaborators and competitors. This is achieved by inducing participants towards a given orientation, providing them with three communication modes (offer, message and offer with messages) to negotiate, and assessing their concessions and joint gains. Firstly, confounding variables such as age, gender, negotiation experience, English proficiency and most importantly inherent orientation were verified against the dependent variables. The control check showed that inherent orientation did not affect the results. Moreover, a manipulation check was conducted, and determined that participants understood their given orientation and they aimed to negotiate following this orientation.

The findings indicate that collaborators made integrative concessions through the use of messages because they could provide the other party with information on their preferences. However, simple offers caused collaborators to concede easily into distributive and destructive concessions. The reason is that offers provide very little information on preferences, such that when parties give effortlessly to the demands of the other, offers only push consensus and not efficient agreements. The offers with messages allowed for distributive concessions because they provide information only on a relative position. Collaborators are best served when they understand the overall needs of both sides and work together on a joint solution.

For competitors, the problem is less a question of conceding to the wishes of the other, but rather finding a mode that promotes communication of preferences and proposes solutions too. Offer with messages allow competitors to offer solutions and explain these solutions in relationship to their needs. This mode of communication permitted integrative and distributive concessions. Offers alone do not convey preferences, but only positions, such that offers led only to distributive concessions. Messages were disparaging for competitors, as this mode encourage contentious behavior and conflict escalation by allowing them to argue about their positions without constructive solutions.

7. Conclusion

The implications of this research for negotiators are two-folds: (1) Understand your motivational orientation for the negotiation that you are involved in; and (2) pick your communication modes accordingly. For academics, this work hopes to show that motivational orientation plays an important part in system usage and the outcomes from this usage. For future research, other communication tools (e.g., instant messaging) and environment (quasi-field experiment) could be incorporated to the research design to provide a richer picture on motivational orientation and system usage.

The major limitation of this work is the use of a laboratory setting. Although causality between independent and dependent variables can be established, the controls placed by the research design limit the generalizability of the findings to the context, sample demographic and ENS used in the experiment.

References

Bakos, Y. (1998). "The Emerging Role of Electronic Marketplace on the Internet." *Comm. ACM* **41**(8): 35-42.

Barki, H. and J. Hartwick (2001). "Interpersonal conflict and its management in information system development." *MIS Quarterly* **25**(2): 195-228.

Bazerman, M. H., T. Magliozzi and M. A. Neale (1985). "Integrative Bargaining in a Competitive Market." *Organizational Behavior and Human Performance* **34**: 294-313.

Bazerman, M., J. R. Curhan, D. A. Moore and K. L. Valley (2000). "Negotiation." *Annual Review of Psychology* **51**: 279-314.

Bordone, R. C. (2000). "Teaching Interpersonal Skills for Negotiation and For life." *Negotiation Journal* **16**(4): 377-385.

Croson, R. T. (1999). "Look at me when you say that : an electronic negotiation simulation." *Simulation and Gaming* **31**(1): 23-37.

Daft, R.L. and R.H. Lengel (1986). "Organizational Information Requirements, Media Richness and Structural Design. *Management Science* **32**:554-572

De Dreu, C. K., B. Beersma, K. Stroebe and M. Euwema (2006). "Motivated Information Processing, Strategic Choice, and the Quality of Negotiated Agreement." *Journal of Personality Social Psychology* **90**(6): 927-943

De Dreu, C. K. and P. A. M. Van Lange (1995). "The Impact of Social Value Orientations on Negotiator Cognition and Behavior." *Personality and Social Psychology Bulletin* **21**(11): 1178-1188.

De Dreu, C. K., L. R. Weingart and S. Kwon (2000). "Influence of Social Motives on Integrative Negotiation: A Meta-analytic Review and Test of Two Theories." *Journal of Personality Social Psychology* **78**(5): 889-905.

Deutsch, M. (1949). "A Theory of Cooperation and Competition." *Human Relations* **2**: 129-152.

Foroughi, A., W. C. Perkins and L. M. Jessup (2001). "A Comparison of Audio-Conferencing and Computer Conferencing in a Dispersed Negotiation Setting: Efficiency Matters!" *Journal of Organizational and End User Computing* **17**(3): 1-26.

Guttman, R. H., A. G. Moukas and P. Mae (1998). "Agent-mediated Electronic Commerce: A Survey." *The Knowledge Engineering Review* **13**: 147-159.

Kersten, G. and G. Lo (2001). Negotiation support systems and software agents in e-business negotiations. *1st International Conference on Electronic Business,* Hong Kong, China.

Kersten, G. E. and S. J. Noronha (1999). "Negotiation via the World Wide Web: A Cross-cultural Study of Decision Making." *Group Decision and Negotiation* **8**(3): 251-279.

Kersten, G. E., S. Strecker and K. P. Law (2004). Protocols for Electronic Negotiation Systems: Theoretical Foundations and Design Issues. *Lecture Notes in Computer Science*. Berlin / Heidelberg, Germany, Springer **3182:** 106-115.

Kilmann, R. H. and K. W. Thomas (1977). "Developing a Forced Choice Measure of Conflict Handling Behavior: The MODE Instrument " *Educational and Psychological Measurements* **37**(309-335).

Lai, H., H.-S. Doong and C. C. Kao (2006). "Negotiators' Communication, Perception of Their Counterparts, and Performance in Dyadic E-negotiations." *Group Decision and Negotiation* **15**(5): 429-447.

Lax, D. A. and J. K. Sebenius (1986). *The Manager as Negotiator: Bargaining for Cooperation and Competitive Gain*. New York, NY, Free Press.

Malone, T. W., Yates, J., & Benjamin, R. I. 1987. Electronic Markets and Electronic Hierarchies. Comm. ACM, 30(6): 81-91.

Mennecke, B. E., J. S. Valacich and B. C. Wheeler (2000). "The Effects of Media and Task on User

Performance: A Test of the Task-Media Fit Hypothesis." *Group Decision and Negotiation* **9**(6): 507-529.

Nash, J. (1950). "The Bargaining Problem." *Econometrica* **18**: 155-162.

Olekalns, M. (1994). "Context, Issues and Frame as Determinants of Negotiated Outcomes." *British Journal of Social Psychology* **33**: 197-210.

Olekalns, M. (1997). "Situational Cues as Moderators of the Frame-outcome Relationship." *British Journal of Social Psychology* **36**: 191-209.

Olekalns, M. and P. L. Smith (2003). "Social Motives in Negotiation: The Relationships Between Dyad Composition, Negotiation Processes and Outcomes." *International Journal of Conflict Management* **14**: 233-254.

Porter, M. E. (1980). *Competitive Strategy*. New York, Free Press.

Purdy, J. M., P. Nye and P. V. Balakrishnan (2000). "The Impact of Communication Media on Negotiation Outcomes." *International Journal of Conflict Management* **11**(2): 162-187.

Raiffa, H. (1982). *The Art and Science of Negotiations* Cambridge, Belknap.

Rubin, J. Z. and B. R. Brown (1975). *The Social Psychology of Bargaining and Negotiation*. New York, NY, Academic Press.

Schelling, T. C. (1960). *The Strategy of Conflict*. Cambridge, Harvard University Press.

Sebenius, J. (1992). "Negotiation Analysis: A characterization and Review." *Management Science* **38**: 1-21.

Sheffield, J. (1995). "The Effect of Communication Medium on Negotiation Performance " *Group Decision and Negotiation* **4**(2): 159-179.

Shell, R. (2001). "Bargaining Styles and Negotiation: The Thomas-Kilmann Conflict Mode Instrument in Negotiation Training." *Negotiation Journal* **April** 155-174.

Short, J.A., F. Williams, et al. (1976). *The Social Psychology of Telecommunications*. Wiley, New York.

Suh, K. S. (1999). "Impact of Communication Medium on Task Performance and Satisfaction: An Examination of Media-Richness Theory." *Information and Management* **35**: 295-312.

Uzzi, B. (1997). "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness." *Administrative Science Quarterly* **42**:35-67.

Van Lange, P. A. M., W. Otten, E. M. N. De Bruin and e. al. (1997). "Development of Prosocial, Individualistic, and Competitive Orientation: Theory and Preliminary Evidence." *Journal of Personality Social Psychology* **73**: 733-746.

Vetchera, R. (2007). "Preference Structures and Negotiators behavior in Electronic Negotiaitons." *Decision Support Systems* **44**(1): 135-146

Womack, D. F. (1988). "A Review of Conflict Instruments in Organizational Settings." *Management Communication Quarterly* **1**(3): 437-445.

Yuan, Y., J. B. Rose and e. al. (1998). "A Web-Based Negotiation Support System." *International Journal of Electronic Markets* **8**(3): 13-17.

Appendix: A

The following is an unedited transcript of a participant playing the role of the producer (Ubershift) in a **competitive** treatment.

You accepted this offer on 2009-11-13 20:50:05 (GMT)

HYPERFLIC's offer: 2009-11-13 20:46:27(GMT)

Issue	Option
Delivery time	8 days
Discount terms	6%
Financial terms	0%

What say you we split it at 6%?
That halves my possible profit from Discount, but I think it will halve it for you as well.

Your profit for this offer: 65

UBERSHIFT's(your) offer: 2009-11-13 20:44:36(GMT)

Issue	Option
Delivery time	8 days
Discount terms	5%
Financial terms	0%

The
delivery time is good for me and I am willing to give you the deal on the financial terms. How would you say these discount terms work for you?

Your profit for this offer: 68.75

HYPERFLIC's offer: 2009-11-13 20:40:41(GMT)

Issue	Option
Delivery time	8 days
Discount terms	7%
Financial terms	0%

How is this?

Your profit for this offer: 61.25

UBERSHIFT's(your) offer: 2009-11-13 20:38:14(GMT)

Issue	Option
Delivery time	8 days
Discount terms	2%
Financial terms	0%

The issue that is most important to me is deliver time. How about this offer? What in this works for you and what does not?

Your profit for this offer: 80

HYPERFLIC's offer: 2009-11-13 20:36:01(GMT)

Issue	Option
Delivery time	3 days
Discount terms	9%
Financial terms	13%

I need lower financing terms from your end. What issue is most important for you?

Your profit for this offer: 25

UBERSHIFT's(you) message: 2009-11-13 20:33:56(GMT)

I am doing well as well. Thank you for asking.

UBERSHIFT's(your) offer: 2009-11-13 20:32:58(GMT)

Issue	Option
Delivery time	6 days
Discount terms	5%
Financial terms	63%

I'm sorry but the terms of your last offer do not work for me. How about this offer?

Your profit for this offer: 68.75

HYPERFLIC's offer: 2009-11-13 20:30:53(GMT)

Issue	Option
Delivery time	2 days
Discount terms	8%
Financial terms	0%

I am doing well today, thanks for asking. How are you?

Your profit for this offer: 20

UBERSHIFT's(your) offer: 2009-11-13 20:28:54(GMT)

Issue	Option
Delivery time	6 days
Discount terms	4%
Financial terms	75%

Hello. I hope that you are doing well today. This is my opening offer.

Your profit for this offer: 75

HYPERFLIC's offer: 2009-11-13 20:28:08(GMT)

Issue	Option
Delivery time	0 days
Discount terms	10%
Financial terms	0%

Your profit for this offer: 0