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# Co-opertition: Competitive Communication Behavior During a Cooperative Task

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**Co-opertition:**

**Competitive Communication Behavior During a Cooperative Task**  
(TITLE)

BY

**Daniel M. Hlavac**

THESIS

Submitted in partial fulfillment of the requirements for the degree of

**MASTER OF ARTS**

**In the Graduate School, Eastern Illinois University  
Charleston, Illinois**

**1997**  
(YEAR)

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## Abstract

A combined effort of two classes at separate universities was examined. Each class boasted six groups which were paired with another group at the other university. These teams used computer mediated communication to engage in a cooperative task. The communications between groups were analyzed using conversational analytic techniques to reveal a competitive communication pattern. The results show that a lack of communication can produce competitive behaviors even in situations intended to nurture cooperation. Future concerns should focus on teaching groups to use computer mediated communication (CMC) to its fullest potential by recognizing and accounting for the critical differences between CMC and other communication channels.

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## Co-opertition:

## Competitive Communication Behavior During a Cooperative Task

Introduction

Traditional approaches to research have examined the motives of individuals as either competitive or cooperative. Most would agree that there are other alternatives and that cooperative and competitive situations are not always clearly defined. Brandenburger and Nalebuff (1996) for example, created the term "co-opertition" (cooperative behavior in a competitive environment) to describe one context of mixed behavior.

Professional sports are another good example of mixed behavior. In many of the popular American team sports, such as baseball, football, or basketball, the players use teamwork to win games but they are also trying to keep their spot on the team and/or increase their salary. This drive often leads to competition with their fellow teammates for finite resources.

Even in sports that are not regarded as cooperative, such as marathons, there is often cooperative behavior among the runners. For example, during a race, some runners will run in packs and often take turns at leading and setting the pace. The runners may cooperate during the beginning and often middle of the race. As the race continues, the runners fall into their own pace which they hope is faster than the others because at the finish line there is only one winner. This helps each runner on an emotional and mental level, and most distance runners would agree that running long distance is 90% mental.

Unfortunately, there is little serious investigation of mixed behavior situations. Perhaps part of this gap is the over reliance on game theory in the literature. Game theory "seeks to devise 'formal' models of relational behavior in situations where

people are dependent on one another for their outcomes". (Pruitt & Kimmel, 1977), The theory allows for cooperative or competitive behavior. Application of game theory has traditionally kept the context neutral while focusing on the behavioral choice of the participants. (Apfelbaum, 1974; Pruitt & Kimmel, 1977 Jedschi, 1973). While the small group research (Deutsch, 1949) focused on context but not specific behavior. In the study reported here, a new dimension is added, context. One of the critical factors that influence behavioral choice is the context. The self-disclosure literature has shown that context or relationship is a major influence on communication (Littlejohn, 1989).

There are times when competitive behavior occurs in cooperative environments. Students, for example, often compete with each other in order to earn a higher grade, although it may be possible for everyone to earn a high grade if everyone helped each other. The competitive behavior in a cooperative environment of students in an assignment is the focus of this study. The rationale for this context /behavior relationship comes from three distinct research programs, small groups, computer mediated communication, and cooperative and competitive behavior. Each will be examined in turn.

### Competitive and cooperative behaviors

Cooperative and competitive behaviors have been studied for decades. (e.g. Axelrod, 1984; Bay, 1991; Bogner, 1993; Chapanis, Ochsman, Parish, and Week, 1972; Che-Ming, 1995; Cox, 1991, Deutsch, 1949; Funk, 1983; Grosack, 1954; Hammond, 1961; James, 1967; May, 1937; Shaw, 1958). The classic Deutsch articles (1949) show cooperative groups are more productive than competitive groups. He maintains that defining a group's task in various ways would affect the behavior of the group and group



effectiveness. In his experiment, the cooperative groups were informed that their individual grade would be determined by a single group grade. Whereas another group was informed that their individual grade would be assigned after being compared to other groups in the class, the best students from each group receiving the best grade. Deutsch found that those individuals working in groups of positive interdependence had more cooperative behavior and were more productive than the other groups. That is, where a group task lends itself to a cooperative structure, the result is greater cooperation within the group and greater performance. Subsequent studies have found that groups with cooperative structures have greater performance than competitive structures. (Hammond and Goldman, 1961; Brown, 1993). These findings are particularly relevant to this study because the project, in which each group was engaged, was designed to be a cooperative task, but it tended itself to competitive behaviors.

Julian and Franklyn (1967) also studied undergraduate students in cooperative and competitive experiments and found that individual and group competitive exercises yielded higher quantity outcomes than purely cooperative behaviors. On the other hand, McCallum, Haring, Gilmore, Drenan, Chase, Insko, and Thibaut (1985) found that individuals tend to have more cooperative behavior than groups, when asked to perform a game called the "Prisoners Dilemma".

In Axelrod's "The Evolution of Cooperation." (1984), he also talks about the classic Prisoner's Dilemma. Axelrod maintains that cooperation and cooperation are not mutually exclusive. Rather, successful completion of ones goal is based on a rational model in which both parties select the behavior that maximizes rewards and minimizes punishment. A win-win situation is possible if both parties are aware of the others choice

or trust the other to make the right decision. However, if one party does not know the other party's goals or motives, then the first party may not know what action to take in order to maximize their outcome. The first party assumes that the other party wants to achieve their goal, but is not sure what action to take to unsure the correct response to the other's action. Prisoners Dilemma is a more concrete example.

There are three basic premises to this game: two people are prisoners, a crime has been committed, and neither prisoner is certain if the other prisoner will accuse the other. The prisoners are questioned simultaneously and are not aware of the other's response. If one accuses the other, without the other accusing him or her, then he or she is set free. If neither accuse the other, then both are set free. In addition, if they accuse each other, neither are set free. The diagram below illustrates the four possible outcomes.

|            |                   | Prisoner B                             |                                    |
|------------|-------------------|--|------------------------------------|
|            |                   | Accuses A                              | Does not accuse A                  |
| Prisoner A | Accuses B         | A stays in prison<br>B stays in prison | A is set free<br>B stays in prison |
|            | Does not accuse B | A stays in prison<br>B is set free     | A is set free<br>B is set free     |

An important point to remember is that the Prisoners Dilemma does not allow for communication between prisoners creating uncertainty. Many would argue that each prisoner's "best" option is to accuse the other prisoner because at worst, both prisoners will stay, and at best, the prisoner is set free. The uncertainty can lead to a competitive environment. In a normal communication situation, uncertainty would motivate communication, thus decreasing the level of uncertainty allowing for better choice of behavior. (Berger & Bradac, 1982).

Axelrod (1984) also brings to our attention a reciprocal behavior pattern. Whereas the Prisoner's Dilemma is a fictitious example designed to examine behaviors in uncertain circumstances, Axelrod's example of "Live and let live" is derived from the trenches of World War II. It was common for gunfire to continue for weeks with neither party gaining an advantage. Neither party was willing to give up ground but they also did not want to continuously fire at each other. As such, there were long waits in the trenches while a mutual cease-fire would be in affect. Each solders life was dependent upon the mutual understanding of the cease-fire. Though solders did not formally announce these cease-fires, and no one is sure how they were started, it was understood that if one side began to fire again, then the other side would retaliate. Whereas the Prisoner's Dilemma is a forced-choice single event, the cease-fires in World War II are a recognized pattern of behavior. This behavioral pattern begins to demonstrate how groups can cooperate in competitive environments.

It may still be difficult to distinguish cooperative and competitive environments. Anderson and Wanber (1991) mention that "much of [the] competitive situations are seen as leading to interpersonal conflict and aggression..." They contend that we construct strong knowledge structures regarding competition and cooperation and that we generally associate the former with hostility and aggression and the latter with friendly and non-aggressive encounters. This strong knowledge construct may be difficult to overcome despite the reciprocal nature of certain situations. The combination of cooperation and competition may be difficult to establish based on our understanding of the terms being mutually exclusive. However, in the Prisoner's Dilemma, both prisoners have a chance at being set free and it is the uncertainty that may hinder the actual results. When a

mutual understanding is reached, as with the cease-fires, both parties benefit from the reciprocal nature of that understanding.

Brandenburger and Nalebuff (1996) also discuss reciprocity, competitiveness, and cooperation, in a book by called Co-opertition (1996). Unlike the other works, this book is written for the business population. It is based on the premise of having cooperative behaviors in a competitive environment. They try to break down our strong knowledge structure concerning this dichotomy. A business can no longer think win-lose; however, it is not entirely a win-win game. You have to realize exactly where you stand and how you can make your position better without jeopardizing your future situation by “stepping on someone's toes.” This is not an entirely new concept, as previously mentioned, but these authors further explain co-opertition in terms of game theory and the value net.

Co-opertition can be seen in many business deals in today's corporate America. For example, Apple is helping IBM by providing IBM with Power PC technology. Last year, Kodak, Nikon, and Minolta worked together to market the “Advanced Photo System” that enabled easy “drop-in loading” of the film.

Research and actual business examples have demonstrated that the lines between cooperation and competition are merging. The mixed motives of individuals and groups have blurred the black and white area to form a significant gray. Within this gray area is the intriguing demonstration of competitive behaviors in a cooperative environment.

### CMC

For several years one of the trends in studying Computer Mediated Communication, is looking at the social impact of electronic mail and on-line discussion groups. (Walther & Burgoon, 1992). In addition to social purposes, many companies are

using computer mediated communications to interact within the company as well as with other companies. Also, many students use these same mediums to interact with each other in order to collaborate about assignments. (Borzi & Parrish-Sprowl, 1996, 1997). However, one of the primary reasons to study the group process in a computer mediated environment can best be summarized by Fulk, Schmitz and Steinfield, (1990). "Accurate predictions of technological effects critically rely on valid assumptions about how individual and organizations interact with the technology." (p.136). How each user decides to incorporate technology by using their own individual style will be a large determinant when considering that medium's potential. (Walther and Burgoon, 1992). Walther and Burgoon (1992) also mention that Steve Jobs of Next Computer pointed out that computer mediated communication is no longer a novelty but a communication channel through which much of our business and social interaction takes place.

As a primary example of groups engaged in a computer mediated task, Strauss and McGrath (1994) predicted that groups who use face-to-face communication when completing a task will achieve better performance and have higher satisfaction than those groups using computer mediated communication. Whereas the quality of the work was the same for both types of groups, there was a larger difference in the amount of work completed. Also, those in computer mediated groups had lower overall satisfaction scores than did those groups using face-to-face communication. (Strauss & McGrath, 1994). However, Garton and Wellman (1994) pointed out that groups that use electronic mail contribute better to the group decision making process and actively participate more than those in face to face communication even though decisions may take longer.

It has been demonstrated that the use of face-to-face communication results in a

larger amount of work being completed, however there is not a large difference in the quality of work. (Straus & McGrath, 1994). These studies are an important starting point for studying the effectiveness of CMC because it is a growing communication channel that is being utilized more each day in personal, professional, and academic lives. As such, it is important to study the implications that technological communication will have on those individuals or groups so that it can be used to its fullest potential.

### Small Groups

There has been a wealth of research done throughout the century that focuses on small groups, group processes, and group performance. (e.g. Pincus, 1986; Brown, 1988; Jehn, 1995). For this paper, it is important to look at the research concerning decision making in these small groups because the quality of a group's decision is based largely on the ability of a group to perform important functions. (Hirokawa, 1988). That is "...the quality of a group's decision is a direct result of the group's ability (or inability) to perform important decisional functions." (p.487). This is based on the functional model (Hirokawa, 1988) which states that "...an effective group decision making is contingent on the satisfaction of four critical requirements:

- 1) Appropriate understanding of the problematic situation...
- 2) Appropriate understanding of the requirements for an acceptable choice...
- 3) Appropriate assessment of the positive qualities of alternative choices...
- 4) Appropriate assessment of the negative choices..." (pp.489-490).

A group's ability to effectively communicate is based on a wide range of factors. For example, the size of the group, the type of method that is employed to facilitate meetings, and the participant's personal characteristics will determine the effectiveness of

group communication. One method to organize a large groups meeting is Group Decision Support Systems (GDSS).(Group Decision Support System - GDSS, 1997). This method allows for a large number of people to actively participate in a meeting. Each participant types in suggestions and ideas into a terminal and the central computer program analyzes the data and displays each person's comments on the screen in an organized fashion. However, GDSS research focuses on only one aspect of small groups, decision making. The issues in this study are much broader, incorporating more complex tasks and relationships.

Small groups and individuals have been studied for cooperative and competitive behavior for many years. In addition, with the emergence of new technology, groups have been studied to examine the effectiveness of that technology. However, there have not been any studies that examines the combination of these issues. Thus, this paper examines the following question:

What are the communication patterns when two groups use computer mediated communication in order to accomplish a cooperative task?

## Methodology

Over 350 electronic mail messages from six teams were analyzed in order to extrapolate any communication patterns that were competitive or cooperative. (See Appendix for a list of messages). Messages were collected from the participants, organized chronologically, by team, and by relevance to this project. Participants engaged in another project using e-mail before the project studied in this paper. Therefore, messages from the first project were not examined unless relevant to this study.

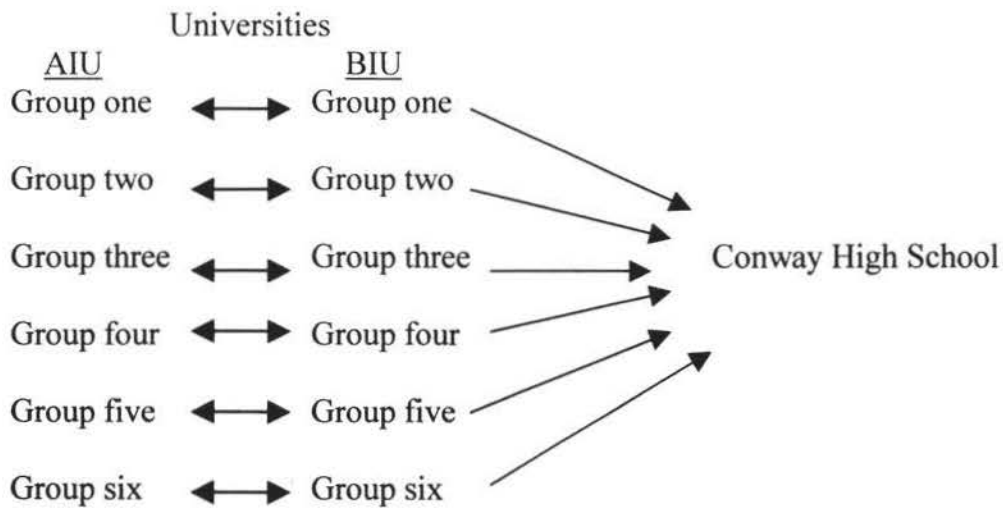
While there are a large variety of computer mediated communication, this study will focus on text based electronic mail, and will exclude other types of computer mediated communication such as video conferencing, "chat rooms", discussion groups, or listservs.

In previous studies, e-mail has been examined for context within a single message (e.g. Daly, 1993; Garton & Wellman, 1994; Straus & McGrath, 1994) or the global outcome of a mediated assignment. This study views e-mail as an ongoing conversation and applies conversational analytic techniques to the messages (Denzin & Lincoln, 1994).

### Subjects

Two undergraduate classes at different universities were studied. Each class contained six groups of four to six students. Students were assigned by the instructor to groups based upon skill level in order to ensure an equal distribution of skills. Each group was randomly assigned to a group at the other university, also containing four to six students, to have six pairs of groups. A team was comprised of two groups, one from each school.





### The students' project

Each team was responsible for designing a comprehensive communication system for a private, religiously affiliated high school. The system was to include computer systems, telecommunications, radio and television studios. Each team was to address the needs of the current system and identification of equipment, construction and installation costs, training, and an implementation timetable. The final outcome was to be a hypertext document (a webpage) and corresponding multimedia presentation. (Borzi & Parrish-Sprowl, 1997). Students had two months to complete the project.

### Design

Groups were free to choose the channels of communication for the project. Intragroup communication was done using a variety of techniques, including face-to-face settings, phone conversations, and e-mails. Intergroup communication was in all cases, electronic mail, restraint each group placed on itself.

## Results

The nature of this study allows for two descriptions of the findings. The first part is a detailed description of the messages between teams. The second is a commentary on the overall pattern that emerges.

### Individual team analysis

Each teams' communications are analyzed separately in order to gain a better understanding of the general findings. Appendix A lists the messages in chronological order so that visual representation of the overall pattern for each group can be seen.

#### Team One

The first e-mail, a basic "hello", was from AIU to BIU and dated October 3<sup>rd</sup>. Three weeks later, BIU sent an e-mail to AIU concerning the scavenger hunt. From Oct. 21<sup>st</sup> to Oct. 31<sup>st</sup> the e-mail messages only contained question and answers regarding the scavenger hunt, which was the first project that needed to be completed by the groups. The e-mails from AIU had been from Kevin and directed toward the entire BIU group..

On Oct. 29<sup>th</sup>, a message from BIU was sent to AIU which contained information concerning Conway's communication system in response to questions from AIU concerning an assessment of Conway. Clearly, this is a basic request-response communication pattern.

Most of BIU's responses were from Sandra to Kevin. However, on Oct. 31<sup>st</sup>, Sandra addressed an e-mail concerning the final project to Amy at AIU and not Kevin. There could be any number of reasons for this, however, one reason may be that Amy was not comfortable with the style in which Kevin was handling the situation.

Interestingly, Kevin continues sending e-mails to Sandra and Sandra continues to send

messages to Amy.

This group seemed to portray good communication patterns. They sent messages regarding Conway, they asked each other for input and each seemed to know in which direction the group was heading, until Nov. 15<sup>th</sup>. At this point, the teams seem to veer off the common path. Sandra has some concerns over the progress being made by AIU. She has assumed that AIU is working on the “technical part” of the project, but she mentions that AIU has not sent any technical notes to BIU. This is an odd e-mail because on Nov. 1<sup>st</sup>, AIU did send an e-mail regarding what equipment Conway does and does not have.

Kevin, from AIU, sends an e-mail a couple days later in response to Sandra’s questions concerning progress and questions. Kevin also asks more questions for the BIU group to help answer. Within a few days, BIU had answered AIU’s questions.

On Dec. 3<sup>rd</sup>, Kevin sends an odd message to BIU. It starts

“Okay, here’s the deal. Up until this point, our group was extremely unclear as to what was specifically set up at Conway and through the answers to the most recent response, we are only half way there.”

It continues by saying that they had to talk to Mark to find out what was needed from them and now they know what they are doing. The question needs to be asked, why didn’t AIU ask BIU these questions? Each e-mail that was sent by AIU had a response. The lack of clarity is not from miscommunication, but rather, a lack of communication in general. That is, AIU failed to ask the right questions and perceived that ambiguity as a problem that could only be solved by going to the professor to get answers. The solution

was not wrong, but I would argue that the communication medium is partly responsible for the frustration felt by AIU. Support of this statement can be seen in AIU's e-mail to Mark dated Dec.5<sup>th</sup>.

“...I really think it was obvious that this project was way over our heads...it was completely overwhelming to me and 90% of the class.....don't take this the wrong way at all, I am just possibly suggesting that the project be included in another course, like Advanced Hi-Tech.....”

Again, this group primarily established cooperative communication patterns. However, the end of the project did not seem to end on a cooperative note. In fact, it seemed that BIU had finished their project and was leaving AIU to finish their project by themselves. In an e-mail from BIU on Dec. 11<sup>th</sup>, it states,

“I assume that you are still needing to do a paper, so everything that you should need and more from us is on that web site...and at the bottom is the link to the proposal.....If you need anything else or have any questions, let me know.”

On one hand, this seems like a cooperative message because they leave the option to request help. However, as we will see in other reports, the most significant aspect of this message is that there is no acknowledgement of a combined report. However, time began to run out and both groups took action to ensure that their project would get done without regard to the other group. For example, AIU turning to the professor for some quick answers instead of asking their BIU counter parts.

### Team Two

The first message, sent from AIU on Oct. 3<sup>rd</sup>, is similar to the first message of the

first group in that it is a message of greetings. Other messages on the same day, from AIU indicate to BIU that the AIU group is working on a survey and will keep BIU informed. This indicates a sincere effort to communicate and leaves a friendly channel of communication open. There was no communication between the groups until Oct. 23<sup>rd</sup> when BIU sent a message to AIU regarding the scavenger hunt. AIU responded to that message rather late, on Nov. 4<sup>th</sup>, but also included some information regarding the teams web page.

Again, the only communication that transpired is a request and answer dialogue. This not necessarily competitive in nature, but it tends to be problematic when the team project deadline begins to approach. This is clearly demonstrated when we look the two largest factors that may have hindered the team: total number of e-mails, and few messages concerning the final project.

The first issue, sending very few e-mails in general, is not a problem in the beginning. That is, the due date for the project is at the end of the semester, so procrastination would not be uncommon. However, one would expect that the messages would increase in number as the semester progressed. This did not happen. Instead, the group only sent six messages. Four messages from AIU and two from BIU. Four of those messages where in the first week of October. The last two messages were sent the first week of November.

The last two messages seemed to indicate a starting point for the group project. AIU requested information from BIU but BIU did not seem to respond. At this point, on Nov. 7<sup>th</sup>, AIU sends a message to BIU that mentions agreement to certain requests, but nothing more. Neither team sends another message. While this may seem strange at first,

it would coincide with the previously established behavior of sending only a handful of messages. That is, the group did not have a lot of communication anyway, so a lack of communication at the end of the semester is not surprising.

Again, the teams failed to work cooperatively to accomplish the desired goal. Instead, both teams finished individual products with little regard for the combined effort of the group. The teams were not actively participating in competitive behavior, rather there was very little participation in any cooperative behavior. This may be a function of the task required. For example, it has been demonstrated that groups are more competitive with each other than individuals (McCallum, Haring, Gilmore, Drenenan, Chase, Insko, & Thibaut, 1985). The lack of cooperation between groups in this case, is a good example of this finding.

### Team Three

Things started well with the third group. There were almost a dozen messages between the teams in the last two weeks of October. Starting on Oct. 16<sup>th</sup>, BIU sent a message that stated BIU was going to set up a meeting with Conway and asked AIU if they had any questions. The teams seem to demonstrate a great deal of cooperative behavior. For example, on Oct. 23<sup>rd</sup>, BIU writes:

“Your technical information is very important to us. Please help us in understanding your needs for this project. We would like to make this as painless as possible!!! .... Hope to hear from you soon. Hope you have a WONDERFUL WEEKEND!!!!!!!!!!!!”

Clearly, there is no hostility. The next several messages were friendly and had a lot of questions asked and answered by both groups. There are several messages sent in

November that exchange ideas concerning the project. For example, an e-mail sent by BIU to AIU reads.

“Well, we got the ideas and put them in and made the changes. Is should be done for you to look at by the end of class today....right now we are looking at what software to use....what type of server to use for the network....That is where we are right now.”

This message indicates that BIU received the suggestion sent by AIU and is implementing that suggestion into the project. In addition, BIU has ideas that they are sharing with AIU and is letting them know how soon the project may be done.

There are only a few communications after this point, the last being the most significant. On Dec. 3<sup>rd</sup>, BIU sends AIU an outline of the final project. There is no communication after this point from either team. Based on the communications in the beginning, it seems unlikely that such an abrupt ending would transpire. Communication patterns to this point are interactive, friendly and cooperative in nature and there is no indication for the sudden end.

#### Team Four

The forth group started out much like the other three groups: AIU asked BIU for information regarding Conway. It included a list of ten questions to be answered “very detailed and complete”. AIU also seemed to be in a hurry to “get a move on this project”, according to the message.

This first message, while seemingly more urgent than most of the other messages from the previous three groups, is rather late in the semester – dated Oct. 31<sup>st</sup>. Apparently, BIU agreed with the urgency of the project because they sent a message back

to AIU the same day with answers to AIU's questions. Their message was very details and it answered all of the questions thoroughly. For example, AIU asked if BIU could find out how the current management system worked. BIU responded by including a detailed organizational chart. At the end of the message, they asked AIU to answer some questions regarding the technical aspects of the assignment.

AIU's response, on Nov. 5<sup>th</sup>, did not have the answers to those questions, although they did justify their actions -

"We are starting to look into the questions you asked us, but it takes sometime because we basically have to look at all the companies and systems available. As soon as we figure out information we will send it to you."

AIU continues to explain to BIU how they are going to try to acquire the information and what they have done already.

"Mark said he would help us figure out where we should begin looking for that information. We are hoping to meet with him outside of class in the next couple days. We have gotten a lot done on our web page."

This part of the message is an attempt to keep BIU satisfied with their efforts so that BIU does not assume that one group is doing more or less work. It is an attempt to keep BIU informed of what AIU is doing and when. This communication pattern is much different than what was noticed in the other groups. That is, in addition to the request/comply dialogue, there is a further degree of explanation that describes the actions of the group.

This group seemed not to be traveling along the same path as the other groups



because this group had more interaction and kept each other informed, which will lead to better overall performance. However, a few days later, on Nov. 7<sup>th</sup>, AIU transmits a message that follows the request/comply dialogue. The message begins, “OK, here’s a few more questions for you.” Then it lists a series of a dozen questions and end, “Well, that is all I have for now, hope to hear from you soon.” Then, there is a lack of communication for several weeks. On Dec. 7<sup>th</sup>, BIU sends a message regarding the questions that AIU had asked previously. They also mentioned some other suggestions that would be useful for the project. While the communication pattern may not be conducive to cooperative behavior, the actual content of those communications are what seem to be more important to the member of the group. Support of this point can be seen in the next e-mail sent by AIU. On Dec. 3<sup>rd</sup>, AIU sent a Power Point presentation via e-mail to their BIU counterparts. There were no attachments explaining what was sent.

It is important to note that this group started out with good cooperative communication and seemingly good intentions. Then, as the semester progressed, the groups began to hinder the progression of the project by a lack of communication and a lack of useful information, as noted in the literature review. The lack of good communication prohibited the group from collaborating on the final project despite the attempt at sharing a Power Point presentation. Again, the purpose of the assignment was a final group project, not two.

#### Team Five

Interaction between the teams that comprise the fifth group in this study begins like the other groups up to this point. The first message, sent on Oct. 3<sup>rd</sup>, is from BIU and it introduces the group members and mentions that they are excited to begin working on

this project. Then they ask questions regarding the scavenger hunt. The next message received by this observer was by BIU to AIU and reads:

"Say Jeff! This is Dan, your counterpart at BIU! We have had some difficulty getting through to you guys, and this is my latest attempt. I am able to converse to your Prof easy enough, but apparently my last three messages to you have been for naught. I know that we have problems at our campus with e-mail at times, so this isn't without precedent. But if hadn't noticed, I am mailing you from home and my system is damn close to perfection, forgive my modesty! Well, let me know how it is going, and maybe we will be able to complete this project! Later!"

Several issues need to be addressed when analyzing this particular message. The first is the abundant use of exclamation points. Clearly the sender is upset and wants to know why AIU has not been responding to there e-mails. This leads to another issue- has AIU been ignoring BIU or has there been technical difficulties. The sender addresses this issue in two ways. The first is by explaining that BIU has been able to contact Mark, the AIU professor without any problems. Indirectly this is stating that there does not seem to be a problem with AIU's server. The point mentioned is that the sender has a very reliable computer and server. By deductive reasoning, BIU assumes that they are being ignored. However, the one issue that may have been overlooked, is that the AIU professors and AIU students have different servers. Therefore, even if the professor receives a message, it does not mean that the students will receive it. On the other hand, when studying the other groups, this observer did notice that during the time in question, AIU students were receiving messages.

On the same day, Oct. 11<sup>th</sup>, BIU also sent an e-mail to the AIU professor. The message asks whether AIU has been on fall break and whether or not AIU had experienced any technical difficulties. BIU is trying to understand why AIU would not respond to their e-mails. The AIU professor cannot give a rationale for the group's behavior. AIU's response does not explain their behavior and the following messages between the groups continue in the usual question-answer format.

It is interesting to note that in a face-to-face conversation, when a one person makes a mistake, and another person offers that first person an "out" in order to "save face" then that second person usually recognizes the "out" and takes it. ( Brown and Levinston, 1978; Goffman,1955). In this particular case, where communication is via a computer, the face saving technique is not employed. There is no apology or a reason given for the absenteeism of the AIU group. They continue the "dialogue" by responding to questions and asking more questions of their own.

The next week BIU sends AIU a message that does not receive a response for over a week. The second e-mail sent by BIU does not question whether AIU received the message, as if they do not care one way or the other. The e-mail reads:

"The Wild 5 visited Conway high school today. We thought you would like the information we found out. I am trusting that you received the information I sent to you last week. The student system has..."

At this point, the sender describes the system at the high school. At the end of this e-mail, the sender writes, "Please e-mail us if you have any questions." Although there does not seem to be a very friendly atmosphere between these two groups, BIU is still extending an invitation to help in any way it can.

On Oct. 24<sup>th</sup>, the AIU group decides to write a response explaining their behavior. The e-mail explains that the group is not sure what is expected from them. The last line reads, "If you can, will you oetter inform me on what our specific goal for the project is."

On Oct. 31<sup>st</sup>, BIU sends a message to the professors at both universities explaining that they have not had responses from AIU. Unfortunately, the professors could offer no real answers.

BIU sends a few more e-mail messages to AIU but does not receive any responses. It seems apparent that BIU gives up because there are no more messages after Nov. 14<sup>th</sup>. The last message from BIU ends, " Time is winding down guys. It is time to get it done. Hope to hear from you soon as it has been three weeks since we hear from you."

However, BIU would not receive a response and their were no more transmissions after this point.

### Team Six

As noted with the other groups, communications between groups begins on a friendly note. The first two e-mails ask questions regarding clarifications regarding the correct e-mail address of fellow colleagues. On Oct.23<sup>rd</sup>, BIU sent a message to AIU keeping them informed. The e-mail seems collaborative and begins,

"Hi there! I just wanted all of you to know that the school cancelled our appointment on Mon and we had to reschedule for Fri. I did receive you questions, and will be asking Conway about them on Fri. It is then our intention to send you the answers by Mon."

This message gives information regarding the status of the group and gives future

direction. The problem has been assessed and a solution is given. And on Monday, BIU gave AIU the answers to various questions. The next day, AIU responded with a thank you and another question. “The only question we have now is how much money we’re dealing with?”

BIU responds a few days later and then, on Nov. 5<sup>th</sup>, AIU sends a message that simply has questions. There is no longer the friendly conversational style or update information. It is not addressed to any particular person and it closes with, “Have a day.”

BIU responds with brief, short answers to these questions. For example:

[Question for AIU]    What is the status of our homepage for the group?

[Answer]                It rocks! Feel free to access it: [www.example.edu](http://www.example.edu)

[Question]                Please compile a list of hardware that Conway has  
an your recommendation for them.

[Answer]                We’re in the process of asking Ron this question.

This is one of the few messages from all six teams that gives information regarding the website, which is part of the requirement. However, it has not been established how information regarding the website was settled. It seems that one team was held responsible. From the first question that is asked by AIU in this message, it seems that both groups knew who was responsible for this task. Both groups understand the requirements and are taking precautions to ensure that the task is completed. According to Hirokawa (1988) this will lead to a higher quality decision regarding the task at hand.

Collaborative behavior continues in the next message when AIU sends a message to BIU that informs the group about the upcoming Thanksgiving break. There is also a

sense of urgency, "...Then we have a day after that to get all this all organized."

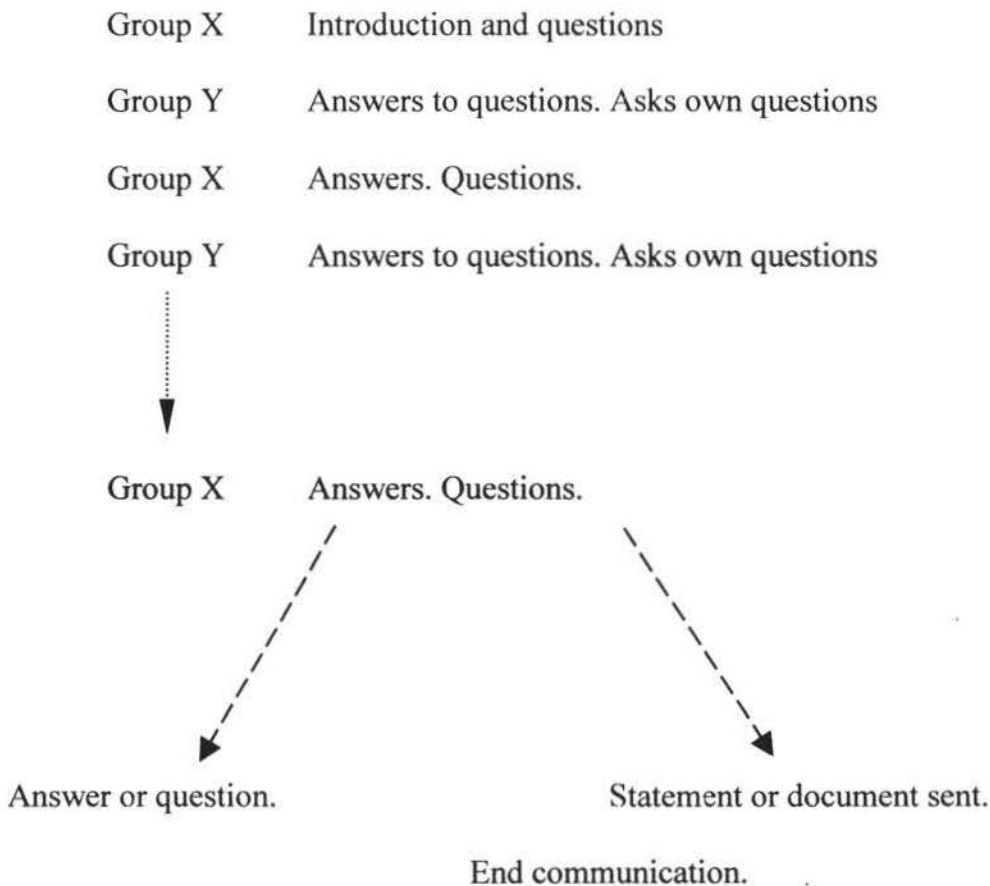
AIU's break ended on Dec. 1<sup>st</sup>. On Dec. 3<sup>rd</sup> they sent a message to BIU: the last message. The first part talks about their conflicting schedules and meetings. The last part reads, "I will send you the information we settled on in our meeting later on Wed. I understand it is crunch time. We only have three days left to finish things before our final which start on Mon."

Unfortunately, this is the last message sent by either group. While this team seemed to be the most cooperative, there is a lack of closure at the end and the final objective was not met.

#### General findings

Several common themes emerge after analyzing the communications of each team. The first is the style of communication. All of groups demonstrated a question-answer communication pattern. That is, most messages simply contained questions to be answered and the responses were the answers, frequently with more questions. This pattern continued throughout the semester with the final result being an abrupt termination of communication. Some groups ended the semester without answering the questions that were asked. (see Team Two and Six). Some ended the semester by giving answers or sending transmissions of a final document but did not ensure that the other group understood or excepted that final document. (see Team One, Team Three, and Team Four).

General pattern of communication between groups.



There is an overall pattern of communication that emerges over the course of the semester. Most groups demonstrated good communication in the beginning. That is, they tried to cooperate by giving necessary information to their counterparts, established and clarified goals, and had a friendly rapport. According to Deutsche, (1949) this is clearly cooperative behavior because they are helping each other attain their goals. According to Hirokawa (1988), as mentioned earlier, there seems to be a good understanding of goals and objectives, which should lead to higher quality decisions, which should lead to a good final product. However, toward the end of the semester, there are fewer messages being transmitted and the quality of the messages are no longer

friendly. As seen in the individual team analysis, groups no longer engaged in polite conversation. For example, on Oct. 23<sup>rd</sup>, BIU begins a message to AIU, "Just wanted to touch base with our favorite AIU guys!!!" The message seems friendly and sincere. However, by the end of the semester, the teams seem to neglect the communication process and the end result is a lack of communication that results in failure to meet the objective. The lack of communication impedes the progress or attainment of one or both groups' goal, which is a competitive act (Deutch, 1949). Unlike Brandenburger and Naleff's (1996) "co-opertition", in which we have cooperative behavior in a competitive environment, the result here is competitive behavior in what should be a cooperative environment or "co-opertition". However, the behavior demonstrated in this study was not typically deliberate. It seems clear that most participants did not deliberately deny their counterparts information in order to hinder their progress. Instead, the lack of action by either group resulted in a competitive environment for both groups. That is, when the groups began to communicate less, needs and concerns could not be addressed and the groups decided that they could manage to complete the project without further help from the other group. The result was that neither group accomplished the primary objective of having one paper and/or a presentation for both groups.



## Discussion and Conclusion

This study originally broached the question related to the communication patterns used by groups in a computer mediated communication project. After reviewing over 350 e-mails, several conversational structures surfaced in the data.

The first structure is the overall discourse sequence between the groups. The patterns were identified using conversational analytic techniques (Denzin & Lincoln, 1994). The discourse identified was a question-answer sequence. (e.g. Sacks & Scheloff, 1974; Duncan, 1972; Clark & Schunk, 1980). This simple interactive pattern may have been the result of the medium used, the nature of the group, or the lack of incentive to cooperate aside from a grade (which does not motivate all students). The interactive pattern identified here shows that conversational techniques can be used for media other than face to face.

The second structure is conversational termination. There were two types of closure used for terminating the conversation or communication.

The first type of closure can be referred to as "dumping" or "discarding". Toward the end of the semester, one group would send any information that they thought the other group needed. This was usually the last transmission between the groups. There are no indications that the message was received. There were no further questions. There were no further communications beyond that point. One group simply "dumped" the material they had onto the other group without redress.

The second type of ending was a complete extermination of communication. The end was usually preceded by sarcasm, angry tones in the messages, questioning of the other group's participation, and looking for an authority figure to help get the other group

motivated. The uncertainty and ambiguity led to a lack of communication. However, as we know, we cannot not communicate. Grosack (1954) found that cooperative behaviors involve sending and receiving more communication to a recipient in order to have cooperative behavior and hence better communication. The overall pattern found in this study suggests that a lack of communication produced a competitive environment. As described in past research the reason for this phenomenon may be the nature of the medium. Donnellon (1996) points out that collaborative teams have a “a social closeness, collaborative conflict management tactics, and a win-win negotiation process.” She also reminds us that when teams are under pressure the team members demonstrate less collaborative tactics when dealing with conflicts. However, the teams in this study did not communicate more when they were placed under stress, as would be predicted (Berger & Bradac, 1982). Also, they did not communicate more when they were uncertain about issues. Instead they would often ask the professors for advice or communicate less with the other group. Whether the endings were deliberate or incidental, the lack of effective and frequent communication produced a competitive environment when there should have been cooperation.

Ironically, there was no indication that students were dissatisfied with the assignment and group process (Hlavac, 1997; Stein, 1997). Students did not see the communication pattern outlined earlier as effecting their performance. Yet the final evaluations by the instructors reflected the failed communication (Hlavac, 1997). This oversight may be a function of the medium utilized for the project. If so, then when using a mediated channel, special attention should be directed toward encouraging the inclusion of conversational cues and group processes that are natural in face-to-face contexts, but

absent in CMC.

### Suggestions for Future Studies

This study encompasses a wide range of topics and incorporates several different lines of research. As such, many different avenues can be explored through a study of this nature. First, there is a need to explore the inter versus the intra-group communication patterns when the groups are engaged in a desired task. This includes the different forms of CMC in addition to face-to-face communication.

A second issue that can be explored is the assessment of motives. Why did the teams cease to have communication? Did they realize what was happening to the team? Did they care?

### Conclusion

Two classes at separate universities were studied. Each class had six groups that were paired with each other to form six teams. The teams were responsible for designing a comprehensive communication system for a high school. Students had two months to complete a hypertext document and a multimedia presentation that described their finished product. Intergroup communication was limited, by choice, to e-mail. The e-mails were studied as an ongoing conversation. Results show there are several factors that may contribute to the competitive behavior in this cooperative environment. The sequencing, types, frequency, tone, and content of the communication play an important part in understanding the competitive behavior that occurred in this task which was designed to be cooperative. By recognizing an understanding the critical differences between CMC and face-to-face communication channels, other groups may utilize this medium to its fullest potential.

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Appendix A  
List of e-mails

Team One

Date: Oct. 3  
 From: AIU  
 To: BIU

Date: Oct. 31  
 From: BIU  
 To: AIU

Date: Nov. 7  
 From: AIU  
 To: BIU

Greetings

Information regarding  
 Conway system

Response to ideas

Date: Oct. 21  
 From: BIU  
 To: AIU

Date: Nov. 1  
 From: BIU  
 To: AIU

Date: Nov. 15  
 From: BIU  
 To: AIU

Concerning scavenger  
 hunt

Repeat of message on  
 31<sup>st</sup>.  
 Sent again because of  
 technical error

Information regarding  
 meeting they had that  
 week  
 Talked about more ideas  
 Requested feedback

Date: Oct. 23rd  
 From: AIU  
 To: BIU

Date: Nov. 1  
 From: AIU  
 To: BIU

Date: Nov. 19  
 From: AIU  
 To: BIU

Concerning scavenger  
 hunt

Additional information  
 given regarding project

Update on what AIU has  
 been doing  
 Response to idea

Date: Oct. 24  
 From: AIU  
 To: BIU

Date: Nov. 5  
 From: AIU  
 To: BIU

Date: Nov. 21  
 From: BIU  
 To: AIU

Asked a few questions

Asking if they need help  
 Giving ideas

Answered questions

Date: Oct. 29  
 From: AIU  
 To: BIU

Date: Nov. 7  
 From: BIU  
 To: AIU

Date: Nov. 21  
 From: AIU  
 To: BIU

Scavenger hunt

Summary of what they  
 found at Conway

Asking more questions  
 and wanted feedback  
 from a question a few  
 days ago

Date: Oct. 29  
 From: BIU  
 To: AIU

Answered questions

Date: Nov. 24  
From: BIU  
To: AIU

Answered questions

Date: Dec. 3  
From: AIU  
To: BIU

Indicates to BIU that they are lost and need more information

Date: Dec. 5  
From: AIU  
To: AIU Instructor

Voicing their concern for the difficulty of the project

Date: Dec. 11  
From: AIU  
To: BIU

Request for other recommendations for the project

Date: Dec. 15  
From: BIU  
To: AIU

Tells AIU that all needed information is on the website

### Team Two

Date: Oct. 3  
From: AIU  
To: BIU

Test message

Date: Oct. 3  
From: AIU  
To: BIU

Letting BIU know that they are working on the survey

Informs them they will be updated as soon as possible

Date: Oct. 3  
From: AIU  
To: BIU

Letting them know that she did not get the message that was sent to the rest of the group

Date: Oct. 3  
From: AIU  
To: BIU

Another test message

Date: Oct. 23  
From: BIU  
To: AIU

Questions regarding the first assignment

Date: Nov. 4  
From: AIU  
To: BIU

Request for information regarding Conway  
Giving information regarding website

Date: Nov. 7  
From: AIU  
To: BIU

Agreement of group name

### Team Three

Date: Oct. 16  
From: BIU  
To: AIU

Tells AIU that they will be meeting with Conway soon

Date: Oct. 22  
From: AIU  
To: BIU

Introduces themselves and gives input for group name

Date: Oct. 22  
From: AIU  
To: BIU

Person at AIU  
introduces himself

Date: Oct. 23  
From: BIU  
To: AIU

Request for information

Date: Oct. 24  
From: AIU  
To: BIU

Informs BIU about their  
spokesperson

Date: Oct. 29  
From: AIU  
To: BIU

Requesting information

Date: Oct. 31  
From: AIU  
To: BIU

Repeating some of the  
questions

Date: Nov. 5  
From: AIU  
To: BIU  
Update on their progress

Requesting information

Date: Nov. 12  
From: AIU  
To: BIU  
Update on progress

Date: Nov. 12  
From: BIU  
To: AIU

Sending information  
concerning the webpage

Date: Nov. 14  
From: AIU  
To: BIU

Response to suggestions  
made  
Update on progress

Date: Nov. 21  
From: BIU  
To: AIU

More suggestions made

Date: Dec. 1  
From: BIU  
To: AIU

Response to suggestions

Date: Dec. 3  
From: AIU  
To: BIU

Sent a final outline

Team Four

Date: Oct. 31  
From: AIU  
To: BIU

Request for information

Date: Nov. 5  
From: AIU  
To: BIU

Response to questions  
Request for information

Date: Nov. 5  
From: BIU  
To: AIU

Response/answer to  
questions

Date: Nov. 7  
From: AIU  
To: BIU

Request for information

Date: Dec. 1  
From: BIU  
To: AIU

Suggestions for  
homepage

Date: Dec. 3  
 From: BIU  
 To: AIU Professor

Giving them a  
 PowerPoint  
 (multimedia)  
 presentation

Date: Dec. 11  
 From: BIU  
 To: AIU

Giving them a website  
 address

#### Team Five

Date: Oct. 2  
 From: BIU  
 To: AIU

Request information  
 regarding first  
 assignment

Date: Oct.11  
 From: BIU  
 To: AIU

Wondering if messages  
 are getting through

Date: Oct. 11  
 From: BIU  
 To: AIU professor

Asking if there are  
 technical difficulties

Date: Oct. 24  
 From: AIU  
 To: BIU

Explaining that they feel  
 lost

Date: Oct. 30  
 From: BIU  
 To: AIU

Giving information  
 regarding Conway

Date: Oct. 31  
 From: BIU  
 To: Both professors

Asking why AIU has not  
 responded

Date: Nov. 14  
 From: BIU  
 To: AIU

Update on progress

Date: Nov. 25  
 From: BIU  
 To: AIU

Informs AIU of  
 deadlines

#### Team Six

Date: Oct. 3  
 From: AIU  
 To: BIU

Request for information

Date: Oct. 3  
 From: AIU  
 To: BIU

Request for information

Date: Oct. 3  
 From: AIU  
 To: BIU

Reply to questions

Date: Oct. 17  
 From: AIU  
 To: BIU

A "thank-you" for help  
 so far  
 A request for  
 information

Date: Oct. 20  
 From: BIU  
 To: AIU

Reply to questions  
 Request for information

Date: Oct. 24  
 From: AIU  
 To: BIU

Update on progress  
 Request for information

Date: Oct. 25  
 From: BIU  
 To: AIU

Reply to questions

Date: Oct. 29  
From: AIU  
To: BIU

Update on progress  
Request for information

Date: Nov. 5  
From: AIU  
To: BIU

Request for information

Date: Nov. 7  
From: AIU  
To: BIU

Request for information

Date: Nov. 12  
From: AIU  
To: BIU

Volunteered information

Date: Nov. 12  
From: BIU  
To: AIU

Request for information

Date: Dec. 3  
From: BIU  
To: AIU

Update on progress