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UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ARGUMENTATIVENESS, VERBAL AGGRESSIVENESS, COMMUNICATION APPREHENSION AND THEIR RELATIONSHIP TO ACCEPTANCE AND SUPPORT OF DECISIONS MADE IN SMALL GROUPS

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

In partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

Thomas Lee Boam
Norman, Oklahoma
1999

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ARGUMENTATIVENESS, VERBAL AGGRESSIVENESS, COMMUNICATION APPREHENSION AND THEIR RELATIONSHIP TO ACCEPTANCE AND SUPPORT OF DECISIONS MADE IN SMALL GROUPS

A Dissertation APPROVED FOR THE
GRADUATE COLLEGE

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Terminology

Argumentativeness: A generally stable trait that predisposes an individual in communication situations to advocate positions on controversial issues and to attack verbally the positions that other people take on these issues.

Communication apprehension: The level of fear or anxiety associated with either real or anticipated communication with another person or persons.

Individual acceptance of group decisions: The degree to which an individual member of a group agrees with the ultimate decision of the group. This refers to the substance (task) of the decision and not how the individual feels about the group members, or general concepts of group loyalty.

Individual support of group decisions: The degree to which an individual group member feels a decision deserves to be backed, encouraged, or promulgated in the organization. Although this may be partially a function of how correct the individual feels the decision is, it also reflects his or her emotional attachment to the group, as well as general feelings about loyalty and group cohesiveness.

Successful decision: A decision that is adopted by a group, accepted as correct, and is supported by group members to other members of the organization in which the small group resides.

Thought turn: A unit measure of intervention by an individual in a group discussion, used for coding observed behavior. A represents a change in thought, and not necessarily speaking turn.

Verbal aggressiveness: Attacking the self-concepts of others in order to inflict psychological pain such as humiliation, embarrassment, depression, and other negative feelings about self.

Abstract

Within business, government and other organizations, there is often dissatisfaction with group meetings and the decisions they generate. Countless studies have attempted to evaluate and improve the decision process within groups. For this study, the traits of Argumentativeness (ARG), Verbal Aggressiveness (VA), Communication Apprehension (CA) and their associated behaviors (predictor variables) have been selected to investigate their relationships to the group decision process. This study argues that because the correctness of a group decision is difficult to ascertain in open-ended questions, the quality of the task-related group outcome may be most appropriately measured through indicators which must be present for group decision making activity to succeed. These indicators are individual acceptance of the group decision, and individual support of the decision, as defined in the study (criterion variables). This study hypothesized that the predictor variables of trait predispositions and behaviors influence the criterion variables of acceptance and support in the group decision process.

Participants in this study were individuals who had previously worked together in a company or some other organization. They had an existing relationship that was anticipated to continue. The participants were asked to complete survey instruments to measure ARG, VA, and CA predispositions. They were then assigned to work in a group of five people. The group members interacted in a decision making exercise where they discussed five projects, reached consensus on the importance of each one, and reported their rankings of the proposals. Group deliberations were videotaped. Coders viewed the

tapes, and recorded the behaviors of the group members that correspond to the ARG, VA, and CA predispositions. Group members then completed an exit questionnaire, expressing their level of support for the group decision. They then individually ranked the five proposals again, based on their personal decision preference, not that of the group. Finally, the group members evaluated their behavior within the test group, comparing themselves to their behavior in real group situations. This measure was used to examine the effect that observing and recording the groups' activities had on individual behaviors and attitudes.

For analysis of the data, individual predisposition measures were the scores from the ARG, VA and CA questionnaire, and the behavior scores were tabulated from the coded group activity for each person. The "acceptance" criterion variable was measured by calculating the absolute difference between individual scores and the group score on the proposal rankings (Δ-Rank). "Support" was measured by the score on the individual exit questionnaire (IEQ). Using ANCOVA, a comparison was made of the resulting 12 relationships (three traits and three behaviors, compared with two outcome measures). The model also included demographic data from each of the participants to determine if age, gender, residence outside of the US, or length of employment had any impact on the results.

The results indicate a positive relationship between argumentative behavior and agreement with the group decision. The hypothesized relationship between trait argumentativeness and agreement with the group decision, and between VA and CA was not statistically significant. There was no statistically significant relationship between

support for the group decision and any of the predictor variables. Demographic factors are also not significantly related to these variables. Contrary to widely accepted theory, there was a significant negative relationship between trait ARG and argumentative behavior. This was not true with VA and CA behaviors, however, which were positively correlated with each other. This research indicated that argumentative behavior does influence the agreement with group decisions. Those who argue feel more like they have had a role in shaping the decision, and therefore agree with it.

CHAPTER 1

Purpose and Introduction

Purpose

Most organizational decisions are made in groups, rather than by individuals (Aldag & Riggs-Fuller, 1993; Barnes-Farrell, & Lowe, 1989; Offermann & Gowing, 1990; Rogelberg, Watson, Michaelsen, & Sharp, 1991). It has been estimated that 40% of managers' time, over 9,000 hours in a lifetime, will be spent in meetings (Doyle & Straus, 1976, p. 4). In addition, the amount of time corporate leaders spend in meetings increases proportionately to their rank, making the impact of group activity on companies even greater. The reasons for holding meetings may vary (problem solving, exchange of information, building affective ties between members, etc.), but group decision-making remains an important aspect of most small group activity. The cost to American industry of making decisions by this method can easily be placed in the billions of dollars. Decision-making in small groups is significant in areas other than business as well. The American system of justice, for example, relies on a "jury of peers,"-- a small group -- that sometimes makes life and death decisions. Government organizations, universities, churches, schools, clubs, and other non-governmental organizations rely on small groups to make decisions. Even a "family counsel" can be a small decision-making group. In fact, it is suggested that, "the average person belongs to five or six groups at any given time and the number of existing small groups may number in the billions throughout the world" (Gorden, 1978, p. 138).

Standard wisdom says that "two heads are better than one," but another aphorism says that "too many cooks spoil the broth." Either of these statements could be true at any given time within an organization. Other preconceptions of group decision-making also color the way in which organizations approach the decision process: Groups should avoid arguments, and keep an open mind, groups should strive for equal participation, group members should have specific duties, getting the job done is more important than getting along, democratic methods are best, and compromise is the best strategy (Ellis & Fisher, 1994, p. xix).

Evaluating each of these preconceptions was beyond the scope of this study, but the importance of improving group decision processes cannot be overstated. Whether or not these preconceived notions influence outcomes, group decision-making remains a primary management tool in virtually all organizations, even though the quality of the output of such groups is checkered at best. For good or ill, organizations place a great deal of faith in the group decision process (Roseman, 1995). Given what is at stake, improving the group decision process is a subject which deserves greater attention, and this dissertation is an attempt to do just that.

Introduction

Synergy, the idea that the whole is greater than the sum of it parts, has been widely touted as the primary reason for problem solving in groups, yet as has been seen, groups do not always make the best choices. It was a group that decided to launch the Challenger Space Shuttle and invade the Bay of Pigs. The decisions to both acquit O. J. Simpson

and to find him guilty were made by juries--a decision-making small group--on the basis of roughly the same evidence in both cases.

Synergy is not automatically bestowed on groups, nor is the ability to make good decisions. There is a widely held belief in organizations that teams are more effective in generating ideas than individuals, but little proof of this exists. There is clearly a need to better understand what synergy is supposed to be in groups, and why it makes groups better for the decision process than leaving this important function in organizations to one individual.

Even though the process is not well understood, most organizations rely on groups to make decisions. Although the organizations trust small groups for this important function, the shortcomings of these groups are also well understood. Hundreds of popular publications have had articles dedicated to improving the effectiveness of small groups (e.g. Beck & Yeager, 1996; Buckenmeyer, 1996; Burns, 1995; Davidhizar & Bowen, 1995; Davis, 1969; Donoho, 1996; Doyle & Straus, 1976; Furnham, 1993; Gladstein, 1984; Ledgerwood, 1996; Pollack, 1992; Whigham-Desir, 1994). Many articles give advice on running decision-making groups, but have no empirically based evidence for their advice. Some even give tips that run counter to tested theory. For example, Goldhaber (1986, pp. 303-304) suggests, as do many others, that disagreements in groups are, "indicators of trouble."

Some articles warn against conflict in groups (Kuhn, 1991, p. 449; Roseman, 1995), others warn against avoiding conflict (Janis, 1982), and others suggest encouraging it (Chanin, & Shapiro, 1984; Schweiger, Sandberg, & Ragan, 1986; Schweiger, Sandberg,

& Rechner, 1989; Schwenk & Cosier, 1993; Schwenk & Valacich, 1994). As will be shown, most of the empirical research indicates that disagreements are key to successful group outcomes.

Much of the scientific research has focused only on why groups fail (Callaway & Esser, 1984; Chen, Lawson, Gorden, & McIntosh, 1996; Leana, 1985; Neck & Moorhead, 1995). Others have studied how the members of groups react in various circumstances. Only a few have looked at the overall outcomes of group decisions, how the decisions were derived, and what factors influence them.

The entire process of group decision-making is very complex. Research on group decisions has been approached from a number of different perspectives, with models drawn from psychology, social psychology, business, political science, economics, and communication. Studies of group decision-making can be found in journals on nursing, hotel management, human resources, organization behavior, education, engineering, and many others. There is no unified body of empirically tested theory on the group decision process, and only moderate agreement regarding various critical aspects of group behavior.

In studying group decision-making, it is clear that no single researcher will create the ultimate or defining theory, nor will it be possible to describe the entire decision-making process. It is hoped that this research project will add knowledge to a given aspect of the process. The results must be seen in conjunction with the entire body of research on this subject, because only a few of the factors and interrelated processes can be studied at one time. This study attempts to look at the small group decision-making

process from a communication perspective, and focuses on the effect of three individual predispositions, their related behaviors, and their effect on outcomes of group activity.

What are Small Groups?

According to Harris (1993, p. 327), small groups have nine elements:

1. face-to-face communication (Bales, 1950, p.33)
2. among a small group of people,
3. who share a common purpose or goal (Beebe & Masterson, 1990, pp. 3-4)
4. and perceive a sense of belonging to the group (Cartwright & Zander, 1968)
5. who have interdependence (Cragan & Wright, 1991, p. 9)
6. create and enforce norms and shared standards (Brilhart & Galanes, 1989, p. 5)
7. exert influence upon each other (Beebe & Masterson, 1990, p. 5)
8. over a period of time,
9. through some structured patterns (Cragan & Wright, 1991, pp. 9-10)

Brilhart refers to this as "groupness:"

> Groupness emerges from the relationships among the people involved, just as 'cubeness' emerges from the image of a set of planes, intersects and angles in a specific relationship to each other. One can draw a cube with twelve lines, if they are assembled in a definite way. Any other arrangement of lines gives something other than a cube. Likewise, one can have a collection or set of people without having a group... (Brilhart, 1978, p. 21).

These definitions have created some difficulties in the actual study of group activities. An informal analysis of the literature in the bibliography of this study indicates that approximately 70% of the research was performed on collections of people that do not qualify as small groups, under the definition given above. Predominantly, formal research on groups has used college students, usually 18-25 year old freshmen and sophomores, who have no previous experience with each other. Identifying a random collection of zero-history students as a "group" violates at least five of Harris' defining features of a group.

For this reason, this study used participants who know each other, and have associated closely in either work groups, cohort groups, or other organizations. Although it is not necessary for the participants to be members of existing small groups, having them well known to each other allows for at least eight of the nine requisites to be fulfilled (excepting element eight, "over a period of time").

What are Group Decisions?

Decisions are discrete events, clearly distinguished from other group activities, although it is not always possible to specifically know when a decision process begins or ends in group activity (Hirokawa & Poole, 1996, p. 9-10). Generally speaking, a decision is defined as a choice between competing alternatives. Groups are usually tasked to select the "best" alternative from choices they are given or have generated themselves. Some of the literature focuses on how a group develops alternatives, whereas other authors examine how the group determines which alternative is best. Most models of decision-making assume a rational approach in the choice process. Through a process of weighing

alternatives and persuasive arguments, the group chooses the best alternative (Meyers, 1989; Meyers & Seibold, 1990). The actual decision-making process in groups is more complicated than this.

Good decisions have two aspects: The objective quality or effectiveness of a decision, and the subjective acceptance of the decision by those who must execute it (Maier, 1970; Roskin, 1975). Although it is an intuitively straightforward concept, decision quality becomes a thorny issue when one tries to measure it objectively in a way that allows comparisons between decisions and across contexts. The quality of decisions cannot be inferred directly from ensuing company or organization performance. Performance is the result of decisions, implementation, competitor behavior, the business environment, and often, just plain luck (Simons, 1996).

The correctness of a decision is often dependent on the frame of reference. While the "bottom line" may be viewed as the primary criterion of success is business organizations, employees or outside observers may not evaluate the correctness of corporate decisions by this measure. For example, an arms manufacturer that produces land mines may be profitable. A decision to improve the mines, or increase sales to unstable areas of the world may not be viewed by all as a "correct" decision.

In addition, the question of "opportunity cost" must be considered–the cost in time and money of making a decision and thereby excluding all other possible decisions that could have been made. Once a decision has been made by a group, it is impossible to know what would have happened if competing alternatives had been chosen. Thus, the opportunity to make any other decision is lost. Even if it were possible to go back and

select a different alternative, the state of the organization has been changed by the implementation of the first decision, and it cannot be returned to its original state. Also, even if another alternative were selected, it is still not assured that this alternative is the best of all possible choices. In short, evaluating whether or not the best solution for an open-ended problem has been selected is an extremely difficult task in most real-life situations.

How Does One Measure Group Decision Effectiveness?

Because observing specific outcomes of the group decision process usually cannot be the only measure of success, it is necessary to find surrogate measures. Hackman (1987) and Sundstrom, et al. (1990) suggest the following as potential measures of success: Group produced outputs, consequences for the members of the group, and the enhancement of the team's capability to perform effectively in the future. As indicated, measuring group outputs is a challenge. On average, one-third of real-life business decisions are never carried out. This failure rate rises to 50% when one counts decisions that are only partially carried out, and later overturned by higher management within the organization (Weimer, 1996). The decisions may be overruled because of factors unknown to the group, because of executive fiat, or because the group may not have actually been empowered to make any decisions in the first place (management subterfuge).

In addition, there are countless examples within industry of decisions that were implemented and were unsuccessful–the Edsel, New Coke, Novell's purchase of Word Perfect, etc. All of these major decision failures were the result of group decisions, or a

series of group decisions. There are several possible reasons for failures like these, including the following:

1. The decision by the group is inherently flawed.
2. Key group members disagree with the ultimate group consensus, and undermine the implementation of the decision.
3. The decision lacks enthusiastic support from members of the group and is not "sold" effectively to the organization (Note: group members could agree with the substance of the decision, but disagree with the way the decision was made, have a grudge against a group member, feel like they were not sufficiently involved, or any number of other personal complaints about the way in which the decision was made).
4. The group decision is rejected or unsupported by superior authority.
5. The group decision activity is a sham. That is, the organization leadership formed the group for other reasons (team building, obfuscation, stalling, etc.) and never intended to implement any decision. Another possibility in this regard is that the decision had already been made, and the group was organized to rubber stamp it.

Reason one, as has been indicated, cannot be effectively measured for open-ended questions. Reasons four and five are exogenic to the group, because they require action by individuals who are not part of the decision process. Reasons two and three are within the framework of the group, and provide promise of yielding measurable outputs that could be used to determine group effectiveness. Because one of the purposes of the group process is to build consensus–both on the content of the debate (task) and on the support

for the ultimate decision (affect)–measures of these outputs provide the best indicator of decision effectiveness, at least from an empirical perspective. If individuals agree with the decision (task aspect), and are willing to support it (the group has encouraged cohesiveness around the decision), the decision has a better chance of enjoying success within the organization.

This study has, therefore, focused on these two elements of the group decision process:

1. Do group members agree with the decision made by the group (task)? The group members reach consensus on a decision, but that does not mean that each group member agrees with that decision outside of the group setting. A group member may favor an alternative solution, even though agreeing with the group. He or she may simply go along with the group decision to expedite procedures, or to maintain harmony. If the group deliberation has not convinced the member to personally favor the group decision, there will be dissonance between the group decision and the individual's own personal choices. A measure of this dissonance was the score for "acceptance" in this study.
2. Do group members sort the decision outside of the group setting (social-emotional commitment)? In addition to pure acceptance of the decision, other factors may influence whether a group member will overtly support the group decision. Each group member will have preconceived notions of loyalty and responsibility to the group. This may supercede any disagreement with the content of the decision outside of the group setting. Acceptance may have been achieved at the cost of

group cohesiveness, with acrimonious arguments needed to reach a final decision. This could reduce the personal commitment to the final decision as well.

Although neither of these two aspects guarantee the decision will be successful, if they are missing from the group decision, one can virtually guarantee that the decision will NOT be successful. For the purpose of this study, these two variables constitute the criterion variables. It was anticipated that they would be relatively independent of each other, since one measures task and the other social-emotional issues.

A Communication Predispositions Model

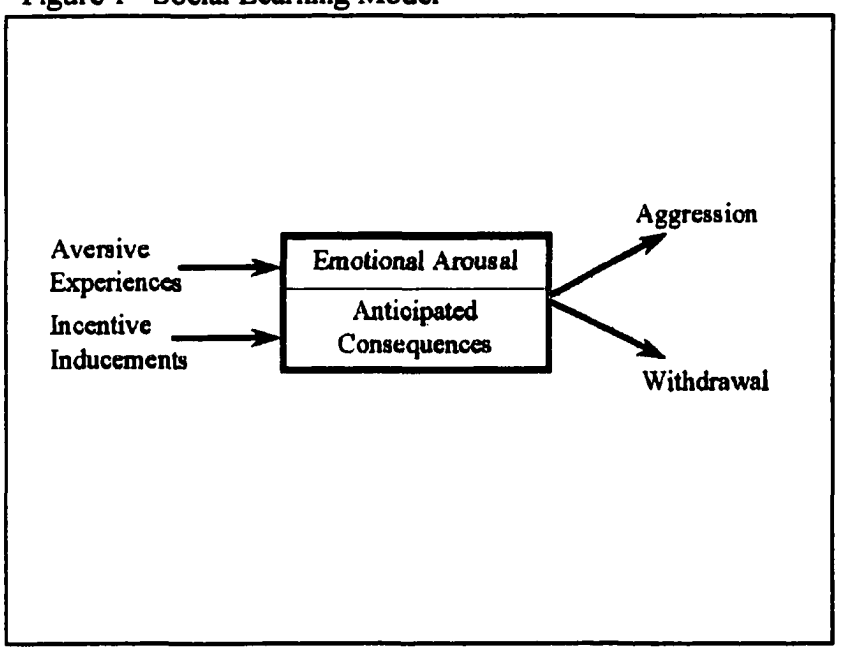
There are a number of ways in which group decision-making activity can be studied. Research has looked at leadership, time sequencing, gender, ethnicity, networking systems, task versus affect, proximity, rules and norms, methods (brainstorming, focus groups, etc.), communication models, power, non-verbal behaviors, conflict, function, symbolistic frames, etc. (Ellis, & Fisher, 1994; Hirokawa & Poole, 1996). These studies have shed considerable light on the decision-making process in groups. One area that has received less attention is the issue of predispositions of the members of the group.

Each group member comes to the group decision-making process with a set of traits or predispositions. These traits are the result of psychological processes within the individual and are impacted by the same processes that define the individual's entire personality. Some personality traits are positive, and contribute to psychological well being and personal happiness. Some traits are a matter of life choices, and are neither positive or negative, but simply define personal preferences. Some traits are negative and

destructive, reducing the quality of life for those having these traits, as well as negatively influencing the lives of those with whom they come in contact.

Bandura (1973a, 1973b, 1978) attempted to explain the development of traits in terms of "social learning theory." This theory postulates that personality traits are a

Figure 1 Social Learning Model

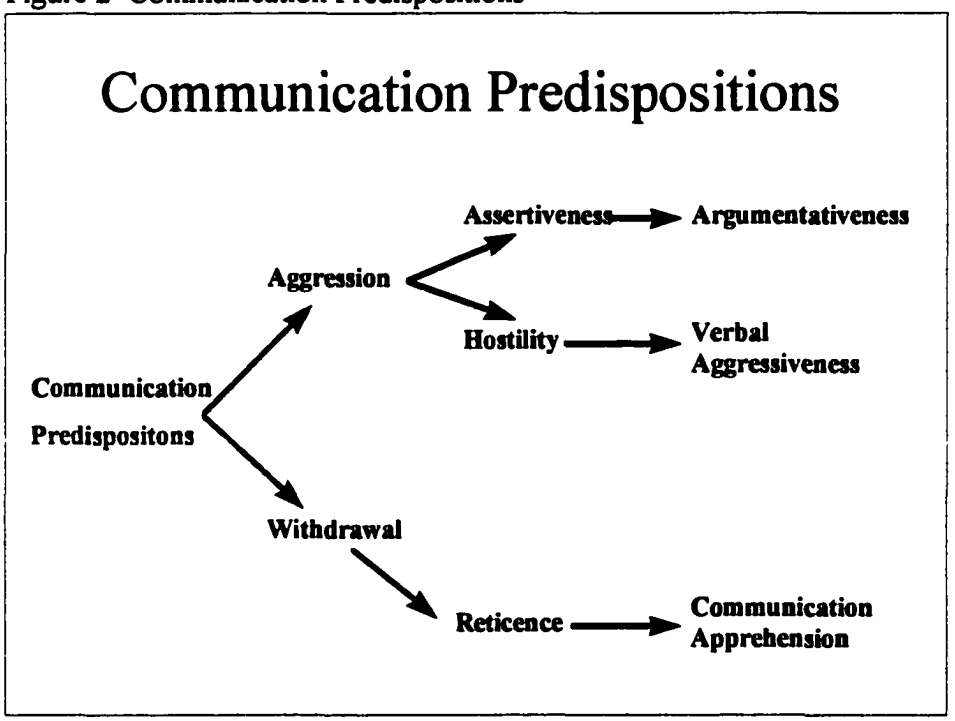


function of life experiences. An individual has both "adversive experiences" and "incentive inducements." These factors evoke emotional arousal and anticipated consequences, which in turn generate predispositions, or traits. Figure one graphically represents the Bandura model.

Bandura explains that earlier theories had assumed traits to be either instinctive (Instinct Theory), or driven from a conglomeration of life experiences which "...automatically build up" (Bandura, 1978). In his model, both negative and positive

experiences induce an emotional arousal, but this arousal is transformed by anticipated consequences of expression of the trait to determine its final form. For example, when distressed, some people seek help and support; others increase achievement efforts; others display withdrawal and resignation; some aggress; others experience heightened somatic reactivity; still others anesthetize themselves against a miserable experience with drugs or alcohol, and most intensify constructive efforts to overcome the source of distress (Bandura 1978, p. 18). Bandura refers to this system as the "arousal-prepotent response"

Figure 2 Communication Predispositions



formulation. Although Bandura explained this system primarily in terms of aggressive behavior, the model has implications for this research project.

Using different terms, the concept of an aggression trait and a withdrawal trait, as shown in Figure 1, have been described by other authors within the communication setting (as illustrated in Figure 2). Carment, Miles, and Cervin (1965) described these two traits as "extroversion" and "introversion," as have others (Borg & Tupes, 1958; Burgoon, 1976; Eysenck, 1970; Eysenck, 1971). These authors described similar characteristics associated with these traits. Infante (1987) posits that "aggressive communication" is controlled by a cluster of four communication traits that interact with environmental factors to energize message behavior. Two of these traits are considered constructive (assertiveness and argumentativeness) and two are considered destructive (hostility and verbal aggressiveness). Infante uses the term "aggressive communication" to apply to both of these traits, which is unfortunate because of the potential for confusion with "verbal aggressiveness," one of the above listed destructive traits.

Infante's term "aggressive communication" fits well into the system proposed by Bandura. As Bandura indicated, the aggression trait is the result of aversive and incentive experiences. It can have both positive and negative manifestations. Infante (1987) refers to the positive manifestation as "assertiveness." As defined, "assertiveness is the trait to be dominant, forceful and ascendant interpersonally" (Infante, Rancer & Jordan, 1996). Assertiveness and responsiveness are recognized as essential elements of interpersonal communication competence (Martin & Anderson, 1996; McCroskey & Richmond, 1996). A subset of assertiveness is argumentativeness. Argumentativeness is defined as: "a generally stable trait which predisposes the individual in communication situations to

advocate positions on controversial issues and to attack verbally the positions (task related) which other people take on these issues" (Infante & Rancer. 1982). All argumentativeness is assertive, but not all assertiveness is argumentative. There are other forms of assertiveness as well. Argumentativeness (ARG) was one of the predictor variables this study examines.

The negative manifestation of "aggressive communication" is hostility. As with assertiveness, hostility has a subset--"verbal aggressiveness." Verbal aggressiveness is defined as: "attacking the self-concepts (social-emotional related) of others in order to inflict psychological pain such as humiliation, embarrassment, depression and other negative feelings about self" (Infante & Wigley, 1986). As with argumentativeness, all verbal aggressiveness is hostile, but not all hostility is verbally aggressive (see Figure 2). Verbal aggressiveness (VA) was a second predictor variable in this study.

As indicated, argumentativeness and verbal aggressiveness are both aggression related traits. They differ in the locus of attack--a person's position on a controversial issue versus the person's self-concept. Although they both have the same basic "family tree," the traits have been shown to act fairly independently (Infante & Rancer, 1982). One can be either verbally aggressive or argumentative, both at the same time, or show no particular strength in either.

The other branch of the Bandura model is "withdrawal." Bandura does not claim this to be the opposite of aggression, but only another possible trait manifestation. It is intuitively logical, however, to see this trait as radically different from the aggressive model. The words used by Bandura to describe the two traits are linguistic antonyms.

Having this opposite characteristic is not necessarily a requirement in this model, however. Bandura shows them as separate branches, indicating they are different manifestations of his emotional arousal/anticipated consequences model.

The trait Bandura identifies as "withdrawal" has several different names in the literature, as it relates to communication: stage fright (Clevenger, 1959), audience sensitivity (Paivio, 1964), reticence (Phillips, 1968), shyness (Zimbardo, 1977), unwillingness to communicate (Burgoon, 1976) and communication apprehension (McCroskey, 1970). The best developed of these is McCroskey's term communication apprehension (CA). CA is defined as, "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons (McCroskey, 1970). CA researchers have classified CA as a subset of reticence. Phillips (1968) defined a reticent individual as "a person for whom anxiety about participation in oral communication outweighs his (sic) projection of gain from the situation." As with the other traits, CA represents a subset of a larger trait. As defined here, all CA is reticent, but not all reticence is communication apprehensive.

Several authors agree with Bandura, that withdrawal, or reticence is related to previous anxiety experiences (Beatty, 1988; Beatty & Andriate, 1985; Beatty & Behnke, 1980; McCroskey & Beatty, 1984). It is also consistent with contemporary views from other disciplines about the development of personality traits (McReynolds, 1976; Mischel, 1973; Spielberger, 1966; Zuckerman, 1976).

It was not the purpose of this paper to define good and evil, nor to evaluate personal choices. It is clear from the research, however, that these personality traits and

predispositions can have a positive or negative impact on group processes. In this research project, these three traits have been chosen for study: Argumentativeness, Verbal Aggressiveness and Communication Apprehension. They will be examined more completely in the Literature Review.

Behaviors Versus Predispositions

Whereas the literature suggests that actual behaviors will be primarily driven by predispositions (Stewart & Roach, 1993), several studies have shown that behaviors are situationally modified. This concept is part of the "interactionist model" (Bales, 1950, 1952, 1953, 1959; Infante & Rancer, 1982). Bales saw this model as an explanation for the establishment of equilibrium between task and affect within the group experience. In personality theory, this model assumes that traits interact with environmental factors to produce behaviors (Andersen, 1987; Epstein, 1979; Magnusson & Endler, 1977; Mischel, 1973; Onyekwere , et al. 1991). This means that people who are highly argumentative, verbally aggressive, or communication apprehensive can exhibit behaviors different than the trait would predict. For example, people who score low on the CA scale (i.e., enjoy communicating), may choose to be silent in certain circumstances. Simply because a person values communication does not mean that he or she will exercise this preference in all cases. An individual talking with an autocratic supervisor will exhibit far different communication behaviors than he or she would in conversation with a small child, irrespective of the CA score.

This situational modification of behavior is important. In fact, one of the premises of this study was the likelihood that relationships between group members will have

substantial impact on the exercise of predispositions. That is, someone who may score high on the VA scale may choose to dampen the expression of this trait in the group, if existing relationships take precedence over the "winning" in the discussion. This could be a particular problem in a research environment where those being observed realize that the situation was not real. It is possible that participants would be less inclined to endanger future relationships with group members for the sake of arguing effectively (from their perspective) in a hypothetical situation. Even if they value verbal aggressiveness as a way of solving problems, they may choose not to use such a powerful tool in a situation with no real stake, and where a future relationship may be jeopardized.

It is possible that one can partially overcome this problem with incentives to participate fully in a sham negotiation. In preparation for this research project, the proposed test instrument (see Chapter 3) was field tested on four small groups. The purpose was to find and remove ambiguities in the instructions. In these initial trials, the groups were given various instructions. In two cases, the groups were offered $50.00 as an incentive to get the "right answer" to the test instrument. In the other two groups, the participants were simply told to take the group experience seriously.

The standard motivator–money–was not particularly effective. Group members knew that the study was for a dissertation and understood this meant limited resources were available. From their comments, it was clear that they assumed the money would not actually be awarded to the "winner" (although the instructions did not indicate any individual would "win"). The group members simply were not motivated by such a relatively small amount of money. The participants were clearly cognizant of the fact that

they were being studied, drew inferences from the surroundings, and their preconceived expectations of reasonable behavior. This research project was designed to study adult participants, who are usually gainfully employed, or have a secure source of income through a spouse. The level of financial reward required to motivate these individuals is probably much higher than with freshman and sophomore college students, who are the ususal participants for such studies. Even if the payment were higher, the participants simply do not believe the money will actually be paid, in spite of repeated assurances. They clearly draw this conclusion from the context. Were the researcher a large, anonymous organization, with unfathomed financial reserves, the reaction may have been different.

The second two groups were given a "stern talking to," which appeared to be substantially more effective as a motivator. Specific instructions to regard the situation as "real" and to act accordingly (e.g. "Please take this exercise seriously, and act as if it were real, or the results will not be valid.") had a very positive result on the participants' actions. These two groups discussed the subject matter with more intensity and greater engagement than the groups who were offered money.

No matter how many incentives are provided to the groups, they will not overcome all situational variables that influence behavior. The cited research predicts that there will be a high correlation between trait and behavior. The interactionist model posits that the situational differences will still play a major role in the group process, and be a factor in lowering correlations. Both preexisting relationships and the development of power structures in group interactions will increase the distance between individual

predispositions and the actual behaviors. Nevertheless, research indicates that there will be a strong relationship between the trait and the behavior (Infante & Rancer, 1993). The extent to which trait and behavior are related can have an important impact on evaluating what actually occurs in group discussions, and aid in developing a theoretical framework to evaluate the relative importance of traits and behaviors in explaining decision-making situations. If there are substantial differences between trait scores and behavior scores, this should be measured, evaluated, and explained.

Research Project

This research project examines the relationship between the predictor variables, argumentativeness, verbal aggressiveness, and communication apprehension to the criterion variables of group acceptance (agreement with) and support of decisions. As is shown in the literature review, it was expected that there will be a significant positive relationship between the criterion variables and argumentativeness (ARG_{gt}). It was anticipated that there should also be a significant positive relationship of the criterion variables to the predictor variable verbal aggressiveness (VA) and communication apprehension (CA). The instruments in the two latter cases measure the presence of a negative characteristic with a high score, where the ARG scale is measuring the presence of a positive trait. Thus, even though the correlations for VA and CA would be positive, this would actually show an inverse relationship for VA and CA to ARG.

While there have been numerous studies on the role of ARG, VA and CA, most of them have not specifically examined the roles of ARG, VA, and CA in small group decision-making. In this specific area, research has been sparse. Only two studies have

actually looked at ARG behavior in decision-making, and these were in a different context. No studies have specifically investigated VA or CA in this context. One study (Anderson & Martin, 1999) studied ARG and CA in small groups, but not in relation to decision-making. While there is good evidence in the literature upon which to base theory, there has been virtually no testing in a decision-making group setting.

In addition to the study of the outcomes of group discussion on acceptance and support for the decision, this research examines the "interactionist model" in the narrow framework of the relationship between predispositions and behaviors. The interactionist model assumes that predispositions and behaviors will be positively correlated, but that the situation in which communication takes place will moderate an individual's actual behavior when compared to a measured trait predisposition. The participants in the group should be less argumentative, less verbally aggressive, and more communicative (decrease in "aggression" communication and "withdrawal"communication behaviors) as a result of group processes.

Chapter 2

Literature Review

Both small group decision-making, and the processes by which decisions are made have been the subject of countless research projects and scholarly articles (Frey, 1996). The literature suggests a number of different theories, such as symbolic convergence theory (Bormann, 1996), functional theory (Gouran & Hirokawa, 1996), socio-egocentric theory (Hewes, 1996), structuration theory (Poole, Seibold, & McPhee, 1996), and bona fide groups theory (Putnam & Stohl, 1996). It also describes important processes in decision-making, such as leadership (Barge, 1996), communication and effectiveness (Hirokawa, Erbert & Hurst, 1996), developmental processes (Poole & Baldwin, 1996), and influence (Seibold, Meyers, & Sunwolf, 1996). Any evaluation of this literature must be focused, or it will drown from the sheer weight of the material.

After a brief review of the pertinent literature on decision-making, this review will concentrate on the research about predispositions, related behaviors, and the association with the group decision-making process. The literature review will add information on the subject, and then, in the rationale section, develop an argument from the existing research for theoretical concepts underlying the proposed direction of this study.

The literature supports the use of predispositions as a method to study group processes. The three traits, ARG, VA and CA, will be examined, along with the literature that shows why these three traits (predictor variables) would be expected to affect the criterion variables. The traits will be compared and contrasted in the literature, with a discussion of how behaviors relate to them. The review will then show how scholars have

viewed the problems associated with measuring these variables, and examine some other related issues. Finally, this section will give a rationale for the research, and pose hypotheses.

Research on Small Group Decision Making

According to Hirokawa and Poole (1996, pp. 6-7) communication can be looked at in one of two ways in the group decision process: as the medium of group interaction or as constitutive of group decisions--a means for creating the social reality in which a decision is made. As Hirokawa and Pool indicate, "in this view, communication is the very substance of decision-making, rather than merely a channel." It is the latter tradition that will be used to view group decision-making in this study. "Group decision making is two or more people communicating with one another using logical means, in public or in private, to arrive at mutually satisfying decisions" (Verderber, 1982). Decisions emerge in groups through discussion. In addition, it is communication that determines the social realities surrounding decisions. No decision can be taken from its context. It lives within the framework, the social setting, and the group interactions in which it is made.

A decision cannot be viewed as an immutable object. Group support, feelings generated in the group, and predispositions of the group members all determine what the shape of a decision will be, and its future existence. The group discussion creates shared realities (Borman, 1996) and the boundaries of the decision process (Putnam & Stohl, 1996). In addition, research indicates that significant changes can be made in attitudes and behaviors on ARG, VA, and CA with training (Rancer, Whitecap, Kosberg, & Avtgis,

1997; Kosberg & Rancer, 1991; Infante, 1988; Wilson & Arnold, 1983; Anderson, Schultz, Courtney-Staley, 1987).

Research began on the question of small group decisions in the first part of this century. At least 43 separate studies were published between 1924 and 1946, that dealt at least in part with this issue (Dashiell, 1935; Dickens & Heffernan, 1949). In fact, early communication scholars dominated the research on small groups before the focus later turned to sociology and psychology (Barbato, 1997). Some of the best, and most intensive pioneering studies were done by Robert Freed Bales. Bales coined the term Interaction Process Analysis (IPA) (Bales, 1950), which is a method used to observe group interaction. He created twelve categories to code statements made in group settings. He observed groups in action and assigned each statement made by group members to one of the twelve categories. The resulting data set was then used to draw inferences about the nature of the group.

There was also some early work by Scheidel and Crowell (1964) that emphasized the shift from studying groups using input-output models to developing and explaining the characteristics of "talk." This may have helped in the understanding of psychological or sociological factors, but added little to the development of theory. It was only later that such developments began. Several theories were developed, most in the 80's, with four major models emerging: functional (Gouran & Hirokawa, 1996), structurational (Poole, Seibold & McPhee, 1996), symbolic convergence (Borman, 1996), and socio-egocentric (Hirokawa & Poole, 1996). All of these theories have strengths and problems (Cragan &

Wright, 1990; Hewes, 1996; Hirokawa, 1994; Pavitt, 1994; Poole, 1990). This is best exemplified by the functional approach.

Hollander (1971) proposed the "functional approach" to decision groups. This theory has been expanded upon by Hirokawa (1983a), and several others. This theory hypothesizes that successful decision making groups focus their attention primarily on the task aspect. In general, Hirokawa argues that the more the group sticks to the task, the greater their success in decision making will be. Yet, Hirokawa himself points to the primary difficulty with his model:

> Suppose that a group of presidential advisers was discussing possible candidates for an appointment to a top level position, and a powerful member observed that any nominee, to be acceptable, would have to show evidence of competence, intelligence, and a history of public service...On the surface, communication would appear to be addressing the requirements...As a result, such a contribution would be counted as serving a positive (task oriented) function...but deference to the powerful group member has unduly restricted the range of criteria utilized. (Gouran, Hirokawa, McGee, & Miller, 1994).

It is often difficult to distinguish between pure task and pure affective interventions in group discussions. What on the surface appears to be a purely task oriented statement,

in reality may be loaded with social-emotional components–in this case, the influence of a powerful figure in the group, and the reaction of group members to her presence.

Each of the other theories have similar strengths and weaknesses, as do all theories. This research project will not seek to support any of these theories directly, but draw from each of them. The closest theoretical underpinning for this study comes from "interaction theory" suggested by Bales (1950, 1952, 1953, 1959). Bales proposed a subset of this called the "equilibrium theory" of group processes, that posits that groups strive to establish a balance between internal and external forces. In this study, the interactions do not use the terms Bales would have used, but follow his constructs.

Bales looked at groups to see how they interacted with each other, tracking the balance between task and social-emotional factors. His focus was on the group as a whole. This research project was looking less at the group as a unit, and more at the individual members. Where Bales sought balance in the group, this study was looking at the balance between predispositions of the group members and their actual behaviors. Like Bales, however, this project will compare the group traits and behaviors to group outcomes. This is much like other "interactionists," who have used this approach in studies that attempted to bridge the gap between trait and behavior (Infante & Rancer 1993).

In addition to the previously mentioned research, other theorists have focused on the social aspects of the group experience, but with widely differing results. Folger and Poole (1984) looked at conflict in groups and determined that it was "inherently undesirable." Two other studies looked at the problem of "Groupthink" (Janis, 1972). In

these, a confederate of the researcher was inserted into a group without the knowledge of the other members. This individual had the assignment to question all issues, and to be generally critical and contentious, while contributing nothing to the substance of the discussion. Groups with the disruptive member were significantly more successful in making decisions than control groups (Chen et.at, 1996; Macy & Neal, 1995). Thus, the relationship between task and affective elements of groups in the decision making process remains uncertain. One of the reasons that this relationship may be questionable is because the actual factors in this relationship have not been fully identified in previous research.

Whereas studies have focused on various attributes of the group, such as power, control, satisfaction, and social motivation, (Collins & Guetzkow, 1964), less research has concentrated on the outcomes of the group's activities. Goodall (1990, pp. 259-305) discusses the contributions of the individual members to the group, but not the contribution of the group to the goals of the organization. Nixon (1979, pp. 287-315) stresses group cohesion as the most important factor in groups, but also does not deal with group outcomes. Anderson and Martin (1999) examine cohesion, consensus and satisfaction, but more in relation to the group processes than to the outputs of the group exercise. This approach has been fairly common in the literature.

Predispositions of group members is another area that has not been thoroughly studied. Schultz (1982) has looked at issues related to argumentativeness and leadership, but group outcomes were only addressed tangentially. Some research regarding argumentativeness in groups has been published by Barbato (1987), but this research

focused primarily on Q-methodology as a way of specifying relationships between traits, behaviors and outcomes. Because this area has not been thoroughly studied, the selected personality traits of argumentativeness, verbal aggressiveness and communication apprehension provide a fertile field for additional research.

Argumentativeness

Infante and Rancer (1995) claim that they, "...believe that an understanding of what it means to be argumentative will clarify at least some of the raison d'être of the communication discipline." Argumentativeness is the trait of advocating positions on controversial issues and attempting to refute the positions that other people take on those issues (Infante & Rancer, 1982). Argumentativeness research has focused on a number of areas, and a variety of communication contexts: marital relationships (Chandler-Sandbourin, Infante, Rudd, & Payne, 1989; Infante, Chandler & Rudd, 1989; Rancer, Baukus, & Amato 1986, 1987; Segrin & Fitzpatrick, 1992), organizational communication (Infante & Gorden, 1985a, 1985b, 1987, 1989, 1991; Logue, 1987), political relationships (Downs, Kaid, & Ragan, 1990), family relationships (Bayer & Cegala 1992), intercultural relationships (Jenkins, Klopf, & Park, 1991; Klopf, Thompson, & Sallinen-Kuparinen, 1991; Prunty, Klopf, & Ishii, 1990a, 1990b; Sanders, Gass, Wiseman, & Bruschke, 1992), and small group relationships (Barbato, 1987, Scheerhorn, 1987; Schultz, 1982).

In all areas, argumentativeness is seen as a positive trait. It is an affirming style that supports, rather than attacks a person's self concept. When individuals engage in argumentative behavior it moderates perceptions of that behavior to yield more positive than negative outcomes (Infante, Anderson, Martin, Herington, & Kim, 1993; Infante &

Gorden, 1987, 1989, 1991). High argumentatives are perceived to have higher credibility than non-argumentative (Infante, Hartley, Martin, Higgins, Bruning, & Hur, 1992). Positive associations with argumentative behavior have been found for increased learning, enhanced problem solving, creativity and social perspective taking (Johnson & Johnson, 1979). Supervisors who are high in trait argumentativeness are seen as more effective (Infante & Gorden, 1989), have greater levels of employee satisfaction and produce higher levels of organizational commitment (Infante & Gorden, 1991). Argumentatives have higher self esteem (Rancer, Kosberg, & Silvestri, 1992).

Individuals who are high in argumentativeness and low in verbal aggressiveness are said to have a competence called "appropriateness" (Spitzberg, 1983; Spitzberg & Cupach, 1984). People who communicate in this style are seen as affirming, with a heightened sensitivity to organizational norms and rules.

There have been more than 100 convention papers, and numerous dissertations, in addition to the hundreds of articles on argumentativeness (Infante & Rancer, 1995). Much of this research on argumentativeness has been done in the area of communication. For example, Bayer and Cegala (1992) examined argumentativeness in relation to parental communication, as did Nicotera and DeWine (1991). Boster and Levin (1988) looked at compliance gaining message selection. Nicotera, Smilowitz and Pearson (1990) examined argumentativeness and innovation. Sanders, Gass, Wiseman and Bruschke (1992) studied ethnicity and argumentativeness, and Stewart and Roach (1993) compared argumentative individuals and their communication on religious issues. This is only a small sampling of

the available research, which shows argumentativeness to be a clearly established trait, which is stable across situations, and that operates in a way that the theory predicts.

Research specifically focusing on decision-making and argumentativeness has been sparse. Gouran and Baird (1972) report that problem-solving groups have a low level of tolerance for disagreement. This is a problem. Schultz (1982) poses the issue as follows:

> If disagreement within a group can lead to a consideration of a wide range of alternatives, then argumentative individuals, whatever status they are accorded, may be the most influential forces in shaping a group's decision...highly argumentative individuals exert more influence than extremely or mildly argumentative individuals.

These two findings leave managers of work groups with a quandary. Groups are intolerant of disagreement, yet disagreement on task related issues is critical to the efficient working of the group. This dilemma clearly points to the need to examine the problem more closely. Although Schultz addressed this question, her research focused primarily on the role of leadership in groups and argumentativeness, leaving the role of argumentativeness in group decision-making largely unexamined. Barbato (1987) reported on a study that used Q-methodology to examine the relationship between argumentativeness and decision-making, but was more interested in the methodology than argumentativeness. In addition, the relationship between argumentativeness and other

predispositions was not examined. Given the importance of this issue, this is clearly a gap in the research, and a surprising one.

The most common measurement of trait argumentativeness is the Argumentativeness Scale (Infante & Rancer, 1982). This twenty-item self-report scale has been widely used and is the basis for most studies on argumentativeness. Reliabilities in a variety of studies have typically ranged from .8-.9, with the measure stable across time (r = .91) in one week, test-retest studies (Infante & Rancer, 1995). There is also considerable evidence available regarding the validity of the instrument (DeWine, Nicotera, & Parry 1991). Questions have been raised regarding social desirability, and its effect on the validity of the scale. At issue is whether "arguing" has a negative connotation that is reflected in the answers to the scale. Studies indicate that this, in fact, takes place, but provide no alternative measurements (Nicotera, 1996). Dowling and Flint (1990) claim that the scale does not specify "argument over controversial issues" and that may cause the respondents misunderstand the questions. They suggest adding the work "controversial" to modify the term "arguing" in the scale. Research has also shown a weak, positive relationship of argumentativeness to gender (Nicotera & Rancer, 1994). This explained less than 6% of the variance, however, and may have been a reflection of other factors. Regardless of sex, individuals ranking high on a social desirability measure score lower on argumentativeness tests (Chen, 1994), suggesting that gender is only an intervening variable.

Although these issues may have some impact on the ability of the scale to accurately measure traits, the purpose in this study was not to reformulate the scale.

Attempting to redesign the scale not only introduces a great deal of uncertainty, but also eliminates the possibility of making comparisons to other studies that are based on the scale. There is a trade-off between the potential improvement of the scale with the loss of historical continuity. The use of the existing scale, that has been extensively tested for validity and reliability, is the lesser of the two evils.

The scale is divided into two parts, measuring argumentativeness avoidance and approach. Although there are cases where the distinction is important, this study was not looking at the difference. According the Infante and Rancer (1995), "...in cases where the interest in the general trait score, one can simply reverse the scoring for the avoidance items and then sum the approach and avoidance items" (p. 325).

Verbal Aggressiveness

Verbal aggressiveness involves attacking the self-concepts of others in order to inflict psychological pain, such as humiliation, embarrassment, depression and other negative feelings about self (Infante & Wigley, 1986). This may include attacks on character, competence, background, physical appearance, gender, ethnicity, etc. The form of these attacks may be ridicule, threats, profanity, maledictions, teasing and nonverbal emblems (Kinney, 1994; Infante, Riddle, Horvath, & Tumlin, 1992). Unlike others, verbal aggressive individuals do not perceive their messages to be hurtful, and see their behavior as "tough," or "for the good of" the person under attack. (Infante & Rancer, 1995). Verbal aggressiveness is a subset of the trait of hostility.

Infante and Rancer (1995, p. 319) make the point:

> Verbal aggression can be a very destructive form of communication, and communication scholars should study it extensively in order to develop methods for controlling it. This is also consistent with the purpose of the discipline since the times of ancient Greece: to reduce the use of irrational and destructive discourse.

Research has revealed a number of negative outcomes associated with verbally aggressive behavior. These include lower credibility (Downs, Kaid, & Ragan, 1990; Infante, Riddle, Horvath, & Tumlin, 1992), less relational satisfaction (Payne & Sabourin, 1990; Rancer, Baukus, & Amato, 1986), and greater tendency toward physical violence (Andonian & Droge, 1992; Infante, Chandler, & Rudd, 1989; Rudd, Burant, & Beatty, 1994; Sabourin, Infante, & Rudd, 1993), spouse abuse (Chandler-Sabourin, Infante, Rudd, & Payne, 1989), and violence between fathers and sons (Beatty, et al., 1994). Verbally aggressive superiors are disliked by subordinates (Infante & Gorden, 1991).

Verbal aggressiveness is most commonly measured using the Verbal Aggressiveness Scale (Infante & Wigley, 1986). Like the Argumentativeness Scale, this instrument has been heavily used in research, with its reliability and validity firmly established. Reliabilities are commonly reported in the mid .80's, with the scale stable over time--r = .82 for a 4-week, test-retest study (Infante & Wigley, 1986). Strong evidence of construct validity has been presented by Infante, Chandler, and Rudd (1989).

Most of the research on VA is associated with trait argumentativeness. Because these two traits are viewed as opposite poles of aggression behavior, research often studies them together, comparing and contrasting the behaviors associated with the two traits.

Communication Apprehension

Communication apprehension (CA) is defined as "a person's level of fear or anxiety associated with any form of communication with other people, experienced either as a traitlike, personality-type response or as a response to the situational constraints of a given communication transaction" (McCroskey, 1982, p. 139). McCroskey's distinction between these two forms of CA (trait like and responsive to situation) addresses the interaction issue (Bales, 1950) addressed in this research. CA can be either a predisposition (trait), or a behavior which is determined by circumstance. This study looks at both aspects.

From 1970-1980, CA was probably the most researched topic in the field of communication. During this time, over 200 studies on CA were reported in the literature (Harville, 1992) under headings such as stage fright (Clevenger, 1959), audience sensitivity (Paivio, 1964), reticence (Phillips, 1968), shyness (Zimbardo, 1977), unwillingness to communicate (Burgoon, 1976) and communication apprehension (McCroskey, 1970).

High CA individuals are generally seen to be at a relative disadvantage to their low or moderate CA counterparts. A number of studies have shown that CA and performance in a variety of tasks have a significant negative correlation (Comadena & Comadena,

1984; Comadena & Prusank, 1988; Davis & Scott, 1978; Hurt & Preis, 1978; Powers & Smythe, 1980; Richmond & McCroskey, 1989). Much of this research has taken place in schools. For example, Richmond and McCroskey (1989, p. 71) have shown that quiet people have significantly lower performance than talkative ones in a school environment. In an interesting meta-analysis, Bourhis and Allen (1992) obtained results suggesting a significant negative correlation between the level of CA and cognitive performance. In other settings, CA has been shown to be a negative trait as well. Job performance has been found to be inversely related to trait CA (Penley, Alexander, Jernigan, & Henwood, 1991; Pitt & Ramashahan, 1990; Thomas, Tymaon & Thomas, 1994).

All of this is a rather unfortunate finding, because CA is one of the most widely experienced human traits. A survey of 3,000 Americans showed that 42% feared "speaking before a group–this was the most frequently stated fear (Mayer, 1989). Approximately 60% of public speakers experience anxiety before speaking (Smeltzer & Waltman, 1984). Fortunately, it is possible to train individuals to improve their CA competence (Glaser, Biglan & Dow, 1983; Rubin, Rubin, & Jordan, 1997), holding out promise for addressing this problem.

There has been virtually no research regarding CA and decision-making. Most of the research has been focused on the amount of participation in groups (Chapple & Arnsberg, 1940; Stephan & Mischler, 1952). As has been noted by Burke (1974) however, simply counting units of conversation in a group (number of interventions, amount of time speaking, "nods and fidgets," etc.) may not reflect the actual social processes of the group. This also does not relate the behavior (participating in the group)

with the trait (communication apprehension). In the few studies of traits in relation to group decision-making, most have concentrated on argumentativeness, with some mention of verbal aggressiveness (Barbato, 1987; Schultz, 1982). Apparently, none of these studies added CA as a predictor variable.

CA is effectively measured using the Personal Report of Communication Apprehension (PRCA-24), that contains 24 Likert-type statements concerning feeling about communicating with others (McCroskey, 1982). The instrument has been tested in many studies, and has demonstrated high internal consistency and test-retest reliability. For example, Chesebro, et al. (1992) found high reliability (Cronbach α of .85) using the PRCA-24. Similarly, Rubin, Rubin and Jordan (1997) found reliabilities of .94 and .93 for Time 1 and Time 2 tests respectively.

Comparison of Argumentativeness and Verbal Aggressiveness and Communication Apprehension

Argumentativeness and verbal aggressiveness are both forms of "aggression" communication (as defined in Chapter 1). Costa and McCrae (1980) identify an "extroversion dimension" of personality, in which assertiveness and argumentativeness are positive factors, whereas hostility and verbal aggressiveness are negative subsets (Infante, 1987). There are forms of hostility that are not verbally aggressive (e.g. physical violence), but all verbal aggressiveness is, by definition, hostile. The same is true of argumentativeness--all argumentativeness is assertive, but not all assertive behavior is argumentative (Infante, Rancer, & Jordan, 1996).

Argumentativeness and verbal aggressiveness have been differentiated primarily in terms of the locus of attack. Studies have shown positive associations to argumentative behavior, such as increased learning, enhanced problem solving, creativity, social perspective taking (Johnson & Johnson, 1979), leadership (Schultz, 1982), enhanced credibility (Infante, 1985), increased levels of perceived communicator competence (Onyekwere, Rubin, & Infante, 1991) and favorable organizational outcomes (Infante & Gordon, 1985, 1987, 1989, 1991). Verbal aggressiveness has been associated with spouse abuse (Infante, Chandler, & Rudd, 1989, Sabourin, Infante, & Rudd, 1993), depression (Segrin, & Fitzpatrick, 1992), lower marital satisfaction (Payne & Sabourin, 1990, and unfavorable organizational outcomes (Infante & Gorden, 1985, 1987, 1989, 1991).

Because the traits ARG and VA are separate factors of aggression communication, it is possible to find that an individual has either trait alone or both traits together. It is interesting and important to note, however, that success of being argumentative in an organizational communication context depends upon also being low in verbal aggressiveness (Gorden, Infante, & Izzo, 1988; Infante & Gorden, 1985b, 1987, 1989, 1991). It can therefore be assumed that group communications in which high argumentativeness and low verbal aggressiveness are exhibited, will have a greater chance of "success" than groups where these behaviors are not seen.

CA represents the other end of the spectrum for the measured traits. As with the first two variables, this trait is independent of the others, because it is part of "withdrawal" from communication. Because CA individuals fear participation in the group activity, it is possible that they may not actually take part in the group discussion sufficiently to show

whether someone high in this trait will exhibit ARG or VA behaviors. Because they withdraw, they may be high in either trait, but exhibit none because of non-participation in group activities.

Behaviors

In the interactionist tradition, studies have been conducted that attempted to bridge the gap between trait and behavior. Infante and Rancer (1993) asked participants how many times they had advocated a position or attempted to refute the position of another person. A similar study was done on verbal aggressiveness in which participants were asked the number of times they used 10 different types of verbally aggressive types of communication during the last month (Infante, Riddle, et al., 1992). In both cases, these studies rely on self-assessment by the participants. Although this has the advantage of getting feedback over a longer test period, it suffers the deficiency of having the information filtered through individual perceptions. A good way of following up on this is direct observation of behavior by trained observers, armed with standardized procedures. Although this lacks the long term perspective, it allows an assessment to be made within the context of a study, in this case, it is a small group.

One of the problems of attempting to use behaviors as a criterion variable is the issue of measurement. This is not a new problem. Pioneering work was done in this field with the creation of Interaction Process Analysis (Bales, 1950) in which small groups were observed, and their actions and interactions coded on a continuous scale. Bales and his associates have since modified this method (Bales & Cohen, 1979) to a coding system called SYMLOG that measures group member behaviors on three dimensions: dominant

versus submissive, friendly versus unfriendly, and instrumentally controlled versus emotionally controlled. This system is well researched, and has been proven to be reliable and valid, but it does not exactly measure specific behaviors associated with the traits measured in this study. Both Jensen and Chilberg (1991, p. 30) and Leathers (1971) have proposed other coding systems, but these too focus on behaviors other than the ones in question. According to Baird and Sanford (1981, pp. 233-283), this should not pose a problem. They argue that the coding method is not a critical issue, because rating categories are "subordinate to the method used in valuating the results." Internal consistency and dependability in measurement, they argue, are the defining features of a coding system. Coding must be rationally based, but it is more important to make certain each speech act is captured and coded in a consistent manner. A greater pitfall than coding, is "audience induced arousal" (Paul, 1980, pp. 61-99), where "the observation of a group cannot help but influence behavior." It has been argued, however, that this effect will be most pronounced during a brief period at the beginning of the group's activity, and then diminish over time (Barker & Wright, 1955).

Measurement of Outcomes

The problem of trying to measure the quality of decisions has already been discussed. There are also issues related to the measurement instrument itself. Hirokawa (1983b) suggests that the best way to evaluate decision-making behavior is to observe groups performing tasks suited to individual decision-making, and compare this to group decision making. Such tasks have a single "best" answer or "correct" answer that the group must find. This system poses a problem:

> ...groups performing tasks intended for expert individuals are doing little more than playing games. Such tasks severely restrict the group process and encourage expert individual members to dominate other group members. At the very least, no advantage is gained from observing groups that perform tasks unsuitable to the social context. But such observations unfortunately occur routinely (Ellis & Fisher, 1994, p. 289).

There are several such instruments that are routinely used, such as the Ocean Survival Exercise, the Arctic Survival Exercise, or the Desert Survival Exercise, that are indeed often used as a parlor game or group cohesion training tool (Barbato, 1987; Johnson & Johnson, 1975). As Ellis and Fisher indicate, these types of exercises cannot be expected to yield results that are externally valid for organizational decision making--something immediately obvious to those actually participating in such exercises. In addition, these exercises are usually "closed ended," meaning that there is a specific "right" answer that the group is tasked to discover. Real life organizational decisions are almost always "open ended," where the group is tasked to create a right answer. There may be multiple right answers, or answers which are right in some circumstances, and wrong in others. There can be "grey" answers, which are compromises made between black and white recommendations. There can also be "plaid" answers with discrete good and bad elements included from the black and white options.

The goal of observing group behaviors in a controlled environment is to collect data that accurately reflect the intentions of those being observed. Systematic observation

is designed to, "...organize, amplify, and impose meaning on social phenomena, so all observers gloss or reinterpret what they observe" (Weick, 1981). In order for this to happen, it is necessary to have an instrument that mirrors a real-life group experience, and uses a coding system that captures the behaviors exhibited in the group.

Other Issues

There may be another important dimension to group decision-making. Neck and Moorhead (1995) (among many others) point to the issue of leadership in groups. Leadership within groups can have both social-emotional and task aspects. In addition, the mere presence of an authority figure in a group can change the nature of debate without any verbal interaction. It is certainly possible that power, represented by an authority figure, can be an important additional dimension, and one with a great potential to confound results. The issue of power and leadership must be considered in the test design.

The issue of gender, race and culture must also be taken into account. Research cited in this chapter indicates that there are gender, and possible racial or cultural differences in scores on ARG, VA and CA scales. Women tend to score lower than men in VA and ARG (aggression communication) and higher in CA (withdrawal communication). This tendency must also be considered in any research design.

There is an interesting phenomenon in the literature review. The vast majority of research done on small group decision making has used undergraduate students as participants. A decision making group, however, is not simply a collection of individuals. Brilhart (1978, p. 21) used the term "Groupness" in describing a group as a system. To

study groups, it is necessary to study real groups–a collection of individuals with an existing relationship. Casual acquaintances can attain "groupness" over time, but until they do, the group is not a system (Fisher, 1978). This issue will also be addressed in the research design.

Finally, for this section of the literature review to be complete, it needs to account for other perspectives of studying small group decision making. There is extensive documentation on issues such as time sequencing, age, leader types, power, organizational maturity, and other areas. Most of these variables contribute in important ways to the decision process. It appears, however, that they can be held as constants in the research design by random selection, given the narrow focus of this research. The results of this proposed investigation must be used in conjunction with other studies to come to a more complete understanding of the dynamics of the group decision process.

Rationale and Hypotheses

The criterion variables. Guzzo and Dickson (1996) note that there is no singular, uniform measure of performance effectiveness for groups. Hackman (1987) and Sundstrom, et al. (1990) suggest three measures of success: outputs (correctness or accuracy of a decision), consequences for the group (the relationships between group members), and future performance. As previously indicated, for "open decision tasks"–those without a verifiably correct solution–it is virtually impossible to determine if a decision is "correct" in most group settings. Generally there are too many intervening factors in organizations to ever determine if a decision is the best possible solution to a problem. The ultimate value of high-quality decisions depends to a great extent upon the

willingness of managers to cooperate in implementing those decisions (Guth & MacMillian, 1986; Maier, 1970; Woolridge & Floyd, 1970). Korsgaard, Schweiger and Sapienza (1995) say it best:

> A more complete view of effective decision processes should therefore consider not only the quality of decisions but also the impact of such processes on team members' affective responses, such as commitment to the decision, attachment to a team and trust in the leader.

Pinto, Pinto and Prescott (1993) add that one must also consider such affective responses to be components of cooperativeness.

Because most real-world decisions in organizations are "open," these are the types of decisions studied here. In open decisions, communication within the group is critical to success (Barnlund, 1972; Burleseon, Levine, & Samter, 1984). This is because decision teams,

> ...help build consensus and support for action, and help to build a cooperative, goal-oriented culture. Team interaction helps to build the consensus that is so essential to the execution of a decision...by having everyone participate in a decision, a better decision should result–one that everyone will accept and work toward." (Amason, Hochwarter, Thompson, & Harrison, 1995).

In fact, the more complex the problem, the more important the consensus building and support becomes (Bavelas, 1950; Leavitt, 1951).

Although the amount or accuracy of information discussed influences the outcome of the group discussion, (Kelley & Thibaut, 1969), it cannot explain why some groups reach higher quality decisions than others (Propp, 1997). Propp further notes that attitudes toward group members (social-emotional factors) will color the way information is processed by the group. Shaw and Penrod (1962) agree, stating that "the mere presence of an item of information is not enough," because the way the group deals with the information will determine if it is accepted and integrated into the group decision. Whereas final decisions cannot necessarily be classified as "correct" in most cases (for open questions), the surrounding attitudes about a decision can substantially influence whether or not the group will agree with, and rally around a decision.

As has been shown, if the group does not congeal around a decision, that decision will not be successful within an organization. There is a substantial positive association between perceived group outcomes and group cohesion around a decision (Evans & Dion, 1991; Guzzo & Shea, 1992; Smith, et al. 1994; Zaccarro, et al. 1995). These studies do not examine the style or formats used in group discussions, but focus on group cohesion around the final product of group deliberations. These studies indicate that heterogeneity of opinion is a positive factor in the group deliberation process (Bantel & Jackson, 1989; Jackson, et al. 1995). Even though expressions of differences of opinion on issues are important to the deliberation process, it is important for the group to ultimately unify around the final decision. When deliberations are completed, group members must rally

solidly behind their decisions, and support them cohesively for the outcomes of the discussions to be effective in the organizational setting. This model of decision quality makes far more sense than "...siz[ing] up a decision against professional standards of competence based on expected utility theory, Bayesian inference, and least squares regression" (Mellers, Schwartz & Cooke, 1998). Amason puts it bluntly: "..consensus among team members facilitates the implementation of ...decisions, consensus also influences organization performance" (Amason, 1996, p. 123).

It is for this reason that this research examines these two criterion variables: acceptance and support of group decisions. Acceptance refers to the degree to which the members of the group agree with the content of the decision the group made. This is primarily related to the task of the group. Support refers primarily to willingness of group members to stand behind the decision. Because these may be independent factors, they were measured separately.

This study is designed around measuring these two criterion variables, and a selected set of predictor variables that influence them. For a group to agree with, and coalesce around a decision, it must have made a decision through its own activity. The goal of this study is to form a group, cause them to deliberate an open-ended set of issues and then measure their acceptance and support of the decision the group has makes.

The Predictor Variables

Each of the proposed predictor variables have been examined in some detail earlier in this chapter. On the basis of the research cited above, the following relationships with the predictor variables are expected:

Argumentativeness. Argumentativeness is a positive trait that is thought to be related to improved decision making processes (Barbato, 1987). Group members bestow positive attributes to argumentatives (Johnson & Johnson, 1979; Infante, Hartley, Martin, Higgins Bruning & Hur, 1992; Infante, Anderson, Martin, Herington, & Kim, 1993; Infante & Gorden, 1989; Rancer, Kosberg, & Silvestri, 1992), and these researchers indicate that its practitioners will be more effective decision-makers than those with less argumentative traits. People high in this trait have an "ascendant personality" and view themselves as competent communicators who can successfully interact with others (Infante, Rancer, & Jordan, 1996). In a series of studies, Infante and Gorden (1985a, 1985b, 1987, 1989, 1991) looked at argumentativeness in an organizational context. They found argumentatives to be both evaluated positively by the organization and more effective than less argumentative individuals.

The findings of these researchers have not been applied to the small group decision-making process. As indicated, the literature suggests that argumentatives will be positive and affirming in a small group setting, but this has not been tested on small groups. They will view themselves as an integral part of the decision process. Argumentative individuals will see themselves as highly involved with the shaping of the decision within the group, and with giving the group direction and purpose. Because the argumentatives will raise issues and push their ideas (Infante & Rancer, 1982), they will inordinately influence the content of the decision, and therefore be more likely to agree with the ultimate group decision than other members who are not as argumentative. Also, because other group members will confirm their already strongly held self-image of the

value of their contribution (Rancer, Kosberg, & Silvestri, 1992), their loyalty to the group and support of the decision will be high.

According to the "interactionist model," actual group behavior will be modified by the social setting, and preexisting relationships in the group (Bales, 1950, 1952). One can expect behaviors in a group setting to be driven primarily by the individual predisposition (Stewart & Roach, 1993), but each individual will modify his or her behavior to account for the importance of existing relationships with other group members (Andersen, 1987; Epstein, 1979; Magnusson & Endler, 1977). In spite of this, the behavior exhibited by the individual in the group should reflect, to varying degrees, the strength of his or her predisposition.

For the argumentativeness trait and behavior, the following alternative hypotheses are proposed:

H_1: Individual group member trait argumentativeness positively relates to the individual's acceptance of group decisions.

H_2: Individual group member argumentative behavior positively relates to the individual's acceptance of group decisions.

H_3: Individual group member trait argumentativeness positively relates to the individual's support of group decisions.

H_4: Individual group member argumentative behavior positively relates to the individual's support of group decisions.

Verbal aggressiveness. Verbal aggressiveness is a negative trait that disrupts group activities (Infante & Wigley, 1986). Verbally aggressive individuals will alienate

others and reduce the quality of discussion in groups. Within groups, it can be expected that they will ridicule, threaten, or tease, and may do so in a profane or malicious way (Kinney, 1994). Although a verbally aggressive individual may feel this is a sign of toughness, or "for the good" of the other person, those under attack do not perceive it that way (Infante & Rancer, 1995).

Because verbal aggressives receive less group reinforcement, they will provide less goal directed input in group decisions, and will feel farther removed from the ultimate decision process. They will therefore, be less inclined to accept the group decision, in which they will have made less substantive contributions than other group members. They will also have less stake in decisions, and will feel the rejection of others in the group (Downs, Kaid, & Ragan, 1990). They will therefore be less supportive of the final decision.

As with argumentatives, verbal aggressives will also be faced with situational factors that will modify their actual behavior. Behavior should, nevertheless follow the individual predisposition.

For the verbal aggression trait and behavior, the following alternative hypotheses are proposed:

H_5: Individual group member trait verbal aggressiveness negatively relates to the individual's acceptance of group decisions.

H_6: Individual group member verbal aggressiveness behavior negatively relates to the individual's acceptance of group decisions.

H_7: Individual group member trait verbal aggressiveness negatively relates to the individual's support of group decisions.

H_8: Individual group member verbal aggressiveness behavior negatively relates to the individual's support of group decisions.

Communication apprehension. CA individuals fear participating in group activities, and will therefore take a less active role in group discussions (McCroskey, 1982). Studies show that they are generally judged less capable in a variety of task settings, particularly those in which communication is key (Comadena & Comadena, 1984; Davis & Scott, 1978; Hurt & Preiss, 1978). This is certainly true in the case of a group discussion, where communication between group members is the heart of the activity.

In many settings, CA individuals feel themselves as outsiders (Zimbardo, 1977). In a group decision-making process this will make them feel less involved in the decision process, and as opposed to argumentative individuals, less inclined to agree with, or support decisions the group makes. In addition, poor bonding with other group members (Stephan & Mischler, 1952) should reduce their support for the decision outside the group, because CA individuals will have been isolated from the group members as well as the decision.

As with the other traits, behavior is not expected to be identical with the CA trait. Group settings place strong pressure on a reticent member to participate. Nevertheless CA behavior is expected to track the individual predisposition.

For communication apprehension trait and behavior, the following alternative hypotheses are proposed:

H_9: Individual group member trait communication apprehension negatively relates to the individual's acceptance of group decisions.

H_{10}: Individual group member communication apprehension behavior negatively relates to the individual's acceptance of group decisions.

H_{11}: Individual group member trait communication apprehension negatively relates to the individual's support of group decisions.

H_{12}: Individual group member communication apprehension behavior negatively relates to the individual's support of group decisions.

CHAPTER 3

Methodology

Participants

The participants in this study were adults who work together, or who associate closely together. Participants were English speaking individuals, working for American companies or closely involved with each other in social groups. Individuals from several groups in Germany agreed to collaborate in this study: Warner Bros Movie World, Bottrup; the American Embassy, Bonn; the American Women's Club of Düsseldorf, Germany (which includes spouses); and members of the University of Oklahoma European Ph.D. Cohort Group II.

For reasons already elaborated, the participants had a close working relationship. They had either recently worked together in groups, or had a long standing relationship with each other. In addition, participants were brought together who anticipated working with one another in the future. This design attempted to reflect the composition of groups in a real-world situation. With few exceptions, group members were members of actual working groups, who had been involved in decision-making activities in the past. In all cases, the group members brought an existing relationship to each other member of the group which was anticipated to last beyond the immediate future.

Fifty individuals participated. Of these, 26 were male, and 24 female. Although an attempt was made to achieve racial diversity within the groups, this was not possible with the available participant population. The expatriate American community in Germany,

that served as the research base, is simply not that diverse. Of the 50 participants, 47 were white. Three were African-American (two female, one male). The average age was 40.7 years, with a standard deviation of 10.91 years. The oldest participant was 63, and the youngest was 23.

While it may have been possible to find more representatives of various racial groups, doing so would have violated one of the basic design concerns of this study. As has been noted, "groupness" has been missing in many of the studies done on small groups in the past. To achieve more racial diversity in the groups, it would have been necessary to artificially structure the groups. In the three cases where there was a member of a racial minority in the group, this was a natural occurrence. The individual was an existing member of the work group, with ties to the other group members, as described above.

Perhaps somewhat surprisingly, it was not difficult to find gender diversity in the existing groups. Only one of the groups of five participants was all male. Two of the groups were predominantly female (four of the five members). The others were two or three of one gender.

Group Composition

A group is a collection of individuals who have common experience, goals and objectives (Brilhart, 1978). "Groupness" is part of this experimental design. No attempt was made to manipulate the makeup of any group by assigning specific members according to gender or ethnicity. The groups were formed as qualified applicants were found. Because many real-world decision groups are *ad hoc*, it is not necessary to take members of existing, or long standing teams to create the environment of normal decision-

making groups. On the other hand, the individuals needed to have a history with each other for the group personality to develop quickly.

In forming the groups for this study, prospective members were required to have a relationship with the other individuals that was on-going–nobody was selected who had expressed an intention to leave the organization or move to an assignment where a continuation of the current relationship would not normally be continued. Any person who held an authority position over another in the group, or who had organizational rank substantially higher or lower than other group members was also excluded. This was an attempt to hold power relationships constant, although new ones develop within groups almost immediately. This research design attempts to simply let these power relationships vary randomly between the groups, and thereby reducing confounding effects. In real-world decision-making groups that are comprised of peers, power structures would develop as well.

Otherwise, the groups were self-selected. A prospective group member was contacted, and asked to provide the names of others who may participate. In some cases, a central contact person within the organization was used, who informed prospective group members of the opportunity to participate. In all cases, the group members were chosen from a pool of expatriate Americans living in Germany. While their reason for association with each other may have differed, with some having a work relationship, and others a social relationship, the participants all shared the common expatriate status.

To clarify if this status had any confounding effects on the data, the participants were asked to indicate how long they have been an expatriate, and how many years they

have been with their current employer or social group. In the initial questionnaire, the participants were asked to indicate how long they had lived outside of the United States. The range was broad. Some had just arrived from the United States, and others had spent most of their lives abroad. The mean number of years living abroad for the participants was 14.62 years, with a standard deviation of 15.17. The minimum was six months, and the maximum was 59 years.

Participants were also asked how long they had been associated with their organization. The mean was 8.14 years, with a standard deviation of 9.44 years. The minimum was six months, and the maximum was 34 years.

Many researchers have looked at gender, age and race as variables in the group. These data were gathered as well. As indicated, there were 26 males and 24 females in the study. There were 47 white participants, and 3 African-Americans. The mean age of the participants was 40.06 years, with a standard deviation of 10.91. The maximum age was 63, and the minimum 23.

All of these demographic variables are important in group research, but not the subject of this study. The demographic statistics were included in the analysis to check for interactions, but were not used as the primary focus, as has been the case in many other studies. As indicated, to have manipulated these aspects of the group would mean that the existing group identity would have to have been altered to achieve differing mixes of group membership (e.g. predominately women, age bracketed, all Afro-American, etc.). Doing so would, in effect, create a zero-history group, and radically change the relationships and dynamics that would exist in groups where the social structure was

firmly established. This research looks at the interactions of a group, but it is the reactions of each individual that are being examined, not that of the group itself. While it is conceivable that ARG behavior, which deals with the substance of the discussion, may not be changed in zero-history groups, it is inconceivable that VA behavior would not be impacted. This behavior lies within the social-emotional sphere, and is relationship dependent. To model real group behavior, therefore, requires that the groups are allowed to form themselves to the greatest extent possible, while controlling for critical variables, such as power relationships, which would distort the deliberative process. A total of ten groups were studied, constituting 50 individual scores for evaluation.

Variables

Criterion variables. Although many studies have attempted to measure the quality of decisions, it is difficult to do this accurately. The quality of a group decision may only be determined after many years of experience with the outcomes in a practical setting. Even then, whether or not a decision is "correct" may be a matter of opinion. It often depends on the perspective of the person evaluating the decision.

There are many decisions made in organizations where the objective accuracy can be measured. These decisions are generally "closed ended," where there is an objective, measurable choice. For these decisions, there may be a correct answer which retains its accuracy irrespective of the opinions of group decision makers. More often, however, groups are required to make decisions which are "open ended." In these cases, there may not be one correct answer, or it may not be possible to determine if the best decision has been found. In either case, decisions make by groups must be implemented to be

considered successful. A factually correct decision may fail in an organizational setting, even though it may be the best of all alternatives. The best of decisions is only effective if it is fully implemented. The fact that a decision is correct may help in its implementation, but it does not guarantee its success.

For purposes of this study, "success" is defined as a decision that is adopted by the group, and accepted as correct, with a high degree of group support (Maier, 1970; Roskin, 1975). This decision does not guarantee that the best of all alternatives has been selected by decision makers, but it is the prerequisite for the successful implementation of any decision in an organization. In fact, this is actually the working definition of success of a decision in most organizations. Because one cannot know the outcome of an alternative decision that was not chosen by the group, one can never know if any decision is the best or the highest quality that could have possibly been made. In such cases, group decisions that are reported out favorably and personally supported by individual group members after the group decision is made are most likely to be implemented by the organization, in the absence of a coercive power element which forces either a decision by the group, or implementation of an unpopular decision. While this determines if the decision is successful, it does not determine if the decision is effective–that is, if it is the best of all possible alternatives that could have been chosen.

The criterion variables for this procedure are therefore individual acceptance of the group decision, and individual support of the group decision. Individual acceptance is defined as the degree to which an individual member of the group agrees with the ultimate decision of the group. This refers to the substance of the decision, and not how the

individual "feels" about the decision. It is simply agreement that the decision reached is the right one. In this study, group acceptance was measured by having an individual group member revisit the decision made by a test group, and record his or her own personal decision. The degree to which the group decision and the individual decision coincide, in absolute terms, is a measure of acceptance of the group decision. It should be noted that the measure used is based on disagreement. Therefore, a low score indicates agreement. This means that correlations showing agreement will actually read as negatives–low score on this criterion variable, compared with high scores on the predictor variables.

Individual support is the degree to which an individual group member feels a decision deserves to be backed, encouraged, or sold to the organization. Although this is partially a function of how correct the individual feels the decision is, it also reflects his or her emotional attachment to the group, as well as general feelings about loyalty and group cohesiveness. Decision support is a complicated psychological process, and goes well beyond the actual issue in question. In any group-decision setting, general feelings an individual may have about the relative importance of group loyalty cannot be separated from the feelings generated in the given situation. By its nature, the overall support of a given decision will be based partly on the support of the specific decision, and partly on concepts of loyalty held by the individual. In this study, it is the overall support of the specific decision that is in question, and not the cognitive process in which the support was generated. Because support is a critical issue in ultimate decision effectiveness, the

actual breakdown of reasons why a decision is supported is less important for this study, than the level of support per se.

In this study, support was measured by asking group participants direct questions about the degree to which they would defend and champion the decision the group has just made within the test organization. This is a direct, self-evaluation that does not attempt to distinguish the reasons for support (decision acceptance, social-emotional ties to the group, general feelings about loyalty, etc.); it simply measures the strength of the support, as defined above: Does the individual group member back the decision? Will the group member feel a responsibility to defend the decision to others within the organization? Will the group member overtly "sell" the decision in the organization? While the psychological processes that lead to feelings of support and loyalty within an individual are certainly of interest, they are not germane to the specific research questions presented in this study. This research is looking at decision outcomes rather than examining the cognitive or psychological processes which lead to the formation of attitudes and beliefs.

As opposed to the measurement of agreement, the measurement of support is scaled positively–the higher the support, the higher the score on the instrument. Agreement in this case will be shown by positive correlations.

Predictor Variables. This study examines three main predictor variables, in two distinct forms: Argumentativeness, Verbal Aggressiveness, and Communication Apprehension. This research looks at both the trait and the associated behavior with each variable.

The first variable is trait argumentativeness. Argumentativeness is defined as: "a generally stable trait that predisposes the individual in communication situations to advocate positions on controversial issues and to attack verbally the positions that other people take on these issues." Trait argumentativeness is measured with high reliability and validity using the Argumentativeness Scale (Infante & Rancer, 1982). This is a 20 question questionnaire which is scored on a 5 point Likert scale. Reliability in a variety of studies has typically ranged from .8 - .9, with the measure stable across time ($r = .91$) in one week, test-retest studies (Infante & Rancer, 1995). There is also considerable evidence available regarding the validity of the instrument (DeWine, Nicotera, & Parry 1991). Participants self-evaluate their argumentativeness by stating agreement or disagreement with the test questions. The scale is divided into argument approaching (ARG_{ap}) trait measurements, and argument avoidance (ARG_{av}) measures. The two scores (10 questions each), are subtracted, with the resulting score an overall measure of trait argumentativeness (ARG_{gt}). This instrument has a maximum score of +40 (highly argumentative), and a minimum score of -40 (not argumentative).

A related concept is trait verbal aggressiveness. Verbal aggressiveness is defined as: "attacking the self-concepts of others in order to inflict psychological pain such as humiliation, embarrassment, depression and other negative feelings about self." Trait verbal aggressiveness is measured with high reliability using the Verbal Aggressiveness Scale (Infante & Wigley, 1986). This scale is also 20 questions, but has no subcategories. It has a maximum score of 100, and a minimum score of 20, with the higher scores indicating high verbal aggressiveness (VA). Reliabilities are commonly reported in the

mid .80's, with the scale stable over time--r = .82 for a 4-week, test-retest study (Infante & Wigley, 1986). Strong evidence of construct validity has been presented by Infante, Chandler, and Rudd (1989).

Finally, the study looks at trait communication apprehension. Communication apprehension is defined as: "the level of fear or anxiety associated with either real or anticipated communication with another person or persons." This trait is measured by the Personal Report of Communication Apprehension, PRCA-24 (McCroskey, 1982). This scale has 24 questions, in which participants self-evaluate their communication apprehension (CA). It has a maximum score of 120, and a minimum score of 24. The higher the score, the more the participant fears communication. The instrument has been tested in many studies, and has demonstrated high internal consistency and test-retest reliability. For example, Chesebro, et al. (1992) found high reliability (Cronbach α of .85) using the PRCA-24. Similarly, Rubin, Rubin and Jordan (1997) found reliabilities of .94 and .93 for Time 1 and Time 2 tests respectively.

It is important to note that ARG is considered to be a positive trait, whereas VA and CA are negative traits. For ARG, a high score is therefore better, but for CA and VA a high score is considered to be a negative. The polarity of the scales are important in understanding the results of this study, since positive and negative correlations will have opposite meanings, depending on the trait in question.

As described above, these three variables are measures of traits or predispositions of the individual group members. The interactionist model (Bales, 1950, 1952, 1953, 1959; Infante & Rancer, 1982) postulates that traits will interact with environmental

factors to produce specific behaviors. Since trait and behavior are not seen as being synonymous, it is important to determine if either or both are effective predictor variables.

Since Bales' pioneering work on observing group behavior in the 1950's there have been a few attempts at developing coding systems to measure behaviors within groups (Bales & Cohen, 1979; Jensen & Chilberg , 1991, p.30; Leathers, 1971). These codes were generally associated with overall behavior within the group, and serve to describe the general group dynamics rather than associate behavior with any particular trait. There appears to have been only a few attempts to code specific behaviors associated with ARG, within group decision-making interactions, but none with VA and CA.

Argumentativeness behavior (ARGB) is associated with trait argumentativeness. As has been indicated, research which actually measures ARG behavior is almost nonexistent. Levine and Boster (1996) and Semic and Canary (1997) appear to have made the only attempts at actually measuring the behavior–a finding confirmed in the latter study. In both cases, the ARG behaviors were coded into categories. Levine and Boster categorized statements in terms of argument resolution, while Semic and Canary created categories based on the type of argument. In the latter case, these categories were not used in the analysis. In both studies, a total count of argumentative incidents for each participant was used as the basis of the coding system. Argumentative incidents or statements were coded by frequency counts, with "thought turns" as the unit of measure.

For this study, neither of the coding systems really fits the situation. Both studies used dyadic interactions, rather than group discussion as a basis of the research, and some of the categories they developed simply do not apply to group circumstances. The

categories they developed have no relationship to argumentativeness, and in fact, were not used in their own analyses of the data. The studies ultimately used only the raw count of thought turns containing argumentative statements as the basis for their coding.

Argumentativeness behaviors are clearly the most difficult of the three variables to identify, measure and scale. The initial problem is to simply identify what constitutes an argument. Infante and Rancer (1982) conceived argumentativeness as a personality construct, "germane to controversial issues." Rieke and Sillars (1997) see argumentativeness as including noncontroversial issues as well, and therefore define an argument as, "...providing support for a statement [of fact]." Indeed, whether an issue is controversial or not, the basic need for argumentation to begin is getting the facts into discussion. Canary, Brossmann, Brossmann and Weger (1995) suggest that each thought turn must be examined to see if an argumentative statement is present, and to examine its particular function within the process. Infante, Sabourin, Rudd and Shannon (1990) posit that the ability to introduce issues into an argument is a basic skill, and that individuals lacking this skill may turn to VA behavior to compensate. All of these authors imply that the basic unit of argumentation is the ability to introduce simple facts. If this "skill" is not exercised by the speaker, argumentation cannot occur.

Beyond this level, argumentation consists of "introducing coherent reasons for one's opinion on the issues under discussion (emphasis added) within a discussion" (Canary, Brossmann, Brossmann, & Weger, 1995). Under this definition, the interventions of individuals within a group discussion, must be specifically related to the task to be considered argumentative. This is an interesting, and critical point in the coding

process. Infante and Rancer (1982) go to great pains to distinguish ARG behaviors from VA behaviors. The differentiation they see specifically relates to task versus the social-emotional component of group interactions. Whereas ARG is task related, VA is in the social-emotional sphere. This means that to measure ARG behavior effectively, the coder should attempt to filter out the social-emotional component, and report only task related behaviors. Doing this leaves much of the group discussion outside of defined argumentation. For example, much of the discussions in groups is "housekeeping." The group may be discussing the weather, commenting on the comfort of the seats, talking about the format of presentations, organizing logistics, or getting involved in general prattle. Although much of this type of speech could be argumentative in nature, by definition in this study, to be counted as argumentative behavior the statements must be specifically task related.

In the coding scheme for VA, given below, a simple counting of incidents was rejected because of the clear intuitive distinction between levels of emotional behavior. Direct insults are obviously intended to be more hurtful than obscured personal remarks. This distinction is not apparent with ARG behavior. Stripping the emotion from comments, and focusing only on those statements which are specifically task related removes any scalable differentiation between ARG behaviors. It would be hard to assign a qualitative value between stating a position, restating a position, providing coherent reasons for that position, or taking issue with positions taken by others (Infante,1988; Mills, 1968). This was also the conclusion drawn by Semic and Canary (1997) and Levine and Boster (1996), in their studies of argumentative behavior in decision processes.

Semic and Canary (1997) suggest that the trademark of highly argumentative people is their tenacity–the fact that they state and restate positions repetitively. Making new arguments is not necessary for participants to be argumentative, nor is the quality of their argumentation. Indeed, many argumentative people restate poorly conceived arguments with more tenacity than others who may have good points to make. The effectiveness of argumentation is not the issue in ARG behavior. Rather, it is the desire to argue (argument approaching), expressed through specific behaviors.

These circumstances leave the coding of ARG behaviors as a simple frequency count. As indicated, this agrees with the methodology used in the only other two studies (Levine & Boster, 1996; Semic & Canary, 1997) in this field. In both of these studies, coders counted a unit of ARG behavior for each thought turn containing an ARG statement. They assigned each ARG statement to a category, but there were no quantitative values assigned to the categories, nor were distinctions made in the evaluation of the data regarding these categories. The present study is interested in the overall ARG behavior, on the same terms as the ARG scale measures the ARG trait. Since the questionnaire does not define categories of trait argumentativeness, it seems redundant to attempt to categorize the analogous ARG behavior in the group exercise.

Semic and Canary (1997) raise an important point regarding the role of tenacity in argumentativeness. There are two possible ways to be tenacious in argumentativeness: raising large numbers of arguments, or arguing a point for a long time. The problem with evaluating the latter point is that argumentativeness may be confused with verbosity. Simply talking a lot does not necessarily make an individual argumentative. It is possible

that some people express their argumentativeness through extended group interventions. It is also possible that they may just be talkative.

To examine this issue, this study looked at both possibilities. The primary method was to simply count argumentative thought turns. The coders counted the thought turns containing ARG statements, and summed the results, for a participant's score.

As a second measure, argumentative behavior was also expressed as a ratio of time spoken. The concern was to see if the measurement of argumentative behavior is being distorted by talkativeness. That is, the reason argumentative individuals have more thought turns with ARG statements is because of volume of words spoken. ARG individuals need not necessarily be talkative. Some may express their arguments in a succinct manner, taking little time to do so. Others may speak an inordinate amount of time in the group, and make numerous ARG statements, simply because they have talked a long time. This makes them more verbose, but not necessarily more ARG.

This factor can be taken into account by expressing the final score in terms of "arguments per minute spoken." This is done by dividing the raw ARG behavior score (number of thought turns containing an ARG statement) by the amount of time spoken. This is expressed in the following formula:

$$ARGB_{ratio} = \frac{\Sigma ARGB_b}{t}$$

where $ARGB_{ratio}$ is the participants' final argumentativeness behavior score, $ARGB_b$ the thought turns containing ARG statements, and t the amount of time spoken, in minutes.

Using this formula factors talkativeness out of the measurement, leaving all participants compared on the same time base. It allow a comparison of the predictor variable "ARG behavior" for the two types of participants–those who argue "long" and those who argue "hard." Each participant has two ARGB scores: a raw ARGB score and an $ARGB_{ratio}$ score, which is adjusted for time spoken.

For coding purposes, an ARG statement within a thought turn is one which has the following characteristics:

1. supplies one or more facts pertinent to the task of the group
2. advocates a position on the task
3. elaborates details about a fact or a position
4. gives a coherent reason for the speaker's opinion on the task
5. attacks (challenges) an opinion about the task expressed by another group participant
6. provides details why the speaker is against another person's position or idea
7. attempts to persuade or dissuade other group members on positions regarding the task

(Canary, Brossmann, Brossmann, & Weger, 1995; Infante, 1988; Infante & Rancer, 1982; Levin & Boster, 1996; Semic & Canary, 1997).

A unit of ARGB was counted for each thought turn, defined as, "...a change in thought, and not necessarily speaking turn" (Hatfield & Weider-Hatfield, 1978).

Coders observed the video tapes, and marked a score sheet with a tick mark for each time a thought turn contained an ARG statement. The score sheet was divided into

40 cells, with the marking of the ARG statement placed in the cell corresponding to the running minute of the discussion (which was limited to 40 minutes). This allowed the coders to return to the tape, and identify exactly which statements the participants made that were considered to contain ARG behavior.

Using this method, the coders independently observed the tapes. Afterwards their scores were compared. The results showed an interrater reliability score of r=.89. The coders indicated that their disagreement was rarely on whether or not a thought turn contained an argumentative statement, but the duration of the thought turn. Their counts generally differed in circumstances where one coder determined that a thought turn had occurred, and the other did not.

For the statistical analysis, it was necessary for the rater to determine a final score for each participant. Semic and Canary (1997) used a consensus method to do this, and this was the method used here. When the coders disagreed on an individual ARG behavior, they were required to resolve this by reviewing the appropriate portion of the video tape and negotiating agreement. This is more accurate than simply averaging the two coder's scores. It allowed the two coders to correct an error rather than to reduce its impact through averaging. The coders could discuss the disputed behavior, and reach a consensus through argumentation. Their consensus was then listed on the score sheet as the participant's final score.

Verbally aggressiveness behavior (VAB) is related to the trait. Behaviors associated with VA are those which are overt expressions of the trait, as defined by Infante and Wigley (1986) above. Verbal behaviors were deemed aggressive if they cause,

or were intended to "inflict psychological pain, humiliation, embarrassment, depression, or negative feelings about self." Behaviors that would fall in this category are badgering, cynical remarks, insults, bullying, intimidating remarks, demeaning or degrading comments, verbal jabs, threats, character attacks, competence attacks, background attacks, physical appearance attacks, maledictions, teasing, ridicule, threats, swearing, and nonverbal emblems (Infante, Sabourin, Rudd & Shannon, 1990).

Although VA has been extensively studied, often in association with ARG, few attempts have been made to actually quantify the behavior associated with these traits in group discussions. Semic and Canary (1997) looked at VA and ARG traits in relationship to behavior, but only coded the argumentative behaviors into categories. Levine and Boster (1996) also observed behavior in groups, but only coded the ARG behavior into categories. It is interesting to note that Semic and Canary (1997) claim that, with the exception of these two studies, they were unable to find any other instances in the literature where an attempt had been made to code ARG or VA behavior in decision groups. The literature search in this study confirmed their finding.

Identifying categories of ARG and VA speech are certainly valuable in gaining an understanding of groups, but are not particularly helpful when the research is, as is the case in this exercise, examining outcomes rather than processes. This study focuses on the effect of ARG, VA and CA outputs of the group experience, and needs to measure and code data in a way in which the magnitude of the effect can be clearly reflected. The measurement of VA behaviors must take into account the need to specify quantity and quality, as well as control for other influences. A simple tally of VA messages in a

discussion is feasible, but does not account for the relative intensity of highly emotional speech.

Coding units are an issue, but the concept of "thought turns" appears to make the most sense, as was the case in measuring ARG behavior. In this study, a unit of VA was counted for each thought turn, defined as, "...a change in thought, and not necessarily speaking turn" (Hatfield & Weider-Hatfield, 1978). This is similar to the method used by Semic and Canary (1997), which in their case, resulted in intercoder agreement of 80.2%.

A simple count of thought turns including VA behaviors is attractive for its simplicity, but lacks precision. Given the definition of VA, it is intuitively reasonable that not all VA behaviors are alike. Some statements have more effect in lowering self esteem than others. A direct insult, filled with vituperative attacks, is clearly intended to be more hurtful than a veiled innuendo or simple teasing. Attempting to reflect this in a coding scheme faces the difficulty of properly assigning the magnitude of the effect. Since discussions within "polite" groups, such as those being examined in this study, rarely contains extreme invective, it is not likely that an open ended scale is necessary to reflect the impact of most VA interactions. Indeed, the observations of this study showed that VA outbursts within the groups were few, and truly extreme behavior nonexistent. Nevertheless, there were observable differences in the intensity of VA-type statements, both in the intent of the speaker and resultant emotional response of the target of the comment.

Clearly, VA is a measure of the sender's intentions and actions, rather than an attempt to determine the result of such a speech act. Nevertheless, most individuals know

when their statements have had a negative or hurtful effect on the receiver. For those who are very high in the verbal aggressiveness trait, a negative effect on the recipient of a verbal blast is clearly the intent. Many hurtful comments are not intentional, but have a negative impact on the recipient nevertheless. Even if a comment is not intended to be hurtful, the sender of such a message may inflict psychological pain on the receiver. Because of this, and the reasonable expectation that "normal" people know that even unintentional comments can be hurtful, one can not simply disregard what may be unintentionally hurtful comments. There is doubtlessly a qualitative difference between these two levels of messages, but it is logical to assume that a hurtful message, transmitted to a receiver with the intent to demean or degrade the receiver is of a higher VA level than an unintentional remark.

A reasonable expectation remains, however, that all people have a social duty to be careful in saying things that may be hurtful, even when causing pain was not intended. People are generally aware that teasing, for example, can be taken too far and be hurtful to others. Most people who tease do so with the understanding that there are limits to the types of things they say, and that there is a boundary that cannot be overstepped without causing pain. They understand that they are taking a risk of doing so when they engage in teasing or similar verbal activities. While teasing behavior is not a level of aggressiveness associated with the highly verbally aggressive people, it nevertheless distinguishes teasers from those who refuse to tease at all, for fear of causing emotional pain.

In addition to the division of VA behavior in intentional and unintentional, there is a subset of behaviors within these two classes. In either case, the more hurtful assault is a

direct statement. This can be contrasted to a veiled or linguistically softened comment. For example, a speaker can say, "You are a jerk!" This is intentional and direct. It is a statement specifically designed to offend or hurt the recipient. A speaker may not want to want to be so blunt, however. In less extreme circumstances, the sender of such a message may intend to offend, but ameliorates the impact by either veiling the terms, or softening the language. This can be through word modifiers, sarcastic remarks, dark humor, etc. For example the speaker might say, "If you continue to act like that, people might think you are a jerk." This conveys the same message as the first statement, but does so in a softer manner. The latter statement uses sarcasm, a more indirect form, in place of bluntness to communicate the same emotion.

Unintentional statements can be direct and indirect as well. Aggressive teasing or taunting is often in the category of direct, unintentional VA speech. Comments about personal appearance (overweight, baldness, breast size, disproportionate features, etc.) are often not intended to offend, but have that impact on the receiver, when taken to the extreme. The VA behavior is less intense than cases where the offense is intentional, but demonstrates aggressive behavior nevertheless. At the extreme mild end of the spectrum are VA statements which are both unintentional and indirect. These statements may use irony or satiric remarks to which are not intended to demean, but may have exactly that effect on sensitive individuals.

Obviously, it is sometimes difficult for an outside observer to impute intention to a speaker. In extreme cases, the choice of words, volume, inflection and non-verbal actions leave no question regarding the speakers intentions. The same is true of simple verbal

faux pas on the other end of the spectrum. This leaves, however, a grey area at the midpoint of VA behaviors. It lies between the two extremes, making it difficult for the observer to assign it to any of the above listed categories. Nevertheless, the statements or acts of a participant can clearly be placed between the more extreme behaviors in their intensity and directness.

Using this model, a five-point rating scale was created, and used to evaluate VA behavior of the participants in this study.

Figure 3 Scoring Model

Scoring Model for Verbal Aggressiveness Behavior
(Points per thought turn for each type of statement)

Unintentional Indirect	Unintentional Direct	Midpoint	Intentional Indirect	Intentional Direct
1	2	3	4	5

This model does not imply that an intentional, direct VA statement is premeditated by the sender to be exactly five times more hurtful than an unintentional, indirect statement. It does serve to provide some distinction between the levels of VA behavior. Again, given the complexity of VA behavior, it is doubtful that a weighting system could be developed which would take into account the myriad of factors and variables in this aspect of human behavior.

This coding model showed good interrater reliability. Two coders were used for each group discussion. The coders evaluated each group member, and recorded a VA incident in the discussion on a scale of one to five, as indicated above. The score sheet had 40 cells, with the VA behavior score recorded in the cell for the minute in the discussion in which it occurred. The independent ratings of the 50 participants showed an interrater reliability of $r = .85$.

As was suggested by Semic and Canary (1997), to come up with a final score for each participant, the scores for each VAB incident on the respective coder's score sheet were negotiated between two raters retrospectively, as was done in the measurement of ARGB. In the ten observed discussion groups, the coders never disagreed on whether or not a VA behavior had occurred, but only on its intensity. In these cases, they went back to the video tape, and compared the statement (as well as associated non-verbal behaviors) to the criteria listed above. Their consensus was then listed on the score sheet as the participant's final score.

The final issue in this coding behavior is controlling for other influences. As with ARG behavior the primary concern in this situation is the amount of time spoken. A person who speaks a lot will have more opportunity to make aggressive statements than one who talks only briefly. This does not necessarily mean that first person is more VA prone than the second. For example, if a group member speaks only once, but his or her comment is a highly emotional fulmination, the speaker would score "five" in the above model. On the other hand someone who made six somewhat innocuous personal remarks,

scattered throughout extensive group interventions, would score "six." This may not be an accurate portrayal of the actual VA behavior.

To account for this, as with ARG behavior, two measures were taken. The first was a raw score of VA behavior, as described above. The second used an adjustment for time spoken, as was used with ARG behavior. The simplest way to do this is to simply divide each participant's raw VA behavior score by the amount of time he or she speaks in the group, as illustrated by the following formula:

$$VAB_{ratio} = \frac{\Sigma VAB_b}{t}$$

Where VAB_{ratio} is the participant's Verbal Aggressiveness behavior score adjusted for time spoken, VAB_b are the scores given by the coders to each VA thought turn, and t is the amount of time the participant spoke during the group session (in minutes). Each participant, therefore. has two VAB scores: a raw VAB behavior score and a VAB ratio score, with time factored out.

Communication apprehension behavior (CAB) is more easily defined. Coding of CA appears to be the most straight forward. The behavior associated with trait communication apprehension is non-communication–in this case, not speaking. There are certainly many reasons for not speaking, and not all of them are related to shyness or lack of communication skills. This is, however, the essence of the interactionist argument. While one would assume that CA would drive those individuals high in this trait to be more silent than those low in this trait, the correlation is not perfect. As has been

indicated, this study focuses on outcomes rather than the psychological processes by which traits manifest themselves as behaviors.

The measure of this behavior in a group is, therefore, the actual amount of time spent communicating. This is certainly not a perfect measure, but few instruments designed to quantify human behavior are. In terms of the design of this study, it fits well. CA, as measured on the questionnaire, is a broad brush measure of the trait. It includes all forms of communication apprehension, from fear of speaking before an audience to fear of dyadic communication. Time spoken is equally as blunt. It is a raw measure, with no nuances. Measuring this way allows the interactionist model to be tested. It postulates that there will be situational differences in the outward manifestation of CA. Using time spoken as a measure allows these two factors to be compared.

In observing the groups, the coders simply timed the length of time spoken for each participant. Since this could be observed directly, there was virtually no disagreement. There were occasions in which two or more participants were talking at the same time. There were also occasions when nobody was speaking. For some groups, the total amount of time spoken exceeded 40 minutes, because group members were talking at the same time. In other cases, the total time spoken was substantially less than 40 minutes.

Other variables. The 50 individuals who served as participants in this study were not drawn from a cross section of American society. This is partly by design, and partly by circumstance. Since the results of this study will apply to decision-making groups, it was necessary to draw a sample from a population of people who function within such

groups. The participants were therefore taken from organizations that actually use small groups in the decision-making process. Demographic information was collected from the participants to control for factors that vary within this universe: gender, age, length of time associated with the organization. Since participants were drawn from the expatriate American community in Germany, they were also asked to indicate how long they had lived outside of the United States. Collecting these data made it possible to see if any of these demographic issues was significantly related to the criterion and predictor variables of this study. Information on race was not included because of insufficient minority representation in the universe.

There is also a great deal of concern among various authors that hypothetical situations do not accurately reflect real-world behavior in groups (Boster & Stiff, 1984; Boster & Lofthouse, 1986; Levine & Wheeless, 1990). While this study attempted to correct this problem by using a case study which mirrored real life group decision processes as its base (as opposed to using instruments such as "survival studies" which do not reflect actual life experience), there was concern that the participants in the study would modify their behavior because it was not viewed as real. Certainly, observation of the participants itself is a factor in this study, as it is in any study of human behavior where overt observation or manipulation of the participants by the researcher occurs. To control for, and measure this effect, the participants were given six questions at the end of the exercise which specifically asked if they modified their behavior in the test situation, either positively or negatively, from their "real life" behavior in groups. The participants were

also asked to provide narrative comments their decision process to further evaluate, on a qualitative basis, their decision-making experience.

Procedures

The participants were invited to participate in a decision making exercise, by direct contact with their respective organizations. Those expressing interest in taking part were self-assigned to a group of five. Each group consisted of people who know each other, and who have previously worked together in close proximity (in a group or dyadically) in the past. Although the group members were not specifically asked if they "liked" the other group members, their membership in a particular group was determined by themselves, not by the researcher. This method parallels group membership within most organizations. While the group does not necessarily consist of close friends, it is unlikely that anyone with harsh feelings toward another person in this group would have consented to participate in that given configuration. The only intervention in the self-selection process was that the group members were required to be peers in their organization. No individual with supervisory authority over another group member was allowed to be a member of a group.

Because the groups were self-selected, it was not possible to control the race or gender mix of the groups. Although it may have been ideal to do this, given the well documented differences in group behavior of men and women, manipulating the composition of the group would have violated the "groupness" concern, that has been previously articulated. In this self-selection process, the groups were remarkably well balanced by gender (male n=26, female n=24). There was one all male group, and the rest

were well gender balanced. Racial balance was not possible because of the nature of the population. There are simply very few racial minorities among the expatriate American population.

Prior to the group being brought together, each member was asked to sign a release form, and given a questionnaire. The questionnaire contained 64 questions, and consisted of the following three parts: The Argumentativeness Scale (Infante & Rancer, 1982) (20 questions), the Verbal Aggressiveness Scale (Infante & Wigley, 1986) (20 questions), and the Personal Report of Communication Apprehension, PRCA-24 (McCroskey, 1982) (24 questions). Appendix B contains the survey and release form. The participants were asked to bring the completed release form and survey instrument with them at the appointed time for the group to meet. A meeting time and location was negotiated with the five members of the group.

At the appointed time, the group members were brought into a room, and seated on the ends and one side of a table, or on one side of a round table. This allowed each group member to talk face-to-face with the others, while making it possible for the proceedings to be video-taped. The group was informed that the entire procedure would take approximately 1¼ hours. Group members were again assured that their responses will be held in confidence, that the materials would be used for statistical purposes only, and that the original documents would be destroyed after the statistical evaluation is completed.

Each group member was then randomly issued a numbered binder (one to five), and reseated at a table in numerical order. A tent card was placed in front of each group

member indicating his or her number in the group. Group members were then asked to open their binders to the general instructions page (see Appendix B for the content of the binder), Section 1, and follow along as the instructions were read. General questions, relating to the instruction were answered by the proctor.

The group members were next instructed to place their completed release form in Section 1, and fill out the form asking for demographic information. They were then instructed to place their completed questionnaire form in Section 2.

Group members were then instructed to turn to Section 3, and read the case materials. Group members were instructed that they were to be "responsible for" the case proposal (from one to five) that corresponded to their group number. They were to study the summary information, and pay particular attention to the supplemental materials that corresponded to their group number in Section 4 of the binder. The group members were given time to completely read the case, and evaluate the details. Only when all group members were ready was group discussion allowed.

The case study in Sections 3 and 4 (see Appendix B) was designed to portray a situation with no right answer, but with several competing interests. The case describes a non-profit organization that is making its annual budget allocation. There are five worthwhile projects on the table:

1. A homeless soup kitchen (Help for the Hungry)
2. A project to train new workers (VocEd Training Project)
3. A center for troubled youth (Teen Crisis Counseling Service)
4. A crime reduction project (Crime Crushers)

5. A disease abatement program (Rhawabindi Relief Fund).

Not all five can be funded. Each project has distinct advantages, disadvantages and problems. The individual situations represent worthwhile projects, each of which are roughly equivalent in economic and intrinsic value (Note: Pre-tests of the instrument showed that various groups have no preference for one of the case proposals over any other proposal). The choices are controversial, with positive and negative aspects for each proposal. The case was designed to evoke controversial discussion, and speak to a diversity of opinions on a variety of social issues. Pre-tests of the instrument indicate that the case works as designed. Since the case study is only intended to be a catalyst for discussion, and not a measurement instrument, it was not subjected to further evaluation. Each of the 10 groups engaged in a lively debate on the issues presented, demonstrating that the case had fulfilled its purpose.

The deliberations of the groups were video-taped. The groups were only interrupted during their discussion to give them time checks, at 20 minutes, 30 minutes, 35 minutes, 37 minutes and 39 minutes. No questions to the proctor were permitted (questions were simply ignored). Exactly 40 minutes was allowed for deliberations. The groups were instructed that their assignment was to rank the five projects presented in the case study in order of importance. The final ranking, from one to five, was required to be by unaninmous consent, with all group members agreeing on the final decision before the expiration of the allotted time. When the discussion time expired, the ranking form for the group was collected by the monitor.

The group members were then instructed to turn to Section 5 of the binder. This section contains the exit questionnaire. It instructed the participants to evaluate their support of the decision by answering nine questions. The questions were scaled from one to five, with five being the highest. Questions five, seven and nine are expressed in the negative to avoid response patterns (see Appendix B).

Section 5 also contained a six question questionnaire asking the participants if their reaction to this group exercise matched their behavior in "real" groups. They were also asked to answer two essay-style questions (optional) regarding the experience. These essays were used to evaluate the experience on a more qualitative basis, and for analysis of the experience.

Finally, the participants were given the same ranking form that was completed as part of the group activity. This time, they were instructed to complete the ranking according to their personal preference, NOT the preference of the group. The ranking form was used as the measure of individual support for the decision.

Data Analysis

Main effects: The test instruments and the group observations yielded a set of predictor variables, which were measured against the two criterion variables. The scores for the predictor variables were determined as follows: For the measurement of traits, the results of the questionnaires for ARG, VA and CA were used. Each questionnaire yielded a continuously scaled score on the respective test instrument. The test instruments have been extensively validated (see literature review), and the questionnaires were not revised from their original validated and reliability tested form.

For the measurement of behaviors (ARGB, VAB, and CAB), observed scores, coded by two observers who evaluated the video tapes, were used. The group members actions were observed and coded according to a protocol (Appendix C). Differences in coding were rectified by a consensus, after a discussion between the two coders discussion and a review of the video tapes, rather than a vote or an averaging methodology. A coded score for each participant was generated to correspond to each of the predispositions: For ARGB, coders counted the number of thought turns containing argumentative statements for each group participant. For VAB, observers assigned a score from 5 to 1 for each thought turn containing a verbally aggressive statement for each group participant. For CAB, observers measured the actual time, in minutes (and fractions thereof), that each participant talked during the group exercise.

For ARGB and VAB a second measure was used. A ratio score was calculated for each factor by dividing the raw ARGB and VAB score respectively by the amount of time each participant spoke in the group. This yielded an "arguments per minute" ($ARGB_{ratio}$) score and a "verbal aggression per minute" (VAB_{ratio}) which is used in the analysis as well. The purpose of this measure is to hold time spoken as a constant between participants.

Not every utterance made by a participant in the group contains statements that can be coded. In the course of any group conversation there will be random comments, or housekeeping chores that will be ephemeral to the discussion. Likewise, there are thought turns which simultaneously contain both VA and ARG statements. When this occurred, both were coded. When assigning values to the statements, coders attempted to include both verbal and nonverbal signals (to the extent that this is discernable from a video tape).

This is clearly a difficult task for any coder, but it was hoped that "noise" in this coding process will be random, and that the use of multiple coders will reduce bias, and error to the minimum possible. Coding of discussions, although not an exact science, is certainly one with a long tradition (Bales, 1950).

Scores for the criterion variables were determined as follows: For the "support" attribute, the measure is the score on the individual exit questionnaire (IEQ). A maximum score of 45 and a minimum score of 5 are possible. Questions 5, 7 and 9 were stated negatively to avoid a response pattern, so the scores for these questions were inverted before being summed.

For the "acceptance" attribute, the score is the absolute difference between the ranking of the five proposals in the case by the group, and the personal ranking prepared by the individual group member. This number is derived by subtracting the ranking of the group from the ranking by the individual on each of the five proposals in the case, and summing the absolute difference (This score will be referred to as Δ-rank).

The following table summarizes the scoring:

Table 1 Scoring Summary for Predictor Variables

Predictor Variables	Argumentativeness	Verbal Aggressiveness	Communication Apprehension
Trait	Argumentativeness Scale (ARG Scale)	Verbal Aggressiveness Scale (VA Scale)	Personal Report of Communication Apprehension, PRCA-24 (CA Scale)
Behavior	Observed count of argumentative incidences, as well as a ratio of this score to the time spoken (ARGB and $ARGB_{ratio}$)	Observed score of verbally aggressive behaviors, as well as a ratio of this score to the time spoken (VAB and VAB_{ratio})	Actual time individual speaks during group activity (CAB)

Table 2 Scoring Summary for Criterion Variables

Criterion Variables	
Individual Acceptance	Δ-Rank[†]
Individual Support	Individual exit questionnaire score (IEQ)

[†] Δ-Rank is the sum of the absolute differences between the group ranking and the individual exit ranking for each of the five scenarios from the group discussion case. As the Δ-Rank score increases, individual acceptance of the group decision decreases. The highest possible score is 12 (complete disagreement with the group), and the lowest possible score is zero (complete agreement with the group).

Intervening variables. In addition to the main effects, data were gathered regarding demographic attributes of the participants. A score was recorded for each participant in the following areas: Age (in full years), gender (observed from the video tape), race (observed, but with insufficient numbers of minority participants to provide a meaningful analysis), number of years the participant has lived outside of the United States, and number of years the participant has been affiliated with the organization.

In addition to these variables, each participant was given a questionnaire with six questions to determine whether or not their behavior in the group was different than they perceived their own behavior in similar settings in real life. Each question has a five point, Likert-like scale, with the midpoint (the number 3) reflecting "no difference." A score of 18 indicates that the participant felt that he or she acted exactly the same in this exercise as in a real life situation. Numbers below 18 indicated that the participant was less assertive and less communicative in the group than in real life. Numbers above 18 indicate that the participant perceives him or herself to be more assertive and communicative in real life situations than they were in the group. These variables and the other predictor variables, were compared to the criterion variables, which provided the basis for the full test model.

The alternative hypotheses, listed in Chapter 2, predicted relations between the predictor and criterion variables. Each of the instruments used to measure the relationships are shown on the following table:

Table 3 Scoring Instruments

Predictor/Criterion Variables	Argumentativeness	Verbal Aggressiveness	Communication Apprehension
Trait/Acceptance	ARG Scale/Δ-Rank (H_1)	VA Scale/Δ-Rank (H_5)	CA Scale/Δ-Rank (H_9)
Behavior/ Acceptance	ARGB observed/ Δ-Rank (with $ARGB_{ratio}$ compared, as well) (H_2)	VAB observed/Δ-Rank (with VAB_{ratio} compared as well) (H_6)	Time (CAB) observed/ Δ-Rank (H_{10})
Trait/Support	ARG Scale/IEQ (H_3)	VA Scale/IEQ (H_7)	CA Scale/IEQ (H_{11})
Behavior/Support	ARGB observed/IEQ ($ARGB_{ratio}$ is compared, as well) (H_4)	VAB observed/IEQ (VAB_{ratio} is compared, as well) (H_8)	Time (CAB) observed/IEQ (H_{12})

The cells in Table 3 show how each relationship was measured. For example, the trait Argumentativeness is measured by the Argumentativeness Scale. It is compared to the criterion variable "Decision Acceptance," which is measured by the Δ-Rank score--the absolute difference between the individual participant's ranking of the proposals, and the group ranking. The H_1 postulates that there will be a significant positive correlation between this predictor and this criterion variable. The remaining hypotheses are shown accordingly, along with their measures.

Because of individual differences between various participants in this study, it is possible that other variables may influence the outcomes. It is also possible that variable interactions between the variables may change the outcomes. For this reason, all predictor

variables on the horizontal axis of this table, plus all demographic variables, as well as the measure of whether the participant responded differently to a simulated group, were included in the full model. The predictor and criterion variables were therefore compared using multiple regression (with the GLM in the SAS statistical software). The full multiple regression model for the criterion variables are as follows:

1. $DA_{tv}=\alpha+ARG_{gt}\beta_1+VA\beta_2+CA\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

2. $DA_{bv}=\alpha+ARGB\beta_1+VAB\beta_2+CAB\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

3. $DS_{tv}=\alpha+ARG_{gt}\beta_1+VA\beta_2+CA\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

4. $DS_{bv}=\alpha+ARGB\beta_1+VAB\beta_2+CAB\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

Where

DA_{tv} = the criterion variable "Decision Agreement"for the trait variables

DA_{bv} = the criterion variable "Decision Agreement for the behavior variables

DS_{tv} = the criterion variable "Decision Support"for the trait variables

DS_{bv} = the criterion variable "Desision Support" for the behavior variables

α = the intercept

β = the slope

e = error

ARG_{gt} = the individual score on the Argumentativeness scale

VA = the score on the Verbal Aggressiveness scale

CA = the score on the Communication Apprehension scale

$ARGB$ = the score on the Argumentativeness behavior scale

VAB = the score on the Verbal Aggressiveness behavior scale

CAB = the score on the Communication Apprehension behavior scale

S = gender of the participant

A = age of the participant

OC = the number of years the participant has lived outside of the United States

WO = the number of years the participant has been associated with their organization

SR = the score on the question of the effect of the simulated group discussion versus real-life.

These models read horizontally across the relationships shown on Table 3. This is necessary to make certain that potential interactions between main predictor variables, and the associated demographic predictor variables are included in each model. Thus, full model formula number one will test hypotheses 1, 5, and 9; formula two will test hypotheses 2, 6,and 10; formula three will test hypotheses 3, 7, and 11; and formula four will test hypotheses 4, 8, and 12. In addition, formulae two and four were recast, and run a second time, replacing the term *ARGB* with $ARGB_{ratio}$ and *VAB* with VAB_{ratio} (as described above), to test if holding time spoken constant between participants had any effect on the statistical relationships with the data set.

Other effects. As indicated in the literature review, in other studies it has been suggested that a high correlation exists between ARG, VA and CA, and their associated behaviors. In the two previous studies where this relationship was examined (Levine & Boster, 1996; Semic & Canary, 1997), only ARG behavior was observed, and only in dyads. This study, therefore, deals with a situation that has not previously been examined, and the data that have been gathered could provide an interesting insight into the

interactionist model proposed by Bales (1950). He concluded that while a strong relationship should exist between trait and behavior, the situation in which the interactions take place will have an effect on actual behavior, irrespective of how strongly the predisposition of the participant may be.

Since the literature assumes that traits drive behavior (which is also intuitively logical), it is reasonable to assume a positive relationship will exist between them. Using simple correlations, the scores for ARGgt were compared with ARGB and $ARGB_{ratio}$; the scores for VA were compared with VAB and VAB_{ratio}, and the scores for CA were compared with CAB.

CHAPTER 4

Results

As shown in the methods section, the hypotheses fall within four groups: Trait/Acceptance (H_1, H_5, H_9), Behavior/Acceptance (H_2, H_6, H_{10}), Trait/Support (H_3, H_7, H_{11}), and Behavior Support (H_4, H_8, H_{12}), as is shown on the following table:

Table 4 Comparison of variables

Predictor/Criterion Variables	Argumentativeness	Verbal Aggressiveness	Communication Apprehension
Trait/Acceptance	ARG Scale/Δ-Rank (H_1)	VA Scale/Δ-Rank (H_5)	CA Scale/Δ-Rank (H_9)
Behavior/ Acceptance	ARGB observed/ Δ-Rank (with $ARGB_{ratio}$ compared, as well) (H_2)	VAB observed/Δ-Rank (with VAB_{ratio} compared as well) (H_6)	Time (CAB) observed/ Δ-Rank (H_{10})
Trait/Support	ARG Scale/IEQ (H_3)	VA Scale/IEQ (H_7)	CA Scale/IEQ (H_{11})
Behavior/Support	ARGB observed/IEQ ($ARGB_{ratio}$ is compared, as well) (H_4)	VAB observed/IEQ (VAB_{ratio} is compared, as well) (H_8)	Time (CAB) observed/IEQ (H_{12})

The full model for the multiple regression procedure falls along the horizontal axis, including the listed terms, plus the collected demographic variables. This yields four full model formulae, covering the twelve hypotheses. The full model allows for the simultaneous testing of interactions between all of the main criterion variables, as well as

the demographic criterion variables. In addition, for the Behavior/Acceptance and Behavior/Support terms, there is an additional multiple regression full model for the $ARGB_{ratio}$ and VA_{ratio} variables. The four full model hypotheses are follows:

1, $DA_{tv}=\alpha+ARG_{gt}\beta_1+VA\beta_2+CA\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

2. $DA_{bv}=\alpha+ARGB\beta_1+VAB\beta_2+CAB\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

3. $DS_{tv}=\alpha+ARG_{gt}\beta_1+VA\beta_2+CA\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

4. $DS_{bv}=\alpha+ARGB\beta_1+VAB\beta_2+CAB\beta_3+S\beta_4+A\beta_5+OC\beta_6+WO\beta_7+SR\beta_8+e$

An alpha level of .05 is considered significant for all statistical tests. The total number of participants was 50 (26 male and 24 female).

The variables had the following characteristics:

Table 5 Descriptive Statistics for the measured variables

Statistic/Variable	Mean	Standard Deviation	Minimum	Maximum
Predictor Variables				
ARG_{gt}	3.7	9.41	-18	22
ARGB	17.6	6.6	1	31
$ARGB_{ratio}$	2.37	.75	.1	4.0
VA	39.3	8.04	25	58
VAB	.82	1.44	0	7
VAB_{ratio}	.010	.18	0	.95
CA	56.08	18.08	28	112
CAB	7.59	3.0	.51	16.12

Statistic/Variable	Mean	Standard Deviation	Minimum	Maximum
Criterion Variables				
Δ-Rank	2.8	2.87	0	12
IEQ	40.06	4.25	27	45
Demographic and Other Variables				
A	40.72	10.91	23	63
OC	14.62	15.17	0	59
WO	8.14	9.44	0	34
SR	20.94	2.52	17	28

The mean for ARG_{gt} is calculated according to the scoring system developed by Infante and Rancer (1982). In their scoring system, the 20 questions on the scale are divided into two group: Argument approaching (ARG_{ap}) and argument avoiding (ARG_{av}). To calculate the participant's overall score, the ARG_{ap} scores are subtracted from the ARG_{av} scores. This yield an grand total score (ARG_{gt}), listed here. The highest possible score would be 40 (50 points on the ARG_{ap} questions, minus 10 points from the ARG_{av} questions). The lowest possible score is -40. The above listed mean is the average of the ARG_{gt} score for the 50 participants in this study.

The scores for VA and CA are also calculated according to the instructions given by the respective authors. In these cases, the participant's scores on the individual questionnaire items are summed, after inverting the scores of questions which have been stated negatively, to avoid a response set. Thus, on a 20 question scale, with responses

valued from 5 to 1, the highest possible score is 100 and the lowest possible score is 20. The means listed above are the averages of the scores of the 50 participants in this study.

General statistics

For Formula 1, listed above, the multiple regression outcomes were as follows:

Table 6 ARG_{gt} VA and CA compared to Acceptance (Δ-Rank) in the full ANCOVA model (H_1, H_5, H_9)

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	100.68	12.58	1.7	0.13
Error	41	303.31	7.39		
Corrected Total	49	404.00			R square= 0.25

Although the full model for formula one, as shown in Table 6, was not statistically significant, Type III SS (using the SAS statistical package) showed a significant relationship for the variables ARG_{gt} (F= 4.36, p=.043), A (F= 6.33, p=.016), and OC (F= 5.31, p=.026). The reduced model,

$$DA_{tvreduced}=\alpha+ARG_{gt}\beta_1+A\beta_2+OC\beta_3+e$$

was then tested with the following results:

Table 7 ARG_{gt} , A and OC compared to Acceptance (Δ-Rank) in a reduced ANOVA model

Source	df	Sum of Squares	Mean Square	F Value	P
Model	3	38.56	12.85	1.62	0.20
Error	46	365.43	7.94		
Corrected Total	49	404.00			R square= 0.095

Within the reduced model, none of the terms were significant, showing the following results: ARG_{gt} (F= 2.41, p=.13), A (F= 1.15, p=.29), and OC (F= 1.90, p=.17). See Appendix D for the complete statistics.

For Formula 2, the outcome was as follows:

Table 8 ARGB, VAB and CAB compared to Acceptance (Δ-Rank) in the full ANCOVA model (H_2, H_6, H_{10})

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	122.52	15.31	2.23	.045
Error	41	281.47	6.86		
Corrected Total	41	404.00			R square= 0.30

The full model showed significance (F= 2.23, p=.044). In examining the terms, the only the variable ARGB was significant (F= 5.52, p=.023). The reduced model,

$$DA_{tbreduced}=\alpha+ARGB\beta+e$$

was tested, with the following results:

Table 9 ARGB, compared to Acceptance (Δ-Rank) in a reduced ANOVA model

Source	df	Sum of Squares	Mean Square	F Value	P
Model	1	36.83	36.83	4.81	.033
Error	48	367.16	7.64		
Corrected Total	49	404.00			R square= 0.09

In addition, the alternative full model for formula 2 was tested, substituting the term $ARGB_{ratio}$ for $ARGB_{gt}$, and VAB_{ratio} for VAB This yielded the following result:

Table 10 $ARGB_{ratio}$, VAB_{ratio} and CAB compared to Acceptance (Δ-Rank) in the full ANCOVA model (H_2, H_6, H_{10})

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	126.22	15.77	2.33	.036
Error	41	277.77	6.77		
Corrected Total	49	404.00			R square= 0.31

The full model showed significance (F= 2.33, p=.036). In examining the terms, the only the variable $ARGB_{ratio}$ was significant (F= 5.81, p=.02). The reduced model,

$$DA_{tbreduced}=\alpha+ARGB_{ratio}\beta+e$$

was tested, with the following results:

Table 11 $ARGB_{ratio}$ compared to Acceptance (Δ-Rank) in a reduced ANOVA model

Source	df	Sum of Squares	Mean Square	F Value	P
Model	1	25.41	57.41	3.22	.079
Error	48	378.58	7.88		
Corrected Total	49	404.00			R square= 0.062

For Formula 3, the outcome was follows:

Table 12 ARG_{gt} VA and CA compared to Support (*IEQ*) in the full ANCOVA model (H_3, H_7, H_{11})

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	148.74	18.59	1.03	0.42
Error	41	738.07	18.00		
Corrected Total	49	886.82			R square= 0.17

None of the factors were significantly related to the dependent variable.

For Formula 4, the outcome was as follows:

Table 13 ARGB VAB and CAB compared to Support (*IEQ*) in the full ANCOVA model (H_4, H_8, H_{12})

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	149.28	18.66	1.04	0.42
Error	41	737.53	17.98		
Corrected Total	49	886.82			R square= 0.17

None of the factors was significantly related to the dependent variable.

In addition, the alternative full model for formula 2 was tested, substituting the term $ARGB_{ratio}$ for $ARGB_{gt}$, and VAB_{ratio} for VAB This yielded the following result:

Table 14 $ARGB_{ratio}$, VAB_{ratio} and CAB compared to Support (*IEQ*) in the full ANCOVA model (H_4, H_8, H_{12})

Source	df	Sum of Squares	Mean Square	F Value	P
Model	8	148.80	18.60	1.03	.43
Error	41	738.01	18.00		
Corrected Total	49	886.82			R square= 0.17

None of the factors was significantly related to the dependent variable.

Hypothesis 1

Hypothesis 1 predicted that the individual group member trait argumentativeness (ARG_{gt}) would be positively related to the individual's acceptance of group decisions (Δ-

Rank). Since *Δ-Rank* is a measure of lack of acceptance (the higher the score, the greater the **lack** of acceptance), the actual correlation measure for this factor would be negative.

The raw correlation of the factors ARG_{gt} and *Δ-Rank* was r = .22. This relationship is contrary to the hypothesized direction. Since *Δ-Rank* is higher as disagreement occurs, the correlation coefficient would have had to be negative to indicate a relationship in the hypothesized direction.

As indicated in Table 6, the relationship between ARG_{gt} and *Δ-Rank* appeared to be significant in the full model (F= 4.35, p=.043). When testing the reduced model (see Table 7), with the non-significant factors removed, ARG_{gt} was no longer significant (F= 2.41, p=.13).

Hypothesis 2

Hypothesis 2 predicted that the individual group member behavior argumentativeness (*ARGB*) would be positively related to the individual's acceptance of group decisions (*Δ-Rank*). Since *Δ-Rank* is a measure of lack of acceptance (the higher the score, the greater the **lack** of acceptance), the actual correlation measure for this factor would be negative.

The raw correlation of the factors *ARGB* and *Δ-Rank* is r = -.30. This relationship corresponds to the hypothesized direction, since a negative correlation coefficient shows that disagreement is negatively correlated to individual acceptance of group decisions. Therefore, agreement (the inverse) is positively correlated.

As indicated on Table 8, the relationship between *ARGB* and *Δ-Rank* is significant within the full model (F= 5.52, p=.024). When testing the reduced model (see Table 9), with the non-significant factors removed, *ARGB* remained significant (F= 4.81, p=.033).

Table 9 shows the relationship for the alternate model, replacing the factor *ARGB* with $ARGB_{ratio}$. The factor $ARGB_{ratio}$ has a correlation with *Δ-Rank* of r = -.25, which corresponds to the hypothesized nature of the relationship. In the full model, the relationship is significant (F= 5.81, p=.021). In the reduced model, with only the factor $ARGB_{ratio}$ remaining as the sole significant variable from the full model (see Table 10), it loses its significance (F= 3.22, p=.079).

Hypothesis 3

Hypothesis 3 predicted that the individual group member trait argumentativeness (ARG_{gt}) would be positively related to the individual's support of group decisions (*IEQ*). Since the *IEQ* measure increases as support increases, the correlation for this factor should be positive to be as hypothesized.

The correlation between ARG_{gt} and *IEQ* was r = .13. While this relationship is in the hypothesized direction, the relationship (as reflected in Table 12) is not significant (F= 0.07, p=.79).

Hypothesis 4

Hypothesis 4 predicted that the individual group member argumentative behavior (*ARGB*) would be positively related to the individual's support of group decisions (*IEQ*). Since the *IEQ* measure increases as support increases, the correlation for this factor should be positive to be as hypothesized.

The correlation between *ARGB* and *IEQ* was r = .21. While this relationship is in the hypothesized direction, the relationship (as reflected in Table 13) was not significant (F= 0.07, p=.79).

Table 14 shows the relationship for the alternate model, replacing the factor *ARGB* with $ARGB_{ratio}$. The factor $ARGB_{ratio}$ has a correlation with *IEQ* of r = -.008. In the full model, the relationship is not significant (F= .01, p=.92).

Hypothesis 5

Hypothesis 5 predicts that the individual group member trait verbal aggressiveness (*VA*) will be negatively related to the individual's acceptance of group decisions (*Δ-Rank*). Increased scores on the VA scale indicate greater verbal aggressiveness, and high scores on the *Δ-Rank* measure indicates disagreement with the group decision. Therefore, a correlation coefficient which is positive would indicate a relationship in the hypothesized direction.

The correlation between *VA* and *Δ-Rank* was r = -.013. This is contrary to the predicted direction, but the result is not significant (F= .04, p=.85) in the full model (see Table 6).

Hypothesis 6

Hypothesis 6 predicts that the individual group member verbal aggressive behavior (*VAB*) will be negatively related to the individual's acceptance of group decisions (*Δ-Rank*). Increased scores on the VAB observation rating indicates greater verbal aggressiveness, and high scores on the *Δ-Rank* measure indicates disagreement with the

group decision. Therefore, a correlation coefficient which is positive would indicate a relationship in the hypothesized direction.

The correlation between *VAB* and *Δ-Rank* was r = .29. While substantial, and in the appropriate direction, this correlation, as shown on Table 8, was not significant in the full model (F= .3.00, p=.09).

Table 10 shows the relationship for the alternate model, replacing the factor *VAB* with VAB_{ratio}. The factor VAB_{ratio} has a correlation with *Δ-Rank* of r = .30, which corresponds to the hypothesized nature of the relationship. In the full model, the relationship is not significant (F= 3.21, p=.08), but nevertheless substantial.

Hypothesis 7

Hypothesis 7 predicts that the individual group member trait verbal aggressiveness (*VA*) will be negatively related to the individual's support of group decisions (*IEQ*). Increased scores on the VA scale indicate greater verbal aggressiveness, and high scores on the *IEQ* measure indicates support for the group decision. Therefore, a correlation coefficient which is negative will indicate a relationship in the hypothesized direction.

The correlation between *VA* and *IEQ* is r = .06. This is contrary to the predicted direction, but the result is not significant (F= .19, p=.67) in the full model (see Table 12).

Hypothesis 8

Hypothesis 8 predicts that the individual group member's verbal aggressiveness behavior (*VAB*) will be negatively related to the individual's support of group decisions (*IEQ*). Increased scores on the VA behavior observations indicate greater verbal aggressiveness, and high scores on the *IEQ* measure indicates support for the group

decision. Therefore, a correlation coefficient which is negative will indicate a relationship in the hypothesized direction.

The correlation between *VAB* and *IEQ* is r = .13. This is contrary to the predicted direction, but the result is not significant (F= .03, p=.86) in the full model (see Table 13).

Table 14 shows the relationship for the alternate model, replacing the factor *VAB* with VA_{ratio}. The factor VA_{ratio} has a correlation with *IEQ* of r = .14. This is contrary to the predicted direction of the relationship, but in the full model, the relationship is not significant (F= .05, p=.82).

Hypothesis 9

Hypothesis 9 predicts that the individual group member's trait communication apprehension (*CA*) will be negatively related to the individual's acceptance of group decisions (*Δ-Rank*). Increased scores on the CA scale indicate greater communication apprehension, and high scores on the *Δ-Rank* measure indicates less acceptance of the group decision. Therefore, a correlation coefficient which is positive will indicate a relationship in the hypothesized direction.

The correlation between *CA* and *Δ-Rank* is r = -.047. This is contrary to the predicted direction, but the result is not significant (F= 2.88, p=.097) in the full model (see Table 6).

Hypothesis 10

Hypothesis 10 predicts that the individual group member's communication apprehension behavior (*CAB*) will be negatively related to the individual's acceptance of group decisions (*Δ-Rank*). Higher scores on the *CAB* behavior observation (measure of

time spoken) indicate greater willingness to communicate, and high scores on the *Δ-Rank* measure indicates less acceptance of the group decision. Therefore, a correlation coefficient which is negative will indicate a relationship in the hypothesized direction.

The correlation between *CAB* and *Δ-Rank* is r = -.10. This is in harmony with the predicted direction, but the result is not significant (F= .75, p=.39) in the full model (see Table 8).

Hypothesis 11

Hypothesis 11 predicts that the individual group member's trait communication apprehension (*CA*) will be negatively related to the individual's support of group decisions (*IEQ*). Increased scores on the *CA* scale indicate greater communication apprehension, and high scores on the *IEQ* measure indicates more support for the group decision. Therefore, a correlation coefficient which is negative will indicate a relationship in the hypothesized direction.

The correlation between *CA* and *IEQ* is r = -.20. This is in harmony with the predicted direction, but the result is not significant (F= 2.21, p=.14) in the full model (see Table 12).

Hypothesis 12

Hypothesis 12 predicts that the individual group member's communication apprehension behavior (*CAB*) will be negatively related to the individual's acceptance of group decisions (*IEQ*). Increased scores on the *CAB* behavior observation (measure of time spoken) indicate a greater willingness to communicate, and high scores on the *IEQ*

measure indicates more support for the group decision. Therefore, a correlation coefficient which is positive will indicate a relationship in the hypothesized direction.

The correlation between *CAB* and *IEQ* is r = .23. This is in harmony with the predicted direction, but the result is not significant (F= 1.81, p=.19) in the full model (see Table 13).

In summary, the results for the twelve hypotheses are as follows

H_1: The relationship ARG_{gt} to ***Δ-Rank*** is contrary to the hypothesized direction, and is significant in the full model. In the reduced model, where non-significant interactions were removed, the alternate hypothesis is not sustained. The hypothesis was not supported.

H_2: The relationship *ARGB* to ***Δ-Rank*** is in the hypothesized direction, and significant in the full model. In the reduced model, where non-significant interactions were removed, the relationship is still significant. The alternate hypothesis is sustained. For the alternative measure of argumentative behavior, the relationship of $ARGB_{ratio}$ to ***Δ-Rank***, is in the hypothesized direction and significant in the full model. In the reduced model, where non-significant interactions were removed, the alternate hypothesis is not sustained.

H_3: The relationship ARG_{gt} to *IEQ* is in the hypothesized direction, but not significant. The hypothesis was not supported.

H_4: The relationship *ARGB* to *IEQ* is in the hypothesized direction, but not significant. For the alternate measure of argumentative behavior, the relationship of $ARGB_{ratio}$

to *IEQ* is virtually non-existent (r=-.008), and is not significant. The hypothesis was not supported for both.

H_5: The relationship *VA* to *Δ-Rank* is mildly contrary to the hypothesized direction, but the result is not significant. The hypothesis was not supported.

H_6: The relationship of *VAB* to *Δ-Rank* is substantial, and in the right direction, but is not significant. The relationship of the alternative measure of verbal aggressiveness behavior, the relationship VAB_{ratio} to *Δ-Rank* is even more substantial, but not significant. The hypothesis was not supported.

H_7: The relationship *VA* to *IEQ* is mildly contrary to the predicted direction, but the result is not significant. The hypothesis was not supported.

H_8: The relationship of *VAB* to *IEQ* is contrary to the predicted direction, but the result is not significant. The relationship of the alternative measure of verbal aggressiveness behavior, the relationship VAB_{ratio} to *IEQ* is not significant either. The hypothesis was not supported.

H_9: The relationship of *CA* to *Δ-Rank* is slightly contrary to the predicted direction, but not significant. The hypothesis was not supported.

H_{10}: The relationship of *CAB* to *Δ-Rank* is in the predicted direction, but is not significant. The hypothesis was not supported.

H_{11}: The relationship of *CA* to *IEQ* is in the predicted direction, but is not significant. The hypothesis was not supported.

H_{12}: The relationship of *CAB* to *IEQ* is substantial, and in the right direction, but is not significant. The hypothesis was not supported.

Of the twelve hypotheses, several had substantial support but only H_2 is accepted as being statistically significant.

Other effects

Research indicates that individual traits will drive behavior (see Chapter 2). High correlations between the traits and behaviors measured in this study should be expected. The following table lists the correlations between trait and behavior found in this research:

Table 15 Pearson Correlation Coefficients Table for ARG_{gt}, VA and CA traits with ARGB, VAB and CAB behaviors (including $ARGB_{ratio}$ and VAB_{ratio})

Trait/Behavior	ARG_{gt}	VA	CA
ARGB	-.058		
$ARGB_{ratio}$	-.31		
VAB		.23	
VAB_{ratio}		.29	
CAB			-.28

The relationship of argumentative behavior to trait argumentativeness is contrary to the direction predicted in the literature. When factoring out the time spoken by each participant, the relationship becomes even stronger. This correlation indicated that the more a participant indicated they were argumentative in the questionnaire, the less they actually argued in the group activity. While one could suppose that this outcome is the result of coding error, this seems highly unlikely. The other two factors, VA and CA were measured by similar questionnaires, which have been throughly tested. The coding for the

behaviors was done by the same coders, at the same time for all three variables. The VA and CA scores are not only in the direction that would be expected but are substantial.

The correlations listed for VA are self explanatory. For CA, the negative correlation is actually in harmony with the predicted direction. The CA scale measures communication apprehension, or the desire not to communicate. The CAB observation measured actual communication. Therefore, a negative correlation indicates that the two factors are actually positively related.

CHAPTER 5

Discussion

The hypotheses examined in the previous chapter fall into three groups, each centered around the predictor variables on which this dissertation focuses: Argumentativeness, Verbal Aggressiveness and Communication Apprehension. Since the differences between trait and behavior are applicable to all three concepts, this issue will be examined prior to looking at each of the hypotheses. In addition, behaviors for ARG and VA were also subdivided between a raw measure, and a ratio of time. This issue will also be discussed prior to looking at the hypotheses, since it applies across groups. The question of real versus simulated group discussions will also be examined. Next, the main concepts of this study, ARG, VA and CA, will be discussed, looking at inferences and conclusions that can be drawn from the data. Finally, conclusions, limitations and suggestions for further research will be addressed.

Raw Behavior Scores versus Ratio Behavior Scores

In observing these groups, the coders noted that there appeared to be two different ways in which people argued. Whereas some took a great deal of time to make a single point, others spoke less frequently, but made numerous ARG statements within each brief intervention. To account for this, a ratio score was used as a second measure of behavior. This procedure divided the raw score by the amount of time the participant spoke within the group, yielding a "behavior per minute" measure.

The VA behavior was different than the ARG behavior. Most VA behaviors were of short duration, consisting of snide remarks or negative personal comments. In most cases, the VA behavior lasted no more than one or two seconds, and the overall number of VA comments were few. As opposed to the ARG ratio, the VA ratio did not differentiate itself by the length of the individual interventions. It was more of a measure of the propensity for VA behavior compared to all other behaviors, with a high score indicating that the individual engaged in more VA behavior than someone with a low score.

For both behaviors, it was clear that those who were more loquacious had a greater opportunity to exhibit both ARG and VA behavior than those who were quiet. Yet, the results appear to show the possibility of another factor. There was a relatively high correlation (r = .69) between raw argumentativeness behavior (ARGB) and the time spoken (CAB). It is possible that argumentative people may simply be more talkative than those who are not (although it was not in the research design to specifically test for this). Since each thought turn received one unit of measurement (one tick mark) on the scoring, the participants were not given higher argumentativeness scores for simply talking a long time. Nevertheless, those who spoke more frequently introduced more arguments into the discussion.

By factoring out the time spoken, it appears that there may be a different type of ARG behavior as well. The $ARGB_{ratio}$ element measured this, and since ARGB is the numerator in the $ARGB_{ratio}$ equation, a certain degree of correlation should be present between the two factors. Nevertheless, the correlation of ARGB to $ARGB_{ratio}$ was relatively small (r = .33), accounting for only 11% of the variance (R^2 = .11). An

explanation may be found from the observations of the groups. In reviewing the tapes, the coders noticed that some of the participants would make long, and often tedious arguments. These individuals dominated the group sessions, generally taking well over their proportional share of the time (with five participants and a 40 minute session, 8 minutes would be a proportional share). Others made a relatively large number of arguments, but did so in a comparatively short time. Their argumentative statements were concise and factual. They appeared to value an argumentation style in which the number of arguments presented was more important than their duration.

This may indicate that there are two types of argumentatives–those who argue "long" and those who argue "hard." The first group expresses its argumentativeness by making expansive statements, demonstrating their argumentative nature by holding the floor for extended periods in a debate. Others, who are not as garrulous, introduce pithy arguments, hoping to sway others by reasoning rather than the quantity of words spoken. It is interesting to note that the participant who had the highest $ARGB_{ratio}$ score, Participant "Group 3 Number 1," with a score of $ARGB_{ratio} = 3.9$ [nearly four arguments per minute spoken!]), in her closing remarks said, "...to hear others views and opinions helps me change my mind." This was clearly an individual who not only valued hearing the opinion of others but giving hers as well. She spoke substantially below the average amount of time (5.26 minutes, with the mean for all groups of 7.59 minutes), but managed 21 argumentative thought turns (the mean for all groups was 17.6). This can be contrasted to participant "Group 4, Number 3," who spoke for 16.12 minutes, over three

times as long, and only had 4 more argumentative statements. In his closing remarks, he complained that the time given for debate had been insufficient.

Although these two examples are only anecdotal, they raise the issue of whether argumentativeness as it has been defined in the literature, is only one trait, or if it should be divided into two distinct categories–those who argue quantitatively and those who argue qualitatively. This study was not designed to pursue this issue, but as will be shown in the discussion of the results, the data suggest that this distinction may exist. The moderate correlation indicates that the two behaviors may not be completely independent, but that in cases where argumentativeness is being investigated, time spoken may be an important intervening variable.

It is possible that the time factor has not been seen by other researchers because there have been no published studies where CA was included as a variable with ARG and VA. Numerous research projects have combined ARG with VA, but none have used CA as well. Neither Levin and Boster (1996), nor Semic and Canary (1997) measured time spoken by their participants in the research they performed in which behavior was measured. Since these are the only two authors who have specifically tried to measure argumentative behavior directly, the issue remains unresolved. The confirmation of a lack of correlation between trait and behavior argumentativeness in both this study and the Semic and Canary study certainly raises justified doubts.

Things were much different for VA. The relationship between VAB and VAB_{ratio}, was a nearly perfect correlation (r = .98). This presents a rather stark contrast to the ARG statistics, since both were measured using similar instruments and identical coders.

Were any inherent biases present in the methods, one would assume they would demonstrate themselves in both statistics. Not only does this strengthen the case for the speculation regarding ARG, but also shows a marked difference in the nature of VA behavior. While it is certainly beyond the scope of this study to investigate this further, these data indicate there may be major differences in the cognitive strategies used by individuals who exhibit ARG and VA behaviors. This is interesting because they are purported to have a common root (see Figure 2). In this study, most VA behaviors were in the form of communication outbursts, which took almost no time at all. There were no long explanations. Unlike the ARG behaviors, there was also no apparent strategy in their use. They were simply quick expressions of emotion that had boiled over. In any case, with correlations between VAB and VAB_{ratio} in the nearly perfect range, looking for differences in the two measures is probably moot.

Trait versus Behavior

Within each of the three areas, ARG, VA and CA, there were differences between the participants' scores on the trait measure and the assessment of their behavior in the group. Whereas Stewart and Roach (1993) anticipated that the majority of an individual's behavior would be driven by his or her predisposition, this study did not affirm their assertion. For VA and CA, the correlations were moderate.

In the case of VA, the correlations between trait and behavior, as quantified on the two behavior measures (VAB and VAB_{ratio}), were nearly identical. With the two measures of behavior, VAB and VAB_{ratio}, the correlations to VA were $r = .23$ and $r = .29$

respectively. As explained above, since VAB and VAB_{ratio} were almost perfectly correlated to each other, this is not surprising.

For CA compared to CAB, the correlation was a bit higher, but in a similar range (r = -.28). The negative correlation for CA is appropriate because the scale for CA indicates higher communication apprehension as the number increases, whereas CAB measured actual time speaking.

The measures of both VA and CA were in the anticipated direction, but with each accounting for less than 9% of variance in each instance (For VAB, VAB_{ratio} and CAB, the scores were R^2 = .055, R^2 = .087, R^2 = .078 respectively), one can hardly speak of substantial correlations. Even though a positive relationship was present, the "majority" of the influence spoken of by Stewart and Roach (1993) was not confirmed in this case.

As was previously seen, the more interesting result came from the ARG findings. For raw argumentativeness behavior, there was a slightly negative correlation with trait argumentativeness (r = -.058). When corrected for the amount of time spoken, in the $ARGB_{ratio}$ measure, the correlation becomes substantially stronger, but contrary to the expected direction (r = -.31). This statistic indicates that the higher the participants scored on the argumentativeness scale, the less they actually argued in the group. Conversely, the more participants indicated on the survey that they disliked argumentation, the more they actually argued in the groups. This was particularly true of those who exhibited "qualitative" argumentation (arguing hard, as described above), rather than those who focused on "quantitative" argumentation (arguing long).

Even when using the more conservative measure, ARGB, where no correlation was found, these results are rather surprising. The fact that there was virtually no correlation at all is contrary to the expectations raised in the literature. This could point to several possible conclusions:

1. There may actually be two separate argumentativeness traits, and the argumentativeness scale is not distinguishing between the two.
2. Using a survey to measure this trait, while reliable, may not be completely valid. DeWine, Nicotera, and Parry (1991) extensively validated the argumentativeness survey instrument, but this was against the construct as it has been formulated. If the theoretical construct is incomplete (i.e. not distinguishing multiple forms of argumentativeness), the validity may not apply. The scale could accurately measure a trait, but that trait may not be argumentativeness, as defined. Perhaps the participants who complete this scale misunderstand the concept of argumentation. Comments from the participants in this study indicated that many of them felt agumentativeness is a negative construct. Since they saw it as something to avoid, it is possible that their answers did not reflect their actual opinions on the subject. The literature contains warnings about the likelihood of social desirability bias in the scale (Nicotera, 1996). This appeared to be supported with the participants in this study as well. When the scale was administered, prior to the group sessions, several participants were openly uncomfortable with the term "argumentative." To them, arguing was something to be avoided in groups. This issue was pursued in the discussion with the group

members after they completed their discussion. Many indicated they would have been comfortable with the idea of "debating" or "discussing," rather than arguing. These constructs are, in essence, the same as arguing, but the words are less laden with overtones of conflict. Particularly with white collar workers, the predominant group in this study, concepts of "being a team player" are held in high esteem in the workplace. This may be the reason they eschewed argumentation as a concept, but embraced it in practice.

3. It is also possible that the measurement of argumentative behavior in this study was incomplete or ill defined, leading to faulty measurement. While the method used here was similar to the one used by others (Levine & Boster, 1996; Semic & Canary, 1997), it is not an exact replication. Levine and Boster administered the ARG instrument, but only to distinguish high and low ARG individuals. They did not correlate the scale to their subsequent measure of behaviors, assuming that the scale was an accurate measure of ARG, and therefore not in need of validation. Semic and Canary used the scale and then measured dyadic argumentation. Their results showed that trait and behavior did not correlate significantly, a result similar to the finding in this study. They concluded that the relationship may not be linear, and therefore dismissed the possibility that the scale measured inaccurately. The similar results between the Semic and Canary study and the instant case could be seen as a partial confirmation that the methodology was acceptable, perhaps casting doubt on the validity of the survey instrument. It could suggest that a more likely cause for the lack of (or in the alternative case,

negative) correlation between trait and behavior is more attributable to the two points made above, rather than any design flaw in this study. Indeed, it would be interesting to have the concept of ARG_{ratio} substituted in the Semic and Canary model to see if it would lead to negative correlations between trait and behavior as well. This would serve to partially confirm that something other than argumentativeness is being measured in the ARG scale, and possibly confirm the validity of the method of measuring ARG behavior used in both their study and this one.

4. This study involved participants who were well acquainted with each other. It is possible that this had an effect on behavior of group members–something not seen in previous studies that used zero-history groups.

In any case, trait and behavior are clearly not synonymous, but both are important. Assuming that one of the purposes of research is to understand behavior, so it can be directed or modified, the lack of correlation between trait and behavior leaves the scholar with a problem. If traits were to drive behavior, one would only have to measure the trait to predict the behavior. This would allow groups to be both organized and trained on the basis of the traits of their members. This appears, unfortunately, not to be the case.

Observing behavior and using the resulting data to predict future behavior is not acceptable either. This research, and other studies, tend to confirm the interactionist model. That is, behavior is highly dependent on the situation in which it occurs. Because of this, one cannot simply extrapolate the behavior of an individual in one group setting to another. A multitude of variables will impact the group member's behavior. With this

study showing that less than 10% of the variance can be explained through the correlation of trait and behavior, the measure of both seems necessary to more fully understand the dynamics of group and individual behaviors. Neither one is highly predictive on its own, and as has been shown, neither alone serves well to describe participants' actions or reactions. It is possible that the key lies in a more complete understanding of the situation in which the behaviors occur–something which was not the focus of this study.

Real versus Simulated Group Discussions

One area in which the situation of the group was examined in this study was the question of whether the participants would act differently in real or simulated groups. The concern was to see if an exercise of this type, which is clearly a simulation, had any impact on the behavior of the group members. To test this, the participants were given six direct questions (in the exit questionnaire). They were asked to indicate on a scale of 1 to 5 if they had acted any differently in the simulated group than they would have in a real group. A score of 18 indicated that the participants perceived their behavior to have been exactly the same in a real group as it was in the simulation (six questions, with a score of "3" indicating their behavior would have been the same in a real group). A score below 18 indicated that the participant would have been less assertive in all areas (ARG, VA and CA). A score above 18 indicated they would have been more assertive.

Of the 50 participants in this study, only one had a score below 18. Participant "Group 8, Number 4" had a score of 17–one point below the "no difference" score. On the essay question in the exit questionnaire that addressed this issue, the participant wrote,

almost defensively, "I do not feel I acted any differently than I would have in a real group."

All other participants had a score of 18 or above. Eight participants scored exactly 18, and the rest were distributed above this score. The mean score was 20.94, with the maximum possible score of 30 (a score of 30 would indicate the participant would have been much more assertive in a real group in every area).

A score of 4 on every question would have yielded a total score of 24. The description on the scale for a score of 4 was "somewhat more assertive" (see Appendix B for the full text of the scale). With a sample standard deviation of 2.52, a score of 24 fell at the 90th percentile for the participants in this study (a score of 24 has a $z = 1.21$ above the mean). This indicates that the vast majority of the participants saw their own behavior to be nearly the same in real and this simulated situation. Their overall scores fell between the descriptors "the same" [as my behavior in a real group] and "somewhat more" [aggressive in the specific behavior].

These scores matched the descriptive comments made by most of the participants in their response to the essay questions. They indicated that they had tried their best to act as they would have in a real situation. This may partially have been because the instructions given to the participants at the beginning of the group exercise specifically told them, on multiple occasions, to act as they would in a real group. Since this is the behavior that was wanted, the instruction was not improper, but it certainly would have the effect of biasing the participants against admitting that they acted contrary to this command.

Those who were in the top range of the scoring, who indicated they would have been much more aggressive, frequently made terse comments describing their motivation. "It wasn't real," said one. Another indicated that there was, "nothing at stake." In post hoc discussions with the groups, there was a common feeling that even though the group members tried to act as they would in a real situation, they would not have engaged in any extreme behaviors in this simulated group. The sense of the participants was that their personal relationship with the other group members should not be subordinated to "winning" in a simulated case. This could apply in a real-life situation as well. Real groups are not without social mores, and a similar level of constraint would not be unexpected. The exit questionnaire asked the participants to compare their behavior in the group exercise with a hypothetical real situation. Knowing how they would have behaved in a real group may have been difficult for them to predict.

The group exercise in this study did not stimulate anger or fights. There are simulation case studies which create more tension than this case study. These cases are highly synthetic in their design. They generally do not model real world situations, and require decisions regarding very theoretical constructs (e.g. wilderness survival). While they may stimulate more disagreement and argument, they do so in an artificial setting, limiting the transferability to more real-life environments. This study was trying to simulate reality, which took priority over generating undue controversy in the groups.

The scores on the exit questionnaire were tightly distributed around the mean, with only a handful of outliers. Testing the extreme limits of the participants on their willingness to argue in a simulated group would have violated one of the main tenets of

this study–the group members and the group exercise should replicate their real-life counterparts in the group relationships, the setting and the content of the discussion. Judging from the questionnaire results and the comments in the essay questions, this goal was reached.

A further test of the role of the simulation was the result of the factor (*SR*) on the four full multiple regression models. In each of the full model tests, the *SR* function (shown in Appendix D as the variable "realsham") was far from significant. The most significant result was in multiple regression Model 3 ($F = 2.00$, $p = .16$). In all other cases, the value of p was much higher, indicating virtually no effect for this variable on the full model.

Because of the points raised above, there can be no real conclusions drawn on the effect of the simulations on ARG, VA and CA behaviors in groups. Since the participants generally reported only mild influence of the simulation on their behavior, it is not possible to draw any conclusions about how they would react if less attention had been paid in the study design to assure compatibility with the real world. A better vehicle to test this may be one of the above mentioned survival training exercises in which no attempt to simulate any real world situation a participant might reasonably be expected to encounter.

Argumentativeness

The first four hypotheses of this study deal with trait and behavior argumentativeness in group decision-making. These hypotheses argued that there would be a positive relationship between both trait and behavior argumentativeness in relation to

the acceptance and support of group decisions. From the four hypotheses, only the second was supported.

Hypothesis 1. Hypothesis 1 posited that trait argumentativeness would be positively correlated with the individual's acceptance of the group decision. Although the relationship appeared to be significant in the full model, the significance could not be sustained in the reduced model (see Table 7).

As has been noted in the last chapter, the relationship shown in the data is contrary to the hypothesized direction. ARG_{gt} is a measure which increases as trait argumentativeness increases. The score for agreement, Δ-Rank, decreases as agreement increases. Therefore, to have a positive relationship between trait argumentativeness and agreement with the decision, the correlation should have been negative, instead of the result seen ($r = .23$). The lack of significance is less critical than the direction of the relationship. This finding has been discussed previously in this chapter, and suggestions have been given as to why it exists. Comparing the acceptance of the group outcome with the ARG scale had not been previously attempted, so it may be inappropriate to refer to this result as surprising. Nevertheless, the literature quite clearly suggests that a positive relationship should be expected.

Part of this relationship may be due to factors suggested above. Trait argumentativeness, as specified in the literature, may be too broadly defined. As has been suggested, it may be two separate, but related traits. It is possible that there is social bias in the instrument, in which the participants misunderstand argumentativeness to be a negative trait, but would respond positively to wording suggesting a desire to debate or

engage in a discussion as a predisposition. It is also possible that the measurement instruments used in this study were imprecise.

It is important to note that one source of potential error can be discounted. The mean and standard deviation of the ARG_{gt} scores in this study were virtually identical to scores reported in other studies. The argumentativeness scale has been administered to thousands of participants in scores of studies (as well as in classrooms) since its publication (Infante & Rancer, 1982). The mean of 3.7 is near the center of the scores reported in the literature. The standard deviation of 9.41 is slightly higher than in other studies, but this is probably because of the relatively low number of participants in this study. It appears, in any case, that these 50 participants were distributed in their scores much like the others who have answered the argumentativeness scale.

The other potential source of error is the measure of agreement used in this study. This measure is an interesting one because it requires no interpretation by the participant. After the group reached a decision, the participants were asked to record their own decision on the case. The result was two ordinal scales–one for the group and one for the individual participant. The absolute difference between the two rankings was then summed to yield a final score.

This method does not require the participants to give their opinion about whether or not they agree. Rather, it measures absolute agreement in terms of the group output. It determines how much they were swayed to the group's decision through the discussion process. In many ways, this type of measurement seems less prone to error than questionnaires or scales which ask the participants for their opinion. This method

measures their agreement rather than measuring their opinion about whether or not they agreed. In terms of primacy of evidence, this measure must be considered superior to a survey or questionnaire. Although measurement error can never be ruled out, and is in fact present in all research, the two correlates in this instance appear to be well defined and measured. This points again to the possibility of difficulties with the concept and definition of trait argumentativeness. It is not possible, given the design of this study, and the data gathered, to answer this question. Nevertheless the issue is an existential one for the theory of argumentativeness, and raises enough questions that further study is justified.

Hypothesis 2. This hypothesis asserted a positive relationship between argumentative behavior and acceptance of the group decision. The evidence supports this hypothesis. The model $DA_{\text{tbreduced}} = \alpha + ARGB\beta + e$ shows a significant relationship (F=4.81, p=.033) between argumentative behavior and acceptance of the group decision. No other variables were significant in the full model (see Tables 8 and 9). This model only accounted for slightly more than 9% of the total variance, however (R^2 = .091).

Although a significant difference was found, the low R^2 number must be taken into consideration. While it is unlikely that the demonstrated effect is due to chance, its magnitude is modest. The purpose of a study of this type is to find areas in which behavior in groups can be discovered and quantified, with the goal of understanding human interactions, and perhaps even providing prescriptive suggestions for improvement. While effect measured was small, there may be a valuable spin-off. The methodology used in this study presents the possibility of examining other predispositions to see if they are more predictive. This is not to say that the role of argumentativeness is unimportant.

Indeed, a significant relationship has been found. It is conceivable, however, that the role of argumentativeness in decision-making groups may be a subordinate one. It may be only one factor in a set of predispositions, which together are not only significant predictors, but account for a substantial proportion of the variance.

It is also important to look at the second variant of argumentative behavior, $ARGB_{ratio}$ in this context. While appearing significant in the full model, when examined in the reduced model, this variable only approaches significance ($F = 3.22$ $p = .079$). The fact that $ARGB_{ratio}$ was not significant may have more to do with its structure than anything else. As a ratio, this statistic is derived from a numerator and a denominator. The denominator, time, was also a factor in the full multiple regression model. It is therefore not surprising that there could be an interaction between time as a variable in the model, and time as a part of the $ARGB_{ratio}$ factor. When this interaction was removed in the reduced model, the apparent significance disappeared.

Hypothesis 2 is the only one of the twelve hypotheses in this study to show statistical significance. While disappointing, it is noteworthy that it would occur with the variable argumentativeness. This is one variable in the study where the evidence suggests that there could possibly be some difficulties with its definition or measurement. If this is true, a closer look at argumentativeness may refine its meaning sufficiently to actually increase its value as a predictor. One possible explanation for the low R^2 in the relationship between argumentativeness and decision acceptance is that there is too much "noise" in the measurement of argumentativeness. For example, if it could be established that there are two distinct behaviors of "arguing long" and "arguing hard," it may be

possible that the lack of predictive power in the current measure is because these two behaviors have been commingled, with one having a strong relationship, and the other not. A study design which clearly delineated and measured the two behaviors separately could be used to determine this.

It is also possible that there are not two factors, but an intervening variable. For example, one may simply need to measure and factor in loquaciousness. If this variable were present, it may account for the difference, and increase the predictability of the model.

Hypotheses 3 and 4. These hypotheses looked at the relationship between trait and behavior argumentativeness, and the acceptance of the group decision. Since the results for these two factors were similar, they will be discussed together.

Both trait and behavior argumentativeness had a mildly positive, but non-significant relationship to group decision support. The decision support variable was measured by answers given on the exit questionnaire. These questions measured the "feelings" of the group members on their potential actions regarding the decision the group had made when representing it outside the group setting. They were asked, for example, if they would encourage other members of the organization to support the group decision. As had been postulated, it was clear from the post hoc discussions with the groups that support hinges on more than agreement with the decision. As had been indicated in the literature, it is related to feelings about other group members, feelings about the effectiveness and usefulness of the group exercise, and general feelings about the role of loyalty.

The IEQ consisted of nine questions, which were to be answered on a 5 point scale. The maximum possible score was 45, and the minimum 9. Strong agreement with the statements on the scale would indicated high loyalty to the group decision, and a willingness to proselytize the organization for the adoption of the decisions. For the 50 participants, the mean score was 40.72, with a standard deviation of 4.25. This standard deviation is a little deceiving, since the distribution is highly skewed (skewedness = -1.26). Only five participants scored below 36 (the score which would equate to a rating of 4 on each question–partially agree). Nearly 90% of all participants scored above 36. Five scored a perfect 45, indicating they strongly agreed to support the decision in all areas.

In discussions with the group members after the exercise, two factors were mentioned:

1. Loyalty was extremely important to many of the group members. Many group members indicated that they would support virtually ANY decision the group had made. They considered loyalty to the group to be paramount. They not only expected loyalty in themselves, but in others as well. A few considered this to be almost a religious tenet–it was simply considered inappropriate to ever disagree in public with a group decision. It is not possible to tell if the group members actually practice this level of loyalty in real-life situations, but the theoretical support for loyalty was strong.
2. Much of the support was dependent on the existing relationship with other group members. Several participants expressed concern about "disagreeing publicly with friends." There was a strong feeling expressed by many of the group members that

they would not offend others by fighting with them about their strongly held opinions. Although it could be argued that group members simply saw this as a simulated exercise, it would be incorrect to assume no effect would be seen in real groups. Groups dealing with real-world problems also have existing relationships between group members, and there is no reason to assume that similar group dynamics would not exist there as well.

With the support variable being so heavily influenced by factors outside of the group setting, it is understandable to see weak correlations in this area. While it appears that some influence may be discernable, the impact of the other factors overwhelmed it. Since support of decisions is such a critical factor in decision success, this area could use a lot more research. Loyalty and friendship are the traits which dominated the post hoc discussions, and it is likely that a greater understanding of decision support could be gained by examining these areas more closely.

Verbal Aggressiveness

Hypotheses 5-8 deal with verbal aggressiveness. Before looking at the hypotheses, it is important to take a broader look at this measure. Of the 50 participants, only 18 exhibited any form of verbally aggressive behavior in the group exercises. The mean score was under 1.00, and the maximum was 7 points. The individual who scored the maximum had four mild outbursts, which accounted for his seven points. In all ten groups, there were no incidents of anyone really losing his or her temper. Since the individuals knew each other prior to the exercise, there were preexisting relationships that would have made such behavior socially inappropriate. On the other hand, since the group members did

know each other, there was some teasing. In some cases the coders determined this to be verbally aggressive The comments were personal in nature, and could have caused hurt feelings.

In general, however, the amount of verbally aggressive behavior was minimal. The lack of measurable behavior may have caused some difficulty with the statistical process. The range of scores was very narrow, with a large number of zeros recorded for participants.

This is a very complicated problem. On the one hand, it would have been useful to the evaluation of this subject if there had been a wide range of verbally aggressive behaviors exhibited by each participant. It is certainly possible to design a study in which abusive speech could be encouraged. On the other hand, this is not the reality of organizations where most decisions are made. A certain level of civility is expected by members of organizations. If it is not present, the organization can either dissolve or become dysfunctional. Modeling a dysfunctional organization would have served little purpose in this case. Great emphasis was placed on simulating reality in the group sessions, and a study design which fomented aggression would not have served that purpose. Although it was possible to measure and use the data that were generated, the low scores may be problematic.

Hypothesis 5 and 6. These two hypotheses related to verbally aggressive trait and behavior in relation to the acceptance of group decisions. While neither the trait not the behavior were significantly related to acceptance, the correlation was somewhat higher with the behavior measure. This may be a function of the small numbers, but it is also

possible that observing the behavior is simply a better indicator. On the survey instrument, the participants must evaluate the way they anticipate their behavior would be. This may not be as accurate as actual observations of the behavior. Particularly with a trait like verbal aggressiveness, where there are social conventions about aggressive behaviors, it may be easier to claim to not be verbally aggressive than it is to control emotional responses in the group activity.

In this study, the coders were able to focus closely on the individual VA behaviors. There were discrete VA actions, often separated by several minutes. In almost all cases, the VA behaviors were an instantaneous reaction to the comments of another person. The emotions may have been forming for an extended period during the session, but the actual overt expression was rapid and without a great deal of time spent in formulation of the wording. It is interesting to note that all but two of the VA behaviors occurred in the last 20 minutes of the group sessions. The emotional responses apparently took time to develop.

It is not possible to tell if the small number of observations of VA behavior had a positive or negative effect on the statistical measurement. It is probably as likely that the higher correlation for behavior over trait is a random effect caused by the small numbers. The statistical procedures used in this study rely on squared numbers. When dealing with fractions, or numbers close to one and zero, as was the case with the measurement of VA, the ability to discern differences with squares of numbers will be impacted. Whether the effect is real or the result of statistical problems, the data do not allow us to reject the null

hypothesis in either of these cases. One must assume that there was no effect until further research shows the contrary.

Hypotheses 7 and 8. These hypotheses are concerned with verbal aggressiveness and the support of the group decisions. These two measures were not significant, and actually contradicted the hypothesized direction of the relationship. For trait verbal aggressiveness and verbally aggressive behavior, the correlations were small and unexpected ($r = .061$ and $r = .13$ respectively). While it is tempting to try to read meaning into this, it is important to note that these correlations are slight, and even if they had been significant, would account for only a small fraction of the variance. In addition, previous sections have noted difficulties in measuring both support and verbally aggressive behavior. It would be bold indeed, after having pointed out the potential difficulties with these measures to claim that these correlations were meaningful enough to suggest revising any theories.

Communication Apprehension

The communication apprehension hypotheses predicted that there would be a negative relationship between CA and the criterion variables. That is, the more the participant was communication apprehensive, the less would be their acceptance and support of group decisions. The four resulting hypotheses could not be sustained.

Hypotheses 9-12. Because these hypotheses had similar results, and not significant, they will be discussed together. With the exception of hypothesis 9, the direction of the relationship for all of the hypotheses was in the predicted direction, but

with weak correlations. The correlation between trait communication apprehension and acceptance of the group decision, as measured for hypothesis 9, was quite small (r= -.05), indicating that this may simply be random error in the data. The other correlations were also in the low range, with the highest for hypothesis 12 (r = .24).

It was hypothesized that those who were less communication apprehensive, and spoke longer in the groups would feel greater "ownership" in the decisions the group made. It was clear to the coders, in observing the groups that the level of advocacy for a particular decision in the group was stronger with those who spoke a lot. They were generally more passionate about their position, and promoted it strongly.

The hypotheses, however, failed to take into consideration that communication apprehension is a function of reticence (see Figure 2). The hypotheses assumed that this reticence would manifest itself in the group exercise, with those high in this trait compensating for it by coming out against the decision, and not supporting it in the organization. While there may be those who quietly "get even" for being excluded from the decision process, it appears from the results in this case that there are also reticent people who remain reticent in all of their actions. They may feel left out or uninvolved in the decision process, but that does not mean that they overcome this reticence to boldly move against the group decision–either overtly or covertly. They were compliant in the group, and expressed an intent to be compliant after the group exercise as well. Their quietness may simply be a reflection of their desire to avoid conflict with the other group members. They get along with the group by simply going along with the decisions.

These two mind sets were probably best exemplified by the scores of some of the participants. Participant "Group 4 Number 4" is a good example. This participant had a CA score slightly above average, 62 (mean 56.08, sd 18.08), but spoke in the group for only 30 seconds. The coders noted that he seemed to be overwhelmed by the group. On one occasion, he was asked his opinion, and before he could formulate his answer, another group member recaptured the floor (using a mildly verbally aggressive comment). The participant sunk back into his chair, and did not venture another opinion until he was asked to vote, near the end of the session. Although he was dominated by the group process, in the end he "got even" by disagreeing with the decision, and refusing to support it. His acceptance score was 8 (mean 2.8, sd 2.87), with the higher score indicating greater disagreement of the individual with the group decision. His disagreement was nearly 2 standard deviations from the mean ($z = 1.81$), placing him over the 90th percentile for disagreement. His support score was 27. He was one of the two who were at the minimum extreme–the lowest support score given by any of the participants. His reaction was similar to the individual who spoke the second shortest time, participant "Group 1 Number 2." This individual had a similar profile, although he saw himself as more communication apprehensive (CA score of 96). He spoke for 2.02 minutes in the group, the second shortest time. His head was down for most of the group session, and had he not been prompted by other group members, the coders felt that he may not have spoken at all. He also reacted negatively when required to express his acceptance and support. His acceptance score was 5, indicating much stronger than average disagreement, and his

support score was 27. This matched the minimum score given by Participant "Group 4 Number 4."

This action can be contrasted to participant "Group 6 Number 1." Her CA score was well below average, 34, but she only spoke for 2.54 minutes in the group. Her acceptance score, however was 0 (complete acceptance), and her support score was 43, two units below the maximum possible. This scoring was mirrored in the other two quiet participants: Participant "Group 5 Number 2," who scored 61 on the CA scale, and spoke for 3.57 minutes. She scored 2 on agreement and 45 (the maximum) on support. Participant "Group 7 Number 1" scored 57 on the CA scale, spoke for 4.18 minutes and scored a perfect 0 on acceptance and a perfect 45 on support.

These five participants represented the lowest time spoken for the 50 candidates, Within these five, both of the minimum scores in support, and two of the maximum scores were represented. Their acceptance scores also were in the extreme ranges. Although these five candidates do not constitute a sample large enough to draw any conclusions, they do raise some questions. The lack of statistical significance in this sample is probably the result of the different reaction of these candidates whose communication apprehension behavior was at the lower extreme. Two of them were dissatisfied and unwilling to support the decision. The other three were compliant and supportive. Had these five candidates not occupied the most extreme positions in the sample, one could possibly dismiss this as random variation. It is also interesting to note that their scores on the CA scale showed no pattern.

Of equal interest is the fact that those on the other extreme of the CAB measurement, those who spoke the longest, do not appear to fall into any specific pattern. Their scores vary in much the same way as participants whose scores fall nearer to the mean. Perhaps this may indicate that the opposite of reticence is not verbosity. Those who withdraw from the group discussion do so for their own psychological reasons, but it is not a direct linear relationship from there to loquaciousness. The motives of those who were quiet in the group are not clear, but are more complex than a simple measure of how long they spoke.

The coders observations of the group behaviors pointed in this direction. Those who spoke only infrequently were memorable, and their actions seemed to fall into two distinct classes. The first were those who were clearly overwhelmed by the group. They followed the discussion intently, but never seemed to be able to break into the conversation. They showed a certain degree of frustration because the time limit for the group discussion meant that things moved too fast for them. Both of the participants who were at the lower extreme in time spoken apologized to the proctor after the group session for not speaking more. "It just went too fast for me," one of them said.

The other set of "non-speakers" seem different. They were content to listen. When they intervened in the group discussion, it was generally to agree with a point made by the previous speaker, or to voice support for positions already made. They generally needed prompting, or another group member to ask, "[participant x], what do you think...?"

Whether or not these two reactions means that there are two distinct types of communication apprehensive individuals has not been established by these anecdotal observations. The issue is certainly worthy of further investigation, however.

Conclusions

Of the twelve hypotheses, only one–hypothesis 2–was statistically significant, and the null hypothesis was rejected. Even in this case, the amount of variance explained by the model was only moderate. For the remaining eleven hypotheses, the relationships were generally in the predicted direction, but only approached significance. While it is possible that both trait and behavior ARG, VA and CA influence the acceptance and support of group decisions, the evidence in this study cannot support this general conclusion. Even in the case of argumentative behavior, which showed a significant relationship to decision acceptance, the amount of variance explained by the reduced model was only about 9%, indicating that other factors should be sought.

Nevertheless, the data did point to some important issues. Trait argumentativeness has been the subject of a multiplicity of studies, but this is only the third one which has even attempted to compare ARG trait and behavior in a decision-making setting. Of the other two, only one attempted to directly compare trait and behavior ARG (Semic & Canary, 1997). They too found a lack of correlation between ARG trait and behavior, but dismissed this as a "non-linear relationship." This study identified what may be the cause of the lack of correlations between ARG trait and behavior: either the possibility of two separate traits, or a strong intervening variable. The data suggest the possibility of an argumentative predisposition for either arguing "long" (sustained talking on a few points)

or "hard" (short statements with many points). Alternatively, loquaciousness may be an intervening variable, which should be included in the argumentativeness model.

Verbal aggressiveness, while not significantly related to the criterion variables, also was shown to have some interesting characteristics. The social learning model (see Figure 2) suggests that both ARG and VA are derived from the same root. Both are expressions of aggression, with argumentativeness falling in the assertiveness subset, and verbal aggression falling in the hostility subset. In spite of this relationship, VA behavior was very different than ARG behavior in the groups. VA behaviors were generally short outbursts, of mild intensity. ARG behaviors were frequently couched in long soliloquies, often repeating the point to be made over and over. ARG behaviors appeared to be purposeful group interventions, while VA behaviors were episodical and brief.

Communication apprehension was also not significantly related to either of the criterion variables. Although the evidence is not as strong as with trait argumentativeness, there was an indication that there may be various types of CA as well. The social learning model classifies CA as a form of withdrawal. Nevertheless, some of those who spoke the least were not withdrawn, but overpowered by the group. Their non-participation seemed to be less from a fear of speaking than a lack of the necessary communication skills required to "hold their own" in a fast moving group discussion. These individuals had a much different reaction to the group decision than the more reticent participants, who appeared to be happy just to sit and listen. It should be noted that this evidence is anecdotal, and based on the observation of only five of the 50 individuals who participated in this study. It is not intended to be conclusive, but to serve in theory building.

One interesting byproduct of this study is what appears to be a rather useful method of observing and codifying group behavior. While observing groups has a long tradition, virtually no studies or coding systems have focused on group outcomes. The research has generally focused on the dynamics of the group, or satisfaction of the group members with the processes. Since groups in real-world situations are generally expected to produce some form of output, measuring satisfaction with the group process does not really go far enough. The case method used in this study, which attempts to parallel the structure of real groups, may be useful in examining other traits and behaviors besides ARG, VA and CA, and determine their relationship to actual group outcomes.

Limitations

As with any exercise of this type, there is the possibility of confounding and intervening variables. As has been indicated, the term "argumentative" can be misunderstood by the participants. Whereas the literature represents it as a positive trait, there is a social perception that arguing is negative and should be avoided. Researchers have investigated this issue and some have concluded that there may be social bias in the Argumentativeness Scale (see Chapter 2). Participants may tend to avoid answering the argumentativeness questionnaire positively because of a perception that it is a negative trait. If this is true, the scale may understate the actual level of argumentativeness of individuals, and do so in a consistent manner. This may also impact the validity of the scale. It may measure accurately, but not the trait it is intended to measure. If the scale does understate argumentativeness, it could have had a significant impact on the results of this investigation. Adjustments for social perceptions have been suggested in the

literature, but none have been validated. It is possible that a redesigned instrument may remove some of this bias, but with the risk that many more biases may be introduced in the process. The current scales have been repeatedly validated over many years. Any change in the scale would also remove the ability to do a meta-analysis across various researchers' studies. This is not to say the scale could not be improved. If an improved, validated instrument were to be developed, it is certainly possible to repeat this study with a better survey instrument.

Another important consideration is the fact that this study did not use zero-history groups. As indicated previously, the use of participants who knew each other may have been the reason for the lack of correlation between ARG_{gt} and ARGB. These groups were chosen to represent a universe that is routinely involved with decision-making groups, but in doing this, the external validity of the findings will be impacted. It is possible that a true random sample of participants, formed into zero-history groups would react differently than a group of friends and associates. Their ARGB may also be different. To determine if this is the case, this study could be replicated using zero-history groups. Until this is done, it is necessary to exercise care in generalizing these findings to more general populations.

Also, it is the possibile that individual questions on the argumentativeness scale may be positively correlated with the ARGB measure. It is may be possible that individual items correlate positively with the criterion variables, even when the entire scale does not show significance. For future research, it may be worthwhile to construct a correlation

matrix for the individual items on the three predictor variable scales to test the relationships to the two predictor variables.

One of the more important limitations of this study was its sample size. Since the study relied primarily on correlation and regression, many texts suggest a sample size of 200 or more. It was hoped that using the multiple regression model within the SAS statistical program would reduce the possibility of error when using a fairly small sample size. The possibility remains, however, of Type II errors.

For most of the hypotheses, the relationships are very weak. Four main models were tested (see Chapter 4). Those relating to decision support (formulae three and four) showed very weak relationships. Formula two showed a significant relationship between ARG behavior and decision acceptance. There were two other areas, however, where significance was not maintained in the reduced model: the relationship of $ARGB_{ratio}$ to decision acceptance, and the relationship of ARG_{gt} to decision acceptance. In both of these cases, the possibility of Type II error must be taken into account.

In the case of $ARG_{ratio,}$ the relationship first appeared to be significant, but in examining the reduced model, the significance could not be sustained. One possible explanation for the initial significance may be found in the nature of the ARG_{ratio} term. The full model looked at interactions between all of the predictor variables. One of these was time spoken (CAB). Time spoken was also the denominator of the ARG_{ratio} term. Since ARG_{ratio} is, therefore, partially a function of time spoken, it is not surprising to find its relationship to the same term in the overall equation. When time was removed from the full model, this interaction was also removed. This would explain the loss of significance

in the reduced model, and probably reduce the fear that a Type II error may have occurred.

In the case of ARG_{gt} and Acceptance, the full model was not significant, but three of the component parts–ARG_{gt}, A and OC were. When placed in a reduced model, none of the three were significant. This is an area in which a Type II error could be feared. There is no evidence in any of the literature to assume that age and time living abroad would have any relationship with argumentativeness. These two factors are not independent of each other, since the older a person is, the longer he or she could have lived abroad, but even this does not account for the mild relationship that appears to exist. It also does not explain that the ARG_{gt} is negatively related to group acceptance of the decision, as is shown here.

One way to deal with this problem would be to increase the sample size. This would reduce the possibility of a Type II error, and increase the power of the measurement. What it may not do, however, is increase the R^2 in this model. The reduced model accounted for only 9.5% of the variance, and this may be the more telling statistic. It may be more worthwhile to concentrate additional research on variables which explain more of the variance rather than looking for greater significance.

It should also be noted that the groups tested were not randomly constituted. The group members were self-selected from a pool of friends and business acquaintances. While this was necessary for the research design, it limits the external validity of the results. Because the focus of this research is small groups in organizations which use them for decision-making, this is not necessarily bad. The groups in this research mirror the

types of groups seen in real organizations, both in their demographics and in the way they formed their groups. Although it may not be appropriate to generalize the results of this research to the entire American population, it would be germane to most companies and organizations.

Research Implications

Since training has been shown to be effective in modifying trait and behavior ARG, VA, and CA, showing a relationship between these attributes and outcomes of decision processes can be of enormous value. Few people who work or are involved in organizations would not welcome proven prescriptive ways to improve the decision-making process. Furthermore, a proven relationship between these traits and outcomes would make great strides toward explaining theoretical constructs such as "groupthink," where there have been a substantial number of inconclusive studies on its causes.

The relationships between these traits and the criterion variables were either weakly established, or not confirmed in this study. In spite of this, the research quoted here strongly suggests that this relationship should exist. Several reasons have been proffered in this study as to why no strong relationship was found. They dealt primarily with the concern that the measurement instruments for trait ARG and CA are not precise enough to identify a sole trait in what could be a plethora of related predispositions.

One relatively easy way to investigate this would be a simple modification of the Argumentativeness Scale. The negative correlation between trait argumentativeness and argumentative behavior found in this study suggests that the scale may not be understood by the participants in the way it was intended. The proposal is to replace the word "argue"

in the questions with a term less laden with social bias, such as "debate" or "discuss." Given the evidence from this study, it would not be surprising to see a scale modified in this way correlate negatively with the existing scale, and correlate positively with actual argumentative behavior.

This study also points to some interesting possibilities in the study of communication apprehension. As with argumentativeness, this trait may also have several facets. If there are at least two different types of communication apprehension, being able to divide these traits into more specific categories could aid in the understanding of the predisposition. This would be especially important if, as has been suggested here, the two types exhibit very different behaviors. A study of this issue would parallel the need to examine if the same is true of argumentativeness, determining if there are two distinct types, or if loquaciousness is an intervening variable.

Finally, there is a need to examine other predispositions within this model. This study was based on only three–ARG, VA and CA. Other possible predispositions could be tested as well. With countless trait measurement devices available (e.g. Meyers-Briggs) the list of possible traits that could be tested is endless.

Questions still remain open regarding the use of intact groups versus zero-history groups. This research design did not specifically test whether there would be any differences between these two types of groups. Rather, intact groups were used because they more closely modeled real-world applications, with a hope in increasing the external validity of any results. It would be interesting to look at this exercise using zero-history groups as a comparison. It could be expected that the nature of the relationships between

members of each type of group would be different. The question remains, however, if it really matters.

The groups used in this study used first names when speaking together, joked with each other, and made remarks regarding past joint experiences. They were clearly more comfortable with each other than would be members of a group who had just met for the first time. The question is, would this make any difference to the outcomes? As has been previously indicated, this research focused on group outcomes rather than group dynamics. The dynamics of a zero-history group will certainly be different than with an intact group, but does this matter in terms of outcomes? If not, there would be no reason to take the elaborate steps used in this study to make certain that the groups consisted of close associates.

This would not only simplify future research, but may also have a critical impact on organizations that use groups. A great deal of time is spent within organizations on the issue of team-building. Much of the literature on teams focuses on interpersonal relations. The popular literature is replete with group tools and methods which are used to facilitate discussion and group cohesion. It is possible that none of this matters. Hirokawa (1983a) suggests a "functional approach" to group decision-making, arguing that the best decision makers rely on facts, and focus on the task aspect of the problem needing resolution. If that is true, it may be the case that zero-history groups, which have no social-emotional ties, may be unfettered by existing interpersonal relationships, and therefore better decision makers.

In any case, the outcomes of decision-making groups continue to be worthy of study. This study is probably more important for what it did not show that what it did. It indicated that there is a mild influence of ARG behavior in acceptance of group decision, but did not show any other significant relationships. More importantly, however, it raised the question if existing measures of predispositions can be effectively used in predicting actual behavior, and if these scales are narrowly enough defined. Given the large academic interest in these scales, and their widespread use, pursuing additional outcome-based research on their appplication would certainly be worthwhile.

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Appendix A

Variables

Criterion variables

The criterion variables for this procedure will be individual acceptance of the group decision and individual support of the group decision.

Individual acceptance. Individual acceptance is a measure of an individual's endorsement of the decision content of the group. It is defined as the degree to which an individual member of the group agrees with the ultimate decision of the group. This refers to the substance of the decision, and not how the individual "feels" about the decision. It is simply agreement that the decision reached is the right one.

Appendix B contains the measuring devices for individual acceptance. This consists of the "CAA Project Group Ranking Form" and the CAA Project Individual ranking form. The group ranking form is completed by a consensus decision of the test group. The individual form is completed by the participant, after the exercise is completed. A score is derived by subtracting the absolute value given by the group for each of the five scenarios, from the corresponding score on the individual project form. The differences are then summed, and the resulting score is assigned to the participant. Absolute disagreement between the individual and the group will result in a score of 12. Absolute agreement will result in a score of zero.

Individual support. Individual support is a measure of an individual's support of the group process. Individual support is the degree to which an individual group member feels a decision deserves to be backed or encouraged in the organization. Although this

will partially be a function of how correct the individual feels the decision is, it will also reflect their emotional attachment to the group, and their general feelings about loyalty and group cohesiveness. Because support is a critical issue in ultimate decision effectiveness, the actual breakdown of reasons why a decision is supported is less important for this study, than the level of support per se.

Appendix B contains the scoring device for this variable. This is the "exit questionnaire." This questionnaire asks questions pertaining to how the participant "feels" about the group exercise, and if the participant is willing to support it with the organization. The maximum possible score is 45 (total support), and the minimum score is 5.

Predictor variables

Argumentativeness. Argumentativeness is defined as: "a generally stable trait which predisposes the individual in communication situations to advocate positions on controversial issues and to attack verbally the positions which other people take on these issues." Trait argumentativeness is measured with high reliability and validity using the Argumentativeness Scale (Infante & Rancer, 1982). In addition, this study will measure actual argumentative behavior of group members by observation of group activity by trained observers.

Verbal Aggressiveness. Verbal aggressiveness is defined as: "attacking the self concepts of others in order to inflict psychological pain such as humiliation, embarrassment, depression and other negative feelings about self." Trait verbal aggressiveness is measured with high reliability using the Verbal Aggressiveness Scale

(Infante & Wigley, 1986). In addition, this study will measure actual verbal aggressive behavior of group members by observation of group activity by trained observers.

Communication Apprehension. Communication apprehension is defined as: "the level of fear or anxiety associated with either real or anticipated communication with another person or persons." This trait is measured by the Personal Report of Communication Apprehension, PRCA-24 (McCroskey, 1982). In addition, this study will measure actual communication apprehension behavior of group members by observation of group activity by trained observers.

Section 2 of Appendix B contains these questionnaires. They have been combined into one scale. The first 20 questions are the argumentativeness scale. The second 20 questions are the verbal aggressiveness scale, and the final 24 questions are the communication apprehension scale. Each section will be scored separately.

Appendix B

Appendix B contains the materials that were provided the participant in the group exercise. Each participant was given a binder with five marked sections. The contents were as follows:

Inside front cover:	Instructions for participants
Section 1:	Personal Information Form
	Release Statement
Section 2:	Initial Questionnaire
Section 3:	Community Action Associates Case
Section 4:	Supplementary Materials
Section 5:	Individual Exit Questionnaire (IEQ)
	CAA Project Individual Ranking Form

Each group was given CAA Group Ranking Form, the last item in Appendix B.

Instructions for Participants

Thank you for participating in this research project. The purpose of this study is to find ways to improve decision-making. The exercise consists of a questionnaire, a personal information form, a case study, and an exit evaluation. After finishing these instructions, sign the ***Individual Consent Form***, and complete the ***Personal Information Form***, found behind Tab 1 of your binder. Next, complete the ***Questionnaire*** behind Tab 2.

Case Study

In Part 3, you will find a ***Case Study***. Read the introduction to the CAA case. On the following pages, you will find a summary of five proposed projects. Your participant number (on the front of your binder) corresponds to the number of the proposal you have sponsored. In Part 4 of your binder, read the supplemental materials **for your proposal**, and scan the other supplements to aid in your discussion.

Your group assignment is to discuss these five proposed projects and then rank them in order of their importance, from one to five (one being most important). During the exercise, you should discuss the merits and shortcomings of each project with your group. This discussion will parallel "real life" group meetings, and we anticipate that there will be a lively debate. In most groups, the discussion becomes quite intense, as the group works toward a final decision. This is expected, and normal. Your group will be compared to other similar groups, to see how effective you are in reaching the right decision. You should, therefore, give this exercise your best effort. To be successful,

YOUR GROUP MUST REACH A CONSENSUS DECISION on the case, in the allotted time. You have 15 minutes to read the case, and 40 minutes to complete your discussion, and make your decisions, and record the results. You may refer back to the printed material at any time during your discussion. You may not change facts given in the case, but you may make reasonable assumptions about facts not specifically stated. Please record your decision on the ***CAA Project Group Ranking Form***, which has been given to you. Your deliberations will be video taped.

Take this exercise very seriously. You are not playing a role, or "pretending" to be someone else. Treat the group members as themselves. Act as if you were working as a real group on a very important project. Discuss and defend your positions as if this project were of critical importance to you. Your behavior should be the same as if you were working with this set of people in a group environment, where important issues were being discussed. Your results will he compared to other groups to see if you are better of worse than them in the decisions you make.

Final Evaluation

In Part 5 of your binder, you will be asked to answer the ***Exit Questionnaire*** regarding your experience in this group, and complete an ***Individual Ranking***. This should take approximately five minutes. Please do not turn to Part 5 until you have submitted your Group Decision Form to the proctor.

Thank you for your participation. You may now begin.

Section 1: Personal Information Form

Group #_____ Participant #_____

(Do not write in this space)

Please provide the following information:

Your age_____

Number of years you have lived abroad_____

Number of years you have been with your current employer or organization_____

Section 1: Individual Consent Form

Individual Consent Form

For participation in a research project under the auspices of

the University of Oklahoma–Norman Campus

Thank you for participating in this research project. The purpose of this study is to find ways to improve decision-making meetings. The results of this study will be used in the preparation of a doctoral dissertation at the University of Oklahoma, and depending on the results, may be published. The title of this study is *Argumentativeness, Verbal Aggressiveness, Communication Apprehension and their Relationship to Acceptance and Support of Decision Made in Small Groups.* The primary researcher is Thomas Lee Boam, doctoral candidate at the University of Oklahoma.

The exercise consists of a questionnaire, a case study, and an exit evaluation. The questionnaire contains 64 statements in which you will indicate your level of agreement or disagreement with each statement. The case study will be a group exercise, in which you will be asked to participate in a discussion on a controversial issue. This exercise will parallel "real life" group sessions, and it is anticipated that there will be a lively discussion. The discussion will be video taped. The exit evaluation will consist of 15 statements, where you indicate your agreement or disagreement with each statement. Your participation in the exercise should take approximately 1¼ hours.

You will not be identified by name during this exercise, nor will any statement you make be specifically attributed to you in the final report. The video tapes will be used only for the statistical needs of this study, and will not be shown to unauthorized persons. They will be secured in a locked cabinet until they are destroyed, after the data have been

evaluated. The questionnaires will likewise be destroyed after the data have been processed. No one, except the researcher and authorized research assistants, will have access to the questionnaires, or the video tapes.

The exercise is designed to parallel life experiences, and there are no risks or dangers in participating beyond those normally experienced on a daily basis. No compensation will be paid to the participants. It is hoped that the results of this study will make it possible to improve meetings and the decisions which are made at meetings. This should be beneficial to anyone working in organizations. **Your participation is voluntary and you may withdraw from this exercise at any time without penalty.**

If you have any additional questions regarding this research, or the result, you may contact the primary researcher, Thomas Boam, at the telephone number: (0211) 57 33 13. **If you have any questions regarding your rights as a participant, you can contact the office of Research Administration, 1000 Asp Av., Norman, OK 79109. Tel: (405) 325-4757. E-Mail: pjwolfe@ou.edu**.

I agree to participate in this research project, under the conditions listed above.

_____

Name of Participant

Section 2: Initial Questionnaire

Questionnaire

Instructions: This questionnaire contains statements about lifestyle choices. Indicate how often each statement is true for you personally by placing the appropriate number in the blank to the left of the statements. If the statement is *almost never true* for you, place a "1" in the blank. If the statement is *rarely true* for you, place a "2" in the blank. If the statement is *occasionally true* for you, place a "3" in the blank. If the statement is *often true* for you, place a "4" in the blank. If the statement is *almost always true* for you, place a "5" in the blank.

Almost never true	Rarely true	Occasionally true	Often true	Almost always true
1	2	3	4	5

___ 1. While in an argument, I worry that the person I am arguing with will form a negative impression of me.

___ 2. Arguing over controversial issues improves my intelligence.

___ 3. I enjoy avoiding arguments.

___ 4. I am energetic and enthusiastic when I argue.

___ 5. Once I finish an argument I promise myself that I will not get into another.

___ 6. Arguing with a person creates more problems for me than it solves.

___ 7. I have a pleasant, good feeling when I win a point in an argument.

___ 8. When I finish arguing with someone I feel nervous and upset.

___ 9. I enjoy a good argument over a controversial issue.

___ 10. I get an unpleasant feeling when I realize I am about to get into an argument.

___ 11. I enjoy defending my point of view of an issue.

___ 12. I am happy when I keep an argument from happening.

___ 13. I do not like to miss the opportunity to argue a controversial issue.

___ 14. I prefer being with people who rarely disagree with me.

___ 15. I consider an argument an exciting intellectual challenge.

___ 16. I find myself unable to think of effective points during an argument.

___ 17. I feel refreshed and satisfied after an argument on a controversial issue.

___ 18. I have the ability to do well in an argument.

___ 19. I try to avoid getting into an argument.

___ 20. I feel excitement when I expect that a conversation I am in is leading to an argument.

___ 21. I am extremely careful to avoid attacking individuals' intelligence when I attack their ideas.

___ 22. When individuals are very stubborn, I use insults to soften their stubbornness.

___ 23. I try very hard to avoid having other people feel bad about themselves when I try to influence them.

___ 24. When people refuse to do a task I know is important, without good reason, I tell them they are unreasonable.

___ 25. When others do things I regard as stupid, I try to be extremely gentle with them.

___ 26. If individuals I am trying to influence really deserve it, I attack their character.

___ 27. When people behave in ways that are in very poor taste, I insult them in order to shock them into proper behavior.

___ 28. I try to make people feel good about themselves, even when their ideas are stupid.

___ 29. When people simply will not budge on a matter of importance I lose my temper and say rather strong things to them.

___ 30. When people criticize my shortcomings, I take it in good humor and do not try to get back at them.

___ 31. When individuals insult me, I get a lot of pleasure out of really telling them off.

___ 32. When I dislike individuals greatly, I try not to show it in what I say or how I say it.

___ 33. I like poking fun at people who do things that are very stupid in order to stimulate their intelligence.

___ 34. When I attack a persons' ideas, I try not to damage their self-concepts.

___ 35. When I try to influence people, I make a great effort not to offend them.

___ 36. When people do things which are mean or cruel, I attack their character in order to help correct their behavior.

___ 37. I refuse to participate in arguments when they involve personal attacks.

___ 38. When nothing seems to work in trying to influence others, I yell and scream in order to get some movement from them.

___ 39. When I am not able to refute others' positions, I try to make them feel defensive in order to weaken their positions.

___ 40. When an argument shifts to personal attacks, I try very hard to change the subject.

___ 41. I dislike participating in group discussions.

___ 42. Generally, I am comfortable while participating in group discussions.

___ 43. I am tense and nervous while participating in group discussions.

___ 44. I like to get involved in group discussions.

___ 45. Engaging in group discussions with new people makes me tense and nervous.

___ 46. I am calm and relaxed while participating in group discussions.

___ 47. Generally, I am nervous when I have to participate in a meeting.

___ 48. Usually I am calm and relaxed while participating in a meeting.

___ 49. I am very calm and relaxed when I am called upon to express an opinion at a meeting.

___ 50. I am afraid to express myself at meetings.

___ 51. Communicating at meetings usually makes me uncomfortable.

___ 52. I am very relaxed when answering questions at a meeting.

___ 53. While participating in a conversation with a new acquaintance, I feel very nervous.

___ 54. I have no fear of speaking up in conversations.

___ 55. Ordinarily, I am very tense and nervous in conversations.

___ 56. Ordinarily I am very calm and relaxed in conversations.

___ 57. While conversing with a new acquaintance, I feel very relaxed.

___ 58. I'm afraid to speak up in conversations.

___ 59. I have no fear of giving a speech.

___ 60. Certain parts of my body feel very tense and rigid while giving a speech.

___ 61. I feel relaxed while giving a speech.

___ 62. My thoughts become confused and jumbled when I'm a giving a speech.

___ 63. I face the prospect of giving a speech with confidence.

___ 64. While giving a speech I get so nervous, I forget facts I really know.

Section 3: CAA Case

Community Action Associates Case

CAA is a non-profit, non-governmental organization located in Springdale, a medium-sized city in the Mid-Western United States. Its primary function is to support human-centered projects in areas where government services are inadequate, or where they have failed. It does this by funding activities to relieve or reduce social ills. You are a paid member of the board of CAA.

CAA receives its money directly from local donors. Approximately 75% of all donations come from companies or wealthy individuals who contribute more than $15,000 each. These donors are highly committed to solving social problems, and are sensitive to sharing their "good fortune" with others. This means that fund raising can be concentrated on a few targets, which reduces the cost of generating money. It also means that the loss of a single donor is a serious matter, since 5%-10% of total funding can come from one source. One of your problems is that individual donors have very specific ideas about the use of their money. Some have pet projects, some favor certain types of actions, and others have strongly held political or moral beliefs. You cannot afford to offend or lose your major donors.

You and the other board members (*you are all "yourself," not role playing another person*) have come together for your annual meeting. At this meeting you must decide which projects to fund next year. You and the other board members have made proposals. You do not yet know how much money will be available, but it is unlikely that you will have funding for all of the projects. Because of this, you must rank them in order of importance, so that the most important projects can be done first.

The board has already decided that you will not partially fund a project. Your only job at this meeting is to get the projects in the right order. Your decisions at this meeting are vital to CAA. Not only is the future of your organization at stake, but your job as a board member hinges on it as well. Obviously, properly allocating the funds is your moral responsibility as well. **The Board's decision on the rankings of the projects must be unanimous.**

The next section of this folder contains a brief description of the five projects you are to consider. The following section has additional information on each case. The group number you have been assigned corresponds to the number of the project YOU have recommended for consideration. You should study the supplementary materials for your proposed case more carefully, since the group members will expect you to be the expert on the case.

You can refer back to the supplementary materials at any time during your discussion. You may not change facts which are given in the project descriptions. You may make assumptions about facts not in the reading materials, but they should be logical and reasonable. Remember, after reading the materials, you will have 40 minutes to properly consider all aspects of the case, and to complete your group ranking. To do it right, you will need the entire time. Record your group ranking on the form provided to you.

Proposed CAA Projects

Project 1: "Help for the Hungry" Center"

Springdale ranks number three in homelessness for medium sized cities in the United States. The causes are varied, but an aging industry base, no new investment, and a recent reduction in welfare payments are often cited as the direct factors. Reports show that homelessness in Springdale is increasing, and to make matters worse, climatologists are predicting that the coming winter will be one of the worst in this century. Local health officials feel that a lack of proper nutrition may be one of the biggest problems facing the homeless this year.

To care for the most needy, the local Red Cross estimates that an average of 250 meals need to be served each day. A local contract provider has been found who has a downtown location, and has offered a daily menu that meets health, sanitation and nutrition standards. The site first needs renovation. There is no kitchen, and it also has a severe problem with rats. CAA has been asked to provide funding for the renovation of the facility, rat abatement, and meal service.

Project 2: "VocEd Training Project"

The one bright spot in the Springdale economy is the new Nippon Motor Works (NMW) automobile plant. The plant is assembling a new NMW Minivan, the Sumo, which has been very popular. NMW projections are that their state-of-the-art facility can supply the growing U.S. Market, and be the platform for strong export sales.

One of the biggest problems facing NMW is the lack of qualified workers. They invested in Springdale because of heavy state subsidies and promises of inexpensive labor. NMW has made it clear that its operation is running on low margins, and it cannot afford to

finance training and still be competitive in the world market place. If they cannot keep production costs low, the entire plant will fail. Since NMW is Springdale's largest employer, this would be a disaster. NMW needs to hire 75 wire harness technicians immediately to maintain delivery schedules, but no trained people are available. NMW needs help with the training. They have threatened to move the factory if they don't get help.

CAA has found a contractor, VoTec Institute, which can provide the necessary training for wire harness technicians, starting immediately. VoTec can fully certify a technician (NMW accepts this certification) within 60 days, using intensive training techniques. The proposal is that CAA fund this training.

Project 3: "Teen Crisis Counseling Service"

Springdale is having an epidemic of teen pregnancies. Social workers feel that the high unemployment rate among the youth (18%), and the alienation within families despondent about sustained joblessness is a factor. The problem with this analysis is that the pregnancy rate among middle and upper class girls is also alarmingly high. Local health officials are frantic. Not only has the rate of pregnancy gone up, but so have the rates of sexually transmitted diseases. A shockwave recently went through the entire community when two girls were reported to be pregnant and infected with the HIV virus. Since this news hit the press, CAA offices have been inundated with calls demanding action. Norman Bornheim, a CAA consultant quickly developed a concept, and has requested funding for the project.

Bornheim's plan calls for the establishment of a teen crisis counseling service. Its goal would be two fold: reducing the rate of teen aged pregnancies, and providing support services for pregnant girls. A "hot line" is to be established, with 24 hour a day counselors on call.

The counselors would provide advice and make referrals. Three "store front" offices would be strategically placed near Springdale's three high schools. Each would be staffed with a social worker and a nurse-practitioner. Volunteers would provide clerical help.

Project 4: "Crime Crushers"

One of the recurring themes in *The Dispatcher*, Springdale's daily newspaper, is the increase in crime. The first gangs appeared on the scene two years ago, and with them, violent crime and a flourishing drug trade. The biggest quandary, however, is what to do about residential burglaries. Many elderly citizens, who haven't properly secured their homes, have been targets of break-ins. Most can't afford to completely replace their locks and window latches, or install additional locks where necessary.

CAA recently hired Prof. Lothar Jackson at Moxley University to find ways to help reduce crime and its impact. He has recommended a three point program called "Crime Crushers" to tackle the problem: (1) A Neighborhood Watch Program, (2) A lock replacement program for poorer elderly citizens, and (3) Gang control through a night basketball program. Funding is requested.

Project 5: "Rhawabindi Relief Fund"

With all of Springdale's problems, there are people in the world who are in far greater distress. Recent floods in the Sub-Saharan Africa country of Rhawabindi has left hundreds of thousands of people in dire conditions. The rains have caused a rapid increase in the disease carrying mosquito population, and the United Nations observers fear an outbreak of Red Water Fever (RWF) if something isn't done soon.

A recent medical breakthrough has created a vaccine for RWF, which is 88% effective, if administered prior to initial infection. One injection is generally adequate, giving

immunity which lasts for 6 months. Virtually nobody in Rhawabindi has been inoculated against RWF.

CAA has been asked to help by providing funding to immediately start an RWF vaccination program. If funding can be quickly provided, UNESCO workers estimate that 70% of the anticipated deaths can be avoided.

Section 4: Supplementary Materials

Project 1: "Help for the Hungry"

The weather bureau has predicted one of the coldest winters ever. Health Department officials have indicated that one of the most critical issues in survival of the cold is proper nutrition. "If the homeless in our city don't get the right food," said Dr. Darlene Wooten of the Health Department, "they will die. It's that simple."

City officials are very pleased with this project, but Richard Irwin, one of the major contributors to CAA is not. His electronics store is located in the next block, and he is concerned about the loss of customers if they have to park near this "soup kitchen." Although he has not said it yet, his support of CAA is endangered if the project continues. Father James Dungan, however, is delighted with the proposed project. St. Tobias parish has been running its own meals project, but is running out of funds. Father Dungan has pledged his support to the project, and may be able to provide some backing from the Catholic Relief Fund. One of the board has heard, however, that Pastor Johnston of the local Unitarian Church is concerned about the Help for the Hungry Center being turned into a religious center, with people feeling coerced to attend religious services. The American Civil Liberties Union has also expressed interest in this issue. City Council member Clive Stansworth has assured the Board of CAA that neither Pastor Johnston nor the ACLU will cause any problems, and that "he will take care of this issue." He did not specify how.

The rat problem is also unresolved. If the rats cannot be controlled, the Board of Health will close the facility, meaning a loss of the entire investment in the building. Rodokill, a local exterminator, has given a money back guarantee that they can keep the kitchen rat

free. A return of their fee would not compensate for the cost of renovation if the building were closed by the Sanitation Department for rats. It would also generate bad press for CAA. Additional rat prevention measures could cost thousands of dollars.

Nevertheless, a similar project in Whorleyville, a similar sized city in the next state, was highly successful. Deaths among the homeless are down 38%. Press has been very positive, and donations to their sponsor organization have soared 22% over last year.

The total cost of this project is as follows:

-	250 meals 365 time @ $2.75 each	$250,937.50
-	Renovation	$85,500.00
-	Administrative Expense	$16,500.00
	TOTAL	**$352,937.50**

Project 2 "VocEd Training Project"

The new Nippon Motor Works (NMW) automobile plant, located in the suburb of Chalmers, approximately 6 miles south of the city center. NMW forecasters predict a 7 year life for its new sport utility vehicle, the Sumo, and good chances for later model updates. Production slowdowns, caused by a lack of qualified workers, can be blamed for delivery delays of the Sumo, and dealers are nervous. They are telling NMW production managers that the current 90 day delivery times are hurting business, and that customers who won't wait are defecting to other minivans, even though they like the Sumo better. NMW needs to hire the 75 wire harness technicians to reduce delivery times to an acceptable 34 days.

While unemployment in Springdale is 9.8%, over 80% of those on the unemployment rolls have a high school education or less, and none have skills in the automobile sector. No training programs currently exist in the existing education system for car production. VoTec can fully certify a technician in 60 days of intensive training, starting immediately. They charge $2,600 per trainee for the two month course. In their experience, about 65% of unemployed workers successfully pass their course.

An alternate proposal has been made by the local State Vocational School superintendent, Stan Summerhays. He has an underutilized welding facility in Florence, 50 miles from Springdale, which could be converted into a wire harness training facility, to provide the schooling *for free*. He would need to retrain his teachers, and buy demonstration stands. State law prohibits private funding, so he cannot accept money from CAA for the stands, but he is sure he can get state monies. He thinks he can be ready to **start training in 4 months**, and is confident that the State will certify his program.

Last night Wanda Middlemarch, from the Office of Employment Security called CAA offices and left a message with the secretary. She said that any person in a private training program would be considered to be employed, and denied unemployment compensation. CAA would have to cover the cost of unemployment for trainees, which averages $1,770 per month. She also gave her opinion that it would be unconstitutional to limit enrollment in the CAA program to the unemployed, since the right to equal opportunity would be violated. Charley Samuelson, a CAA board member, reported this call to State Senator Charlene MacGregor, who called Wanda Middlemarch's statements "Poppycock." MacGregor indicated that she fully supported CAA's proposed project and volunteered a $100 donation to the effort, "...if it will keep NMW here."

The costs of the project are as follows:

-	Training for 115 @ $2,600	$299,000.00
	(65% completion rate = 75 trained workers)	
-	10 Wire Harness Demonstration Stands	$40,000.00
	@ $4,000.00 each	
-	Administration costs for 6 courses in the year	$11,200.00
	TOTAL	**$350,200.00**

Project 3. "Teen Crisis Counseling Service"

Rev. Malcolm Williams, a local fundamentalist minister, in a widely publicized press statement, said the teen pregnancy problem is due to an "elemental breakdown in family values," and called for a "retrenchment to our core beliefs." However, a recent study by Prof. Cynthia Morton, at Moxley University in Springdale showed that there was no significant difference between the rates of pregnancy in teenaged girls who regularly attend church, and girls who do not. Controversy continues to swirl around this issue. Nevertheless, two major contributors to CAA have called to request that their entire donation be earmarked for an action program. They are convinced that this is the most important project CAA has.

Support within CAA and its donors for this concept has generally been positive. A leak of the proposal to the press did not bring good news, however. A local "Right to Life" group expressed concern about putting a facility near schools with the purpose of "killing babies." In response to this, CAA's press spokesperson, Jill Jamerson, said the centers, if they are built, would neither perform nor refer young women for abortions. In spite of this, a package containing a doll spattered with red food coloring was left on CAA's front steps last night.

Also, after reading the press reports, City Zoning Director, John Stables, called CAA. He indicated that local ordinances prohibit centers distributing contraceptive devices near schools. He explained that these centers would be "sex shops" and cannot be located within 1 mile of a school. "You will need a variance," Mr. Stables said, "and you won't get it from me." Off duty, Mr. Stables is president of the Springdale chapter of the "Moral Americans League."

Dr. Judy McWorter, Chair of the Springdale medical association called this morning to give her support to the centers. She promised that a group of doctors, many of whom are CAA donors, would volunteer their time at the centers, and staff the phones. "If this epidemic doesn't stop," she said, "the fabric of Springdale society is in jeopardy. We need those centers, and we need them *now*." Dr. McWorter also indicated that she was good friends with the mayor, who would talk to Mr. Stables.

The costs of the project are as follows:

--	Staff for 3 centers @ $64000.00 per center	$192,000.00
--	Overhead costs for 3 centers @ $4,000/center	$12,000.00
--	Rent and furnishing for 3 centers @ $24,000/center	$72,000.00
--	10 "800" telephone lines @$110/line	$11,000.00
--	Phone center salaries (three shifts)	$51,000.00
--	10 telephone workstations @ $1,600.00	$16,000.00
	TOTAL	**$354,000.00**

Project 4: "Crime Crushers"

Last week, two elderly Springdale citizens were hospitalized after being beaten in their homes by youthful intruders. Given a declining city budget, the police are struggling. Response time for 911 calls has gone from an average of 4 minutes three years ago, to 27 minutes today. Police take 2 hours for many calls. Needless to say, the elderly of the city are scared to death.

Unlike other cities the size of Springdale, there has been no neighborhood watch program. Community leaders simply saw no need, with the low crime rate. Prof. Jackson has proposed an organizing campaign, with off-duty police officers being hired to train local citizens. Volunteer patrol teams would be formed. Each patrol duo would be outfitted with a whistle, special hats, flourescent jackets and a mobile phone. No guns would be allowed. RSM Communications has offered to supply the mobile phones, but the calling time would have to be paid by CAA.

The problem with the locks is relatively straight forward. The goal is to replace or add locks to the doors, for the most needy. There are 163 target homes.

In his study, Prof. Jackson has recommended a night basketball program to remove the gangs from the street and reduce drug use. His proposal calls for four sites around Springdale to be opened at 10:00 p.m., with organized basketball games, and free food available to participants.

Police Chief Marlene Chang is delighted with the proposal–particularly the night basketball program. "Our problem has been the kids," she said, "this should help us get a handle on what they are doing. Local conservative talk show host, Mark "Madman" Madsen

sees it differently. On yesterday's program he said, "Night basketball indeed! Criminals should be in jail at night." With the increase in crime, there has been a backlash in the wealthy sections of town (where most CAA supporters live). Even though crime has been highest in predominantly minority neighborhoods, most of the calls to Madsen's show come from the wealthy South side of town. While supporting the night basketball program, African-American leader Joseph Miller has branded the Neighborhood Watch as "extermination units for Blacks." The ACLU agrees with Miller, but has used milder language. They cite the case of a white home owner who fired on two black youths who were allegedly attempting to break into his home two weeks ago, but who actually only wanted directions. Fortunately no one was hurt. Madsen stirred this debate by suggesting the Neighborhood Watch teams should be "armed to the teeth." Many of his listeners agree.

The costs of this project are as follows:

3.	Training for 23 neighborhoods @ $3,652.17	$84,000.00
4.	Equipment for 23 neighborhoods @ $782.61	$18,000.00
5.	Phone charges	$7,000.00
6.	Locks & labor for 163 homes @ $500.00	$81,500.00
7.	Basketball at four sites @ $40,200/site	$160,800.00
	TOTAL	**$351,300.00**

Project 5: "Rhawabindi Relief Fund"

Rhawabindi is a land locked Sub-Saharan African country with 8.5 million inhabitants. The annual per capita GDP is $625, with most people working on subsistence farms in its wide, swampy plains. The Rhawa River winds through the center of the country, and generally swells during the rainy season, but about every 4 years the heavy rains cause flooding in large parts of the country. The government is aware of this problem, but is generally ineffective. There have been several coup d'etats in the last 10 years, and the current military rulers are considered corrupt.

The current flooding is the worst in 20 years. Approximately 30% of the inhabitants of Rhawabindi have been driven from their homes, and have fled to the high grounds of the nearby Bindi Mountain Range. The water is receding slowly, but the pools of stagnant water have provided breeding grounds for mosquitos, which carry Red Water Fever–a deadly tropical disease. Victims die quickly, but painfully, with a high fever, and a great loss of blood (hence the name Red Water Fever). The mosquitos are always present in Rhawabindi, but only attack at night. Local citizens know to protect themselves by remaining inside at night during the rainy season, but the flooding has left them without shelter and vulnerable to the deadly bites. Within a month, the mosquito population will spread to higher ground, and mass infections of RWF are expected. Children are generally the first to die.

A new vaccine against RWF has just been made available. It has not been cleared by the Food and Drug Administration because RWF does not exist in the U.S., but it is thought to be safe and effective. Polytec Pharmaceuticals, a small company in Springdale (only 40 employees), produces nearly 35% of all RWF vaccine worldwide. They have sufficient stocks

for the current crisis, but if a vaccination program is initiated in Rhawabindi, it will deplete their inventory, and new a production will be needed to meet the next crisis. The chances of success of a vaccination program look good. Village populations in Rhawabindi are tightly organized, and closely knit. Transportation of vaccination teams to the potential areas of infection is possible and good cooperation of the villagers is expected. "It can be done, if we start right now," says UNESCO spokesperson Mbumbo Makabi. Carla Western, Chief Executive of CAA, favors the project, but many of the donors think she is only looking for a "big splash" for publicity purposes. When confronted with this charge, she responded, "I am worried about these children. Isn't helping people what we do? Besides, what is wrong with a little publicity–it could really help fund raising." One board member was heard to mumble under his breath, "haven't we got problems of our own to take care of?"

The cost of this project:

--	Vaccine	$235,000.00
--	Travel and salaries	$101,000.00
--	Equipment and supplies	$45,000.00
	TOTAL	**$355,000.00**

Section 5: Individual Exit Questionnaire

Exit Questionnaire

Instructions: Please evaluate your experience in this group exercise by answering the following questions. If you *almost completely disagree* with the statement, place a "1" in the blank. If you *partially disagree*, place a "2" in the blank. If you *neither agree nor disagree*, place a "3" in the blank. If you *partially agree*, place a "4" in the blank. If you *almost completely agree*, place a "5" in the blank.

Almost Completely Disagree	Partially Disagree	Neither Agree nor Disagree	Partially Agree	Almost Completely Agree
1	2	3	4	5

___ I would be pleased if everyone in this organization would support our group's decision.

___ Since our group reached consensus on this decision, I should work for its implementation within the organization.

___ I expect those in our group, even those who did not agree with our final decision, to support our choices.

___ I would actively work for the complete implementation of the final decision.

___ Even though I said I agreed with the group's final decision, it would be acceptable for me to try to get others in the organization to disagree with our choices.

___ I would encourage other members of the organization to support the group's decisions.

___ I feel no obligation to tell others in our organization that this decision is correct.

___ As a loyal group member, I would never disagree publicly with our final decision.

___ I am under no obligation to support this decision.

The subject of this group meeting was fabricated. If this had been a real meeting in your organization, where a decision were required on a *very serious* matter in which your performance would be judged, would you have reacted differently than you did in this group discussion? In the following questions, indicate how you would have reacted in a real decision-making meeting, compared to your behavior in this exercise (*circle the answer which is the most correct*).

In presenting my arguments for or against positions, in a real decision-making meeting, I would be:

a. Much more active
b. Somewhat more active
c. The same
d. Less active
e. Much less active.

In a real meeting, if I felt that a member of the group was blocking progress and needed to change his or her behavior, to make this happen I would be:

1. Much more aggressive
2. Somewhat more aggressive
3. The same
4. Somewhat less aggressive
5. Much less aggressive.

Compared to this group, in a real decision-making meeting, I would speak:

1. Much more often
2. Somewhat more often
3. The same
4. Somewhat less often
5. Much less often

If someone in a real group says something "dumb," I am:

1. Much more critical
2. Somewhat more critical
3. The same
4. Somewhat less critical
5. Much less critical

In a real group, I would contribute:

1. Many more new ideas
2. A few more new ideas
3. The same
4. A few less new ideas
5. Far fewer new ideas.

In a real group, once I "had the floor," I would speak:

1. Much longer
2. Somewhat longer
3. The same
4. A little shorter length of time
5. Much less length of time

If you acted differently in this group than you would have in a real group, why?

_____

_____

_____

Was there a "turning point" in your group discussion today? That is, can you identify an incident, statement or act which made it possible for the group to reach a decision? If there was, please briefly describe it.

_____

_____

_____

_____

Section 5: CAA Project Individual Ranking Form

CAA Project Individual Ranking Form

Rank the proposed projects from 1 to 5. Number 1 is the most preferred project, and number 5 is the least preferred project. **This ranking is your preference, NOT THE PREFERENCE OF THE GROUP.**

Project	**Rank**
"Help for the Hungry Center"	_____
"VocEd Training Project"	_____
"Teen Crisis Counseling Service"	_____
"Crime Crushers"	_____
"Rhawabindi Relief Fund"	_____

Section 5: CAA Project Group Ranking Form

CAA Project Group Ranking Form

Rank the proposed projects from 1 to 5. Number 1 is the most preferred project, and number 5 is the least preferred project. **THIS RANKING THE CONSENSUS OF THE GROUP, AND MUST BE UNANIMOUS.**

Project	**Rank**
"Help for the Hungry Center"	_____
"VocEd Training Project"	_____
"Teen Crisis Counseling Service"	_____
"Crime Crushers"	_____
"Rhawabindi Relief Fund"	_____

Appendix C

Protocol for scoring the group observation

These instructions are to be used for coding the statements and actions of participants in the CAA group exercise. Each group contains five individuals. Participants are numbered from one to five, and seated chronologically from left to right at the table. In addition, each participant has a numbered tent card in front of them. Coders are to view the video tape, listen to the statements, observe the non-verbal behaviors from each participant, and classify the statements they make. This is done by recording a score on the attached score sheet.

Communication within the group is to be coded for incidences of Argumentativeness (ARG), Verbal Aggression (VA) and Communication Apprehension (CA). Not every statement made by individual group members will contain ARG or VA behaviors. Conversely, a single statement or speaking turn may contain both ARG and VA incidents. A statement may be both ARG and VA, if the elements of both behaviors are present. In such a case, the statement would be coded for both behaviors. CA behavior will be indicated by the total amount of time in the group exercise that a participant speaks, measured in seconds.

For ARG and VA, each participant will be scored by two coders. The coders will determine if a statement made by a participant contains an ARG or VA behavior and score this by recording it on the score sheet, according to the instructions that follow. Coders should complete their scoring of the group session without conferring with each other.

After tallying their respective scores, the coders should compare scores for each individual. They should then discuss their scoring until they reach a consensus on the scores for each participant. Consensus should NOT be based on an average or a vote, but on a score derived through a discussion between the coders. This may mean going back to the video tapes to reevaluate the statements. The consensus score should be recorded on a separate score sheet. All three score sheets should be retained.

Both ARG and VA are to be scored in "thought turn" units. A thought turn consists of statements made up to the point that a change in thought occurs in the speaker's comments. It is not necessarily a speaking turn. A thought turn consists of comments on a main idea, and the supporting statements. During a speaking turn, several thought turns may occur. A thought turn may be interrupted and restarted. Only one ARG and/or VA behavior is recorded per thought turn.

The attached score sheet has a section for each participant, which is subdivided into two columns–one for the argumentativeness score (ARG), and one for the verbal aggressiveness (VA) score. Each column has 40 rows, with each row representing one minute of the group discussion. Scores for each participant are to be recorded in these cells, according to running time of the discussion. The scoring for each column is as follows:

Scoring Argumentativeness:

Argumentativeness is defined as: "a generally stable trait which predisposes the individual in communication situations to advocate positions on controversial issues and to attack verbally the ***positions*** which other people take on these issues." Argumentativeness

deals with the task of the group. There are seven types of argumentative statements. An argumentative statement is one that:

1. supplies a fact pertinent to the task of the group
2. advocates a position on the task
3. elaborates details about a fact or a position
4. gives a coherent reason for the speaker's opinion on the task
5. attacks (challenges) an opinion about the task expressed by another group participant
6. elaborates why the speaker is against another position
7. attempts to persuade or dissuade other group members on positions regarding the task

When an ARG statement within a thought turn occurs, a tick-mark should be made in the ARG column of the appropriate participant, indicating the minute when the thought turn occurred. Thought turns which cross minute boundaries should be recorded in the cell where the thought turn began.

A statement should be coded as "argumentative" (ARG) when the speaker makes a statement of fact pertaining to the case, proposal, suggestion or comment that brings a **new idea** to the conversation. The statement is specifically related to the task of the group. The statement may agree or disagree with the direction of the conversation, but does so by adding content to the discussion. The speaker may also embellish concepts with ideas or **add new information** to an idea introduced by another person in the group. The statement must be related to the subject or add new subject material. The speaker

must also make a statement that **adds to the complexity or clarity** of the idea under discussion. The statement brings insight, or depth to the issue being discussed. The speaker can **disagree with, or fault** a suggestion or idea of another person in the group. The statement is scored ARG if it addresses specific perceived weaknesses of the original *idea*. It should fault the logic, or content of the idea or counter with specific improvements or a competing idea. A personal attack is not an ARG statement. To be classified as ARG, it must address the task at hand. A speaker may **agree** with a statement made by another person in the group by adding upon or improving a specific idea. Finally, the speaker can **repeat** an idea, for the sake of argument, or to press his or her position.

Scoring Verbal Aggressiveness

Verbal aggressiveness is defined as: "attacking the ***self concepts*** of others in order to inflict psychological pain such as humiliation, embarrassment, depression and other negative feelings about self." VA statements are emotionally charged, and may contain such things as badgering, cynical remarks, insults, bullying, intimidating utterances, demeaning or degrading comments, verbal jabs, threats, character attacks, competence attacks, attacks on a person's heritage or background, physical appearance attacks, maledictions, teasing, ridicule, threats, swearing, and nonverbal emblems.

VA statement should be coded by thought turn, as was done with ARG statement, recording a score for the statement in the appropriate cell on the scoring sheet. As opposed to the ARG scoring, however, each VA statement has an associated score attached to it. The thought turn should be scored on a scale from 5 (most VA) to 1

(minimal level of VA). Not all thought turns will include a VA statement, and only those thought turns should be recorded where a VA statement reaches the "1" level.

The coder decides on the score for the VA statement on the basis of the following scale:

Scoring Model for Verbal Aggressiveness Behavior
(Points per thought turn for each type of statement)

Unintentional Indirect	Unintentional Direct	Midpoint	Intentional Indirect	Intentional Direct
1	2	3	4	5

As the scale indicates, there are two main types of VA communication–intentional and unintentional. Intentional means that the speaker made a comment to another person or persons in the group with the specific intention of offending, hurting feelings, or causing psychological pain. The coder must make a judgement if the statement was intentional. If the coder determines that the statement was intentional, he or she must next determine if the speaker made any attempt to reduce the effect of the statement by softening the language. A "5" statement would be one with a direct insult, using unembellished language. For example, "you are a jerk!" or "what an ass!" (Referring specifically to a person in the group).

Level 4 statements are modified and reduced in intensity, but still intended to insult or degrade the target. For example, instead of saying "you are stupid!" (a level 5 statement), the speaker may say, "that was a dumb thing to say!" This implies that the

target is still stupid, but not necessarily all of the time–a reduction in intensity from the previous statement. "Dumb" is also a less intense word than "stupid."

Level 3 is for cases where the coder cannot specifically tell if the statement was intended to insult or degrade, but the where the statement is still offensive.

Level 2 is for statements where the speaker did not necessarily intend to offend, but the statement was so blunt that the speaker clearly lacks sensitivity in dealing with the other person. This also includes aggressive teasing, which can be considered unkind, such as statements about personal appearance or physical characteristics. For example, a statement like "when you get old, you start to lose your memory" may be intended as a joke, but can be offensive in certain circumstances. Much depends on the tone, non-verbal behavior and circumstances of the statement. Look for cues of insensitivity on the part of the speaker. A good indicator may be that the target of the statement is offended.

Level 1 is for indirect statements which were not intended to offend, but do so because of their thoughtlessness. This may include faux pas–statements which are offensive because the speaker failed to take note of another's condition or situation, and where a reasonable person would have been aware of that condition or situation. Ignoring another group member, or talking over the top of their statements would also qualify at this level.

The following adjectives roughly describe the behavior at each level:

Level 5 insulting, abusive

Level 4 rude, abrasive

Level 3 discourteous, disrespectful

Level 2 insensitive, tactless

Level 1 thoughtless, unresponsive.

When a VA behavior occurs, record the appropriate number score at the minute the thought turn containing the VA statement occurred.

Scoring Communication Apprehension

Communication apprehension is defined as: "the level of fear or anxiety associated with either real or anticipated communication with another person or persons." Scoring CA is done by recording the amount of actual time a participant speaks. This should be timed with a stop watch, and recorded as the number of seconds of speaking time. It includes time where two or more speakers are talking at the same time. The score is recorded in the appropriate cell for each participant, at the bottom of the score sheet.

ARG, VA, and CA Scoring Sheet

Group Number_____ Coder_____

Time (min.)	Participant 1		Participant 2		Participant 3		Participant 4		Participant 5	
	ARG	VA	ARG	VA	ARG	VA	ARG	VA	ARG	VA
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

ARG, VA, and CA Scoring Sheet

Group Number_____ Coder_____

Time (min.)	Participant 1		Participant 2		Participant 3		Participant 4		Participant 5	
	ARG	VA	ARG	VA	ARG	VA	ARG	VA	ARG	VA
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
Σ										
Amt. of time spoken										

Appendix D

Statistics

Group Decision-Making
General Statistics

Raw Data

OBS	GROUP	ARG_{ap}	ARG_{AV}	ARG_{GT}	VA	CA	ACC	SUP	RC	SEX
1	Group1_1	43	29	14	40	47	4	40	18	f
2	Group1_2	29	29	0	32	96	5	27	24	m
3	Group1_3	28	26	2	29	44	7	37	18	f
4	Group1_4	32	24	8	38	50	3	36	22	m
5	Group1_5	32	28	4	26	55	5	41	20	m
6	Group2_1	24	31	-7	36	54	0	44	20	m
7	Group2_2	35	29	6	25	47	2	40	19	f
8	Group2_3	33	26	7	26	64	0	37	18	m
9	Group2_4	33	24	9	30	30	0	43	19	m
10	Group2_5	29	25	4	38	28	2	44	20	m
11	Group3_1	32	30	2	45	57	0	41	24	f
12	Group3_2	29	24	5	42	39	6	39	21	m
13	Group3_3	22	39	-17	53	112	2	45	19	f
14	Group3_4	39	31	8	42	57	2	44	20	m
15	Group3_5	43	35	8	34	52	4	39	22	f
16	Group4_1	22	22	0	46	50	2	42	21	m
17	Group4_2	38	29	9	45	61	0	44	22	m
18	Group4_3	30	25	5	33	28	4	45	24	m

OBS	RACE	AGE	OC	WO	$ARGB_{RATIO}$	VA_{RATIO}	CAB	ARGB	VAB
1	w	32	17	7	1.98777	0.00000	6.54	13	0
2	w	33	17	10	2.97030	0.00000	2.02	6	0
3	w	38	4	13	1.81668	0.00000	12.11	22	0
4	w	47	4	18	0.95694	0.00000	8.36	8	0
5	w	45	7	4	1.39616	0.00000	11.46	16	0
6	w	59	12	34	1.57171	0.00000	5.09	8	0
7	a	52	0	18	2.39437	0.00000	7.10	17	0
8	w	40	9	13	1.62679	0.19139	10.45	17	2
9	w	38	8	14	2.32558	0.00000	10.32	24	0
10	w	54	11	25	2.94464	0.23557	8.49	25	2
11	w	23	1	0	3.99240	0.19011	5.26	21	1
12	w	29	4	3	2.18579	0.00000	5.49	12	0
13	w	26	2	0	2.68362	0.14124	7.08	19	1
14	w	28	4	4	1.62455	0.00000	11.08	18	0
15	w	30	2	10	2.38474	0.00000	6.29	15	0
16	w	32	10	2	2.44200	0.00000	8.19	20	0
17	w	30	30	6	3.14770	0.00000	4.13	13	0
18	w	47	6	6	1.55087	0.12407	16.12	25	2

Group Decision-Making
General Statistics

OBS	GROUP	ARG_{ap}	ARG_{AV}	ARG_{GT}	VA	CA	ACC	SUP	RC	SEX
19	Group4_4	23	25	-2	49	62	8	27	26	m
20	Group4_5	33	23	10	36	40	0	40	18	m
21	Group5_1	31	29	2	33	50	0	41	22	m
22	Group5_2	27	34	-7	35	61	2	45	23	f
23	Group5_3	32	27	5	46	73	0	36	28	m
24	Group5_4	41	28	13	54	49	6	40	22	f
25	Group5_5	21	39	-18	33	76	0	41	24	f
26	Group6_1	35	18	17	33	34	0	43	23	f
27	Group6_2	34	24	10	50	49	0	40	20	m
28	Group6_3	33	24	9	45	39	0	42	18	m
29	Group6_4	31	31	0	36	56	2	42	19	f
30	Group6_5	29	26	3	36	44	2	44	18	f
31	Group7_1	38	31	7	39	57	0	45	26	f
32	Group7_2	37	23	14	48	36	6	34	18	m
33	Group7_3	29	27	2	49	76	2	45	21	m
34	Group7_4	31	23	8	44	48	0	36	20	f
35	Group7_5	31	24	7	40	40	6	42	21	f
36	Group8_1	21	27	-6	40	58	0	36	22	f

OBS	RACE	AGE	OC	WO	$ARGB_{RATIO}$	VA_{RATIO}	CAB	ARGB	VAB
19	a	40	16.0	4	1.96078	0.00000	0.51	1	0
20	w	30	3.0	3	1.77515	0.00000	8.45	15	0
21	w	54	54.0	3	2.67943	0.19139	10.45	28	2
22	w	29	4.0	3	2.80112	0.00000	3.57	10	0
23	w	26	26.0	3	2.64831	0.00000	9.44	25	0
24	w	25	25.0	1	2.72727	0.36364	5.50	15	2
25	w	23	5.0	3	2.50447	0.00000	5.59	14	0
26	w	48	24.0	0	3.93701	0.00000	2.54	10	0
27	w	40	18.0	6	2.07101	0.00000	13.52	28	0
28	w	44	2.0	18	1.97802	0.21978	9.10	18	2
29	w	31	9.0	0	3.96226	0.00000	5.30	21	0
30	w	39	2.0	0	3.85356	0.19268	5.19	20	1
31	w	48	43.0	2	1.67464	0.00000	4.18	7	0
32	w	60	5.0	28	1.41304	0.54348	9.20	13	5
33	w	52	43.0	26	1.52838	0.00000	9.16	14	0
34	w	37	8.0	0	1.46667	0.13333	7.50	11	1
35	w	58	3.0	0	1.33111	0.00000	6.01	8	0
36	a	45	13.0	24	2.91411	0.00000	6.52	19	0

Group Decision-Making
General Statistics

OBS	GROUP	ARG_{ap}	ARG_{AV}	ARG_{GT}	VA	CA	ACC	SUP	RC	SEX
37	Group8_2	26	35	-9	36	65	2	33	20	f
38	Group8_3	29	30	-1	32	70	2	42	19	f
39	Group8_4	23	33	-10	46	77	0	33	17	m
40	Group8_5	22	39	-17	34	56	4	37	24	f
41	Group9_1	41	27	14	39	75	4	40	26	m
42	Group9_2	33	30	3	36	38	0	41	20	f
43	Group9_3	32	29	3	56	87	0	43	19	m
44	Group9_4	36	18	18	36	36	2	41	22	m
45	Group9_5	32	28	4	44	67	6	45	20	f
46	Group0_1	44	22	22	36	35	12	44	19	f
47	Group0_2	22	32	-10	30	86	6	37	22	f
48	Group0_3	39	18	21	28	53	8	37	18	m
49	Group0_4	41	25	16	58	55	6	42	20	m
50	Group0_5	25	35	-10	48	85	6	41	21	f

OBS	RACE	AGE	OC	WO	$ARGB_{RATIO}$	VA_{RATIO}	CAB	ARGB	VAB
37	w	30	2.0	1	3.40285	0.00000	9.11	31	0
38	w	44	13.0	12	2.27766	0.00000	9.22	21	0
39	w	54	13.0	27	3.65297	0.15221	6.57	24	1
40	w	45	25.0	16	3.08530	0.00000	5.51	17	0
41	w	35	22.0	4	2.06379	0.00000	5.33	11	0
42	w	39	7.0	0	2.77502	0.29732	10.09	28	3
43	w	56	53.0	25	2.36220	0.00000	11.43	27	0
44	w	37	37.0	0	2.16216	0.00000	11.10	24	0
45	w	41	7.0	0	2.44898	0.95238	7.35	18	7
46	w	43	4.0	0	2.21704	0.35006	8.57	19	3
47	w	34	0.8	0	2.92398	0.00000	5.13	15	0
48	w	42	4.0	11	1.52225	0.11710	8.54	13	1
49	w	63	33.0	0	2.41255	0.36188	8.29	20	3
50	w	61	59.0	0	2.18409	0.31201	6.41	14	2

Univariate Statistics for Variables

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ARGAP

Moments

N	50	Sum Wgts	50
Mean	31.5	Sum	1575
Std Dev	6.244181	Variance	38.9898
Skewness	0.110807	Kurtosis	-0.62214
USS	51523	CSS	1910.5
CV	19.8228	Std Mean	0.883061
T:Mean=0	35.67139	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	44	99%	44
75% Q3	35	95%	43
50% Med	32	90%	41
25% Q1	28	10%	22
0% Min	21	5%	22
		1%	21
Range	23		
Q3-Q1	7		
Mode	29		

Extremes

Lowest	Obs	Highest	Obs
21(	36)	41(	41)
21(	25)	41(	49)
22(	47)	43(	1)
22(	40)	43(	15)
22(	16)	44(	46)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ARGAV

Moments

N	50	Sum Wgts	50
Mean	27.8	Sum	1390
Std Dev	5.018334	Variance	25.18367
Skewness	0.332856	Kurtosis	0.129644
USS	39876	CSS	1234
CV	18.05156	Std Mean	0.7097
T:Mean=0	39.17151	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	39	99%	39
75% Q3	31	95%	39
50% Med	27.5	90%	35
25% Q1	24	10%	22.5
0% Min	18	5%	18
		1%	18
Range	21		
Q3-Q1	7		
Mode	24		

Extremes

Lowest	Obs	Highest	Obs
18(	48)	35(	37)
18(	44)	35(	50)
18(	26)	39(	13)
22(	46)	39(	25)
22(	16)	39(	40)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ARGGT

Moments

N	50	Sum Wgts	50
Mean	3.7	Sum	185
Std Dev	9.407444	Variance	88.5
Skewness	-0.45008	Kurtosis	0.058988
USS	5021	CSS	4336.5
CV	254.2552	Std Mean	1.330413
T:Mean=0	2.78109	Pr>|T|	0.0077
Num ^= 0	47	Num > 0	35
M(Sign)	11.5	Pr>=|M|	0.0011
Sgn Rank	246.5	Pr>=|S|	0.0076

Quantiles(Def=5)

100% Max	22	99%	22
75% Q3	9	95%	18
50% Med	4.5	90%	15
25% Q1	0	10%	-10
0% Min	-18	5%	-17
		1%	-18
Range	40		
Q3-Q1	9		
Mode	2		

Extremes

Lowest	Obs	Highest	Obs
-18(	25)	16(	49)
-17(	40)	17(	26)
-17(	13)	18(	44)
-10(	50)	21(	48)
-10(	47)	22(	46)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=VA

Moments

N	50	Sum Wgts	50
Mean	39.3	Sum	1965
Std Dev	8.048957	Variance	64.78571
Skewness	0.358615	Kurtosis	-0.46502
USS	80399	CSS	3174.5
CV	20.48081	Std Mean	1.138294
T:Mean=0	34.52534	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	58	99%	58
75% Q3	45	95%	54
50% Med	38	90%	49.5
25% Q1	33	10%	29.5
0% Min	25	5%	26
		1%	25
Range	33		
Q3-Q1	12		
Mode	36		

Extremes

Lowest	Obs	Highest	Obs
25(	7)	50(	27)
26(	8)	53(	13)
26(	5)	54(	24)
28(	48)	56(	43)
29(	3)	58(	49)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=CA

Moments

N	50	Sum Wgts	50
Mean	56.08	Sum	2804
Std Dev	18.08014	Variance	326.8914
Skewness	0.83332	Kurtosis	0.792408
USS	173266	CSS	16017.68
CV	32.23991	Std Mean	2.556918
T:Mean=0	21.93266	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	112	99%	112
75% Q3	65	95%	87
50% Med	54.5	90%	81
25% Q1	44	10%	35.5
0% Min	28	5%	30
		1%	28
Range	84		
Q3-Q1	21		
Mode	50		

Extremes

Lowest	Obs	Highest	Obs
28(	18)	85(	50)
28(	10)	86(	47)
30(	9)	87(	43)
34(	26)	96(	2)
35(	46)	112(	13)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ACCEPT

Moments

N	50	Sum Wgts	50
Mean	2.8	Sum	140
Std Dev	2.871393	Variance	8.244898
Skewness	0.920225	Kurtosis	0.521184
USS	796	CSS	404
CV	102.5498	Std Mean	0.406076
T:Mean=0	6.895256	Pr>|T|	0.0001
Num ^= 0	32	Num > 0	32
M(Sign)	16	Pr>=|M|	0.0001
Sgn Rank	264	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	12	99%	12
75% Q3	5	95%	8
50% Med	2	90%	6
25% Q1	0	10%	0
0% Min	0	5%	0
		1%	0
Range	12		
Q3-Q1	5		
Mode	0		

Extremes

Lowest	Obs	Highest	Obs
0(	43)	6(	50)
0(	42)	7(	3)
0(	39)	8(	19)
0(	36)	8(	48)
0(	34)	12(	46)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=SUPPORT

Moments

N	50	Sum Wgts	50
Mean	40.06	Sum	2003
Std Dev	4.254218	Variance	18.09837
Skewness	-1.26418	Kurtosis	1.832893
USS	81127	CSS	886.82
CV	10.61961	Std Mean	0.601637
T:Mean=0	66.58498	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	45	99%	45
75% Q3	43	95%	45
50% Med	41	90%	45
25% Q1	37	10%	35
0% Min	27	5%	33
		1%	27
Range	18		
Q3-Q1	6		
Mode	41		

Extremes

Lowest	Obs	Highest	Obs
27(	19)	45(	18)
27(	2)	45(	22)
33(	39)	45(	31)
33(	37)	45(	33)
34(	32)	45(	45)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=REALSHAM

Moments

N	50	Sum Wgts	50
Mean	20.94	Sum	1047
Std Dev	2.518584	Variance	6.343265
Skewness	0.781035	Kurtosis	0.178827
USS	22235	CSS	310.82
CV	12.02762	Std Mean	0.356182
T:Mean=0	58.79024	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	28	99%	28
75% Q3	22	95%	26
50% Med	20	90%	24
25% Q1	19	10%	18
0% Min	17	5%	18
		1%	17
Range	11		
Q3-Q1	3		
Mode	20		

Extremes

Lowest	Obs	Highest	Obs
17(	39)	24(	40)
18(	48)	26(	19)
18(	32)	26(	31)
18(	30)	26(	41)
18(	28)	28(	23)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=AGE

Moments

N	50	Sum Wgts	50
Mean	40.72	Sum	2036
Std Dev	10.91346	Variance	119.1037
Skewness	0.293395	Kurtosis	-0.84906
USS	88742	CSS	5836.08
CV	26.80124	Std Mean	1.543397
T:Mean=0	26.38337	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	63	99%	63
75% Q3	48	95%	60
50% Med	40	90%	57
25% Q1	31	10%	27
0% Min	23	5%	25
		1%	23
Range	40		
Q3-Q1	17		
Mode	30		

Extremes

Lowest	Obs	Highest	Obs
23(	25)	58(	35)
23(	11)	59(	6)
25(	24)	60(	32)
26(	23)	61(	50)
26(	13)	63(	49)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=OUT_US

Moments

N	50	Sum Wgts	50
Mean	14.616	Sum	730.8
Std Dev	15.1666	Variance	230.0259
Skewness	1.475879	Kurtosis	1.443813
USS	21952.64	*CSS*	11271.27
CV	103.7671	Std Mean	2.144882
T:Mean=0	6.814362	Pr>|T|	0.0001
Num ^= 0	49	Num > 0	49
M(Sign)	24.5	Pr>=|M|	0.0001
Sgn Rank	612.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	59	99%	59
75% Q3	22	95%	53
50% Med	8.5	90%	40
25% Q1	4	10%	2
0% Min	0	5%	1
		1%	0
Range	59		
Q3-Q1	18		
Mode	4		

Extremes

Lowest	Obs	Highest	Obs
0(	7)	43(	31)
0.8(	47)	43(	33)
1(	11)	53(	43)
2(	37)	54(	21)
2(	30)	59(	50)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=WITH_EMP

Moments

N	50	Sum Wgts	50
Mean	8.14	Sum	407
Std Dev	9.443732	Variance	89.18408
Skewness	1.138898	Kurtosis	0.187791
USS	7683	CSS	4370.02
CV	116.0164	Std Mean	1.335545
T:Mean=0	6.094888	Pr>|T|	0.0001
Num ^= 0	36	Num > 0	36
M(Sign)	18	Pr>=|M|	0.0001
Sgn Rank	333	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	34	99%	34
75% Q3	13	95%	27
50% Med	4	90%	25
25% Q1	0	10%	0
0% Min	0	5%	0
		1%	0
Range	34		
Q3-Q1	13		
Mode	0		

Extremes

Lowest	Obs	Highest	Obs
0(	50)	25(	43)
0(	49)	26(	33)
0(	47)	27(	39)
0(	46)	28(	32)
0(	45)	34(	6)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ARGRATIO

Moments

N	50	Sum Wgts	50
Mean	2.374396	Sum	118.7198
Std Dev	0.745955	Variance	0.556449
Skewness	0.490379	Kurtosis	-0.23902
USS	309.1538	CSS	27.26601
CV	31.41664	Std Mean	0.105494
T:Mean=0	22.5074	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	3.992395	99%	3.992395
75% Q3	2.80112	95%	3.937008
50% Med	2.343893	90%	3.527911
25% Q1	1.775148	10%	1.494457
0% Min	0.956938	5%	1.396161
		1%	0.956938
Range	3.035458		
Q3-Q1	1.025973		
Mode	0.956938		

Extremes

Lowest	Obs	Highest	Obs
0.956938(	4)	3.652968(	39)
1.331115(	35)	3.853565(	30)
1.396161(	5)	3.937008(	26)
1.413043(	32)	3.962264(	29)
1.466667(	34)	3.992395(	11)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=VARATIO

Moments

N	50	Sum Wgts	50
Mean	0.101393	Sum	5.06964
Std Dev	0.180712	Variance	0.032657
Skewness	2.681874	Kurtosis	9.426406
USS	2.114205	CSS	1.60018
CV	178.2294	Std Mean	0.025557
T:Mean=0	3.967398	Pr>|T|	0.0002
Num ^= 0	18	Num > 0	18
M(Sign)	9	Pr>=|M|	0.0001
Sgn Rank	85.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	0.952381	99%	0.952381
75% Q3	0.190114	95%	0.363636
50% Med	0	90%	0.331035
25% Q1	0	10%	0
0% Min	0	5%	0
		1%	0
Range	0.952381		
Q3-Q1	0.190114		
Mode	0		

Extremes

Lowest	Obs	Highest	Obs
0(	47)	0.350058(	46)
0(	44)	0.361882(	49)
0(	43)	0.363636(	24)
0(	41)	0.543478(	32)
0(	40)	0.952381(	45)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=TIME

Moments

N	50	Sum Wgts	50
Mean	7.5992	Sum	379.96
Std Dev	2.996638	Variance	8.97984
Skewness	0.230969	Kurtosis	0.496989
USS	3327.404	CSS	440.0122
CV	39.4336	Std Mean	0.423789
T:Mean=0	17.93158	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	16.12	99%	16.12
75% Q3	9.22	95%	12.11
50% Med	7.425	90%	11.265
25% Q1	5.49	10%	4.155
0% Min	0.51	5%	2.54
		1%	0.51
Range	15.61		
Q3-Q1	3.73		
Mode	10.45		

Extremes

Lowest	Obs	Highest	Obs
0.51(	19)	11.43(	43)
2.02(	2)	11.46(	5)
2.54(	26)	12.11(	3)
3.57(	22)	13.52(	27)
4.13(	17)	16.12(	18)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=ARGRAW

Moments

N	50	Sum Wgts	50
Mean	17.16	Sum	858
Std Dev	6.600433	Variance	43.56571
Skewness	-0.0388	Kurtosis	-0.36417
USS	16858	CSS	2134.72
CV	38.46406	Std Mean	0.933442
T:Mean=0	18.38357	Pr>|T|	0.0001
Num ^= 0	50	Num > 0	50
M(Sign)	25	Pr>=|M|	0.0001
Sgn Rank	637.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	31	99%	31
75% Q3	21	95%	28
50% Med	17	90%	26
25% Q1	13	10%	8
0% Min	1	5%	7
		1%	1
Range	30		
Q3-Q1	8		
Mode	13		

Extremes

Lowest	Obs	Highest	Obs
1(	19)	27(	43)
6(	2)	28(	21)
7(	31)	28(	27)
8(	35)	28(	42)
8(	6)	31(	37)

Group Decision-Making
General Statistics

Univariate Procedure

Variable=VARAW

Moments

N	50	Sum Wgts	50
Mean	0.82	Sum	41
Std Dev	1.438395	Variance	2.06898
Skewness	2.386122	Kurtosis	6.828991
USS	135	CSS	101.38
CV	175.414	Std Mean	0.20342
T:Mean=0	4.031074	Pr>|T|	0.0002
Num ^= 0	18	Num > 0	18
M(Sign)	9	Pr>=|M|	0.0001
Sgn Rank	85.5	Pr>=|S|	0.0001

Quantiles(Def=5)

100% Max	7	99%	7
75% Q3	1	95%	3
50% Med	0	90%	2.5
25% Q1	0	10%	0
0% Min	0	5%	0
		1%	0
Range	7		
Q3-Q1	1		
Mode	0		

Extremes

Lowest	Obs	Highest	Obs
0(	47)	3(	42)
0(	44)	3(	46)
0(	43)	3(	49)
0(	41)	5(	32)
0(	40)	7(	45)

Correlations

Group Decision-Making
General Statistics

Correlation Analysis

2 'WITH' Variables:	ACCEPT	SUPPORT				
12 'VAR' Variables:	ARGGT	VA	CA	ARGRATIO	VARATIO	
	TIME	ARGRAW	VARAW	AGE	WITH_EMP	
	OUT_US	REALSHAM				

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ACCEPT	50	2.8000	2.8714	140.0	0	12.0000
SUPPORT	50	40.0600	4.2542	2003.0	27.0000	45.0000
ARGGT	50	3.7000	9.4074	185.0	-18.0000	22.0000
VA	50	39.3000	8.0490	1965.0	25.0000	58.0000
CA	50	56.0800	18.0801	2804.0	28.0000	112.0
ARGRATIO	50	2.3744	0.7460	118.7	0.9569	3.9924
VARATIO	50	0.1014	0.1807	5.0696	0	0.9524
TIME	50	7.5992	2.9966	380.0	0.5100	16.1200
ARGRAW	50	17.1600	6.6004	858.0	1.0000	31.0000
VARAW	50	0.8200	1.4384	41.0000	0	7.0000
AGE	50	40.7200	10.9135	2036.0	23.0000	63.0000
WITH_EMP	50	8.1400	9.4437	407.0	0	34.0000
OUT_US	50	14.6160	15.1666	730.8	0	59.0000
REALSHAM	50	20.9400	2.5186	1047.0	17.0000	28.0000

Group Decision-Making
General Statistics

Correlation Analysis

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 50

	ARGGT	VA	CA	ARGRATIO	VARATIO	TIME
ACCEPT	0.22665	-0.01325	-0.04725	-0.25079	0.30591	-0.10146
	0.1135	0.9273	0.7445	0.0790	0.0307	0.4832
SUPPORT	0.13151	0.06145	-0.20092	-0.00827	0.13981	0.23696
	0.3626	0.6716	0.1618	0.9546	0.3329	0.0975

	ARGRAW	VARAW	AGE	WITH_EMP	OUT_US	REALSHAM
ACCEPT	-0.30194	0.29252	0.10303	-0.19462	-0.13845	-0.03274
	0.0331	0.0393	0.4765	0.1756	0.3376	0.8215
SUPPORT	0.20679	0.13187	0.08081	-0.13737	0.12518	-0.14822
	0.1496	0.3613	0.5769	0.3415	0.3864	0.3043

Analysis of Covariance

Hypotheses 1, 5, and 9
Acceptance of Decision vs. Traits

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

General Linear Models Procedure

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	100.68296	12.58537	1.70	0.1273
Error	41	303.31704	7.39798		
Corrected Total	49	404.00000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.249215	97.14008	2.7199	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGGT	1	20.754064	20.754064	2.81	0.1016
VA	1	0.102971	0.102971	0.01	0.9067
CA	1	5.093859	5.093859	0.69	0.4115
SEX	1	14.657888	14.657888	1.98	0.1668
AGE	1	8.121735	8.121735	1.10	0.3009
OUT_US	1	24.230064	24.230064	3.28	0.0777
WITH_EMP	1	23.959089	23.959089	3.24	0.0793
REALSHAM	1	3.763295	3.763295	0.51	0.4797

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGGT	1	32.259766	32.259766	4.36	0.0430
VA	1	0.281946	0.281946	0.04	0.8462
CA	1	21.308496	21.308496	2.88	0.0972
SEX	1	3.390202	3.390202	0.46	0.5022
AGE	1	46.849912	46.849912	6.33	0.0159
OUT_US	1	39.314444	39.314444	5.31	0.0263
WITH_EMP	1	19.712727	19.712727	2.66	0.1103
REALSHAM	1	3.763295	3.763295	0.51	0.4797

Hypotheses 1, 5, and 9
Acceptance of Decision vs. Traits

General Linear Models Procedure

Level of SEX	N	ACCEPT Mean	ACCEPT SD	ARGGT Mean	ARGGT SD
f	24	3.12500000	3.05475396	0.87500000	10.8199192
m	26	2.50000000	2.71661554	6.30769231	7.1429363

Level of SEX	N	VA Mean	VA SD	CA Mean	CA SD
f	24	38.0000000	7.15055486	57.6666667	18.3247674
m	26	40.5000000	8.76470193	54.6153846	18.0866291

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Hypotheses 1, 5, and 9
Reduced model for ARGgt AGE and OC

General Linear Models Procedure

Number of observations in data set = 50

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	38.569843	12.856614	1.62	0.1980
Error	46	365.430157	7.944134		
Corrected Total	49	404.000000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.095470	100.6619	2.8185	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGGT	1	20.754064	20.754064	2.61	0.1129
AGE	1	2.699318	2.699318	0.34	0.5628
OUT_US	1	15.116461	15.116461	1.90	0.1744

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGGT	1	19.112968	19.112968	2.41	0.1277
AGE	1	9.127296	9.127296	1.15	0.2894
OUT_US	1	15.116461	15.116461	1.90	0.1744

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	1.379384336	0.88	0.3839	1.56891614
ARGGT	0.066694109	1.55	0.1277	0.04299784
AGE	0.043095350	1.07	0.2894	0.04020524
OUT_US	-0.039750629	-1.38	0.1744	0.02881657

Hypotheses 2,6, and 10
Acceptance of Decision vs. Behavior

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

General Linear Models Procedure

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	122.52029	15.31504	2.23	0.0446
Error	41	281.47971	6.86536		
Corrected Total	49	404.00000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.303268	93.57796	2.6202	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRAW	1	36.831135	36.831135	5.36	0.0256
VARAW	1	49.490038	49.490038	7.21	0.0104
TIME	1	5.128375	5.128375	0.75	0.3925
SEX	1	8.311615	8.311615	1.21	0.2776
AGE	1	0.070235	0.070235	0.01	0.9199
OUT_US	1	2.035429	2.035429	0.30	0.5890
WITH_EMP	1	20.367212	20.367212	2.97	0.0925
REALSHAM	1	0.286256	0.286256	0.04	0.8392

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRAW	1	37.914331	37.914331	5.52	0.0237
VARAW	1	20.612053	20.612053	3.00	0.0907
TIME	1	5.182548	5.182548	0.75	0.3900
SEX	1	0.557537	0.557537	0.08	0.7771
AGE	1	7.141670	7.141670	1.04	0.3137
OUT_US	1	5.639558	5.639558	0.82	0.3701
WITH_EMP	1	20.581385	20.581385	3.00	0.0909
REALSHAM	1	0.286256	0.286256	0.04	0.8392

Hypotheses 2,6, and 10
Acceptance of Decision vs. Behavior

General Linear Models Procedure

Level of SEX	N	ACCEPT Mean	ACCEPT SD	ARGRAW Mean	ARGRAW SD
f	24	3.12500000	3.05475396	16.8750000	5.79589435
m	26	2.50000000	2.71661554	17.4230769	7.37114958

Level of SEX	N	VARAW Mean	VARAW SD	TIME Mean	TIME SD
f	24	0.87500000	1.62353613	6.56958333	2.13134267
m	26	0.76923077	1.27460401	8.54961538	3.38587475

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Hypotheses 2, 6, and 10
Reduced Model for ARGB

General Linear Models Procedure

Number of observations in data set = 50

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	36.831135	36.831135	4.81	0.0331
Error	48	367.168865	7.649351		
Corrected Total	49	404.000000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.091166	98.77665	2.7657	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRAW	1	36.831135	36.831135	4.81	0.0331

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRAW	1	36.831135	36.831135	4.81	0.0331

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	5.054002398	4.60	0.0001	1.09915735
ARGRAW	-0.131352121	-2.19	0.0331	0.05986071

Hypotheses 2,6 and 10
Alternate Acceptance of Decision vs. Behavior

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	126.22481	15.77810	2.33	0.0367
Error	41	277.77519	6.77500		
Corrected Total	49	404.00000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.312438	92.96014	2.6029	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRATIO	1	25.410182	25.410182	3.75	0.0597
VARATIO	1	39.403700	39.403700	5.82	0.0204
TIME	1	26.967847	26.967847	3.98	0.0527
SEX	1	6.490109	6.490109	0.96	0.3334
AGE	1	0.111099	0.111099	0.02	0.8987
OUT_US	1	4.641506	4.641506	0.69	0.4126
WITH_EMP	1	23.188442	23.188442	3.42	0.0715
REALSHAM	1	0.011922	0.011922	0.00	0.9667

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRATIO	1	39.369879	39.369879	5.81	0.0205
VARATIO	1	21.736859	21.736859	3.21	0.0806
TIME	1	18.811932	18.811932	2.78	0.1033
SEX	1	0.161826	0.161826	0.02	0.8779
AGE	1	9.257457	9.257457	1.37	0.2492
OUT_US	1	10.151603	10.151603	1.50	0.2279
WITH_EMP	1	22.498145	22.498145	3.32	0.0757
REALSHAM	1	0.011922	0.011922	0.00	0.9667

Hypotheses 2,6 and 10
Alternate Acceptance of Decision vs. Behavior

General Linear Models Procedure

Level of SEX	N	ACCEPT Mean	ACCEPT SD	ARGRATIO Mean	ARGRATIO SD
f	24	3.12500000	3.05475396	2.65611306	0.76724494
m	26	2.50000000	2.71661554	2.11434884	0.63446792

Level of SEX	N	VARATIO Mean	VARATIO SD	TIME Mean	TIME SD
f	24	0.12219920	0.21870839	6.56958333	2.13134267
m	26	0.08218689	0.13856875	8.54961538	3.38587475

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Hypotheses 2, 6, and 10
Alternate Reduced Model for ARGB

General Linear Models Procedure

Number of observations in data set = 50

Dependent Variable: ACCEPT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	25.410182	25.410182	3.22	0.0790
Error	48	378.589818	7.887288		
Corrected Total	49	404.000000			

R-Square	C.V.	Root MSE	ACCEPT Mean
0.062896	100.3011	2.8084	2.8000

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRATIO	1	25.410182	25.410182	3.22	0.0790

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRATIO	1	25.410182	25.410182	3.22	0.0790

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	5.092166438	3.81	0.0004	1.33738139
ARGRATIO	-0.965368354	-1.79	0.0790	0.53783990

Hypotheses 3, 7, and 11
Support of Decision vs. Trait

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

Dependent Variable: SUPPORT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	148.74283	18.59285	1.03	0.4277
Error	41	738.07717	18.00188		
Corrected Total	49	886.82000			

R-Square	C.V.	Root MSE	SUPPORT Mean
0.167726	10.59127	4.2429	40.060

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGGT	1	15.337809	15.337809	0.85	0.3614
VA	1	3.179196	3.179196	0.18	0.6765
CA	1	29.319015	29.319015	1.63	0.2091
SEX	1	30.923406	30.923406	1.72	0.1973
AGE	1	4.566027	4.566027	0.25	0.6172
OUT_US	1	24.020020	24.020020	1.33	0.2547
WITH_EMP	1	5.361206	5.361206	0.30	0.5882
REALSHAM	1	36.036153	36.036153	2.00	0.1647

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGGT	1	1.321915	1.321915	0.07	0.7878
VA	1	3.400239	3.400239	0.19	0.6661
CA	1	39.747993	39.747993	2.21	0.1449
SEX	1	14.347926	14.347926	0.80	0.3772
AGE	1	0.267162	0.267162	0.01	0.9036
OUT_US	1	37.828773	37.828773	2.10	0.1548
WITH_EMP	1	11.616762	11.616762	0.65	0.4264
REALSHAM	1	36.036153	36.036153	2.00	0.1647

Hypotheses 3, 7, and 11
Support of Decision vs. Trait

General Linear Models Procedure

Level of SEX	N	SUPPORT Mean	SUPPORT SD	ARGGT Mean	ARGGT SD
f	24	40.6666667	3.33188374	0.87500000	10.8199192
m	26	39.5000000	4.95782210	6.30769231	7.1429363

Level of SEX	N	VA Mean	VA SD	CA Mean	CA SD
f	24	38.0000000	7.15055486	57.6666667	18.3247674
m	26	40.5000000	8.76470193	54.6153846	18.0866291

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Hypotheses 4, 8, and 12
Support of Decision vs. Behavior

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

Dependent Variable: SUPPORT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	149.28106	18.66013	1.04	0.4246
Error	41	737.53894	17.98875		
Corrected Total	49	886.82000			

R-Square	C.V.	Root MSE	SUPPORT Mean
0.168333	10.58741	4.2413	40.060

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRAW	1	37.921428	37.921428	2.11	0.1541
VARAW	1	8.444656	8.444656	0.47	0.4971
TIME	1	13.094086	13.094086	0.73	0.3985
AGE	1	0.790310	0.790310	0.04	0.8350
SEX	1	43.895460	43.895460	2.44	0.1260
OUT_US	1	24.177880	24.177880	1.34	0.2530
WITH_EMP	1	9.181128	9.181128	0.51	0.4790
REALSHAM	1	11.776109	11.776109	0.65	0.4231

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRAW	1	1.248952	1.248952	0.07	0.7935
VARAW	1	0.589344	0.589344	0.03	0.8573
TIME	1	32.629535	32.629535	1.81	0.1854
AGE	1	0.358060	0.358060	0.02	0.8885
SEX	1	30.467622	30.467622	1.69	0.2004
OUT_US	1	22.330365	22.330365	1.24	0.2717
WITH_EMP	1	12.868373	12.868373	0.72	0.4026
REALSHAM	1	11.776109	11.776109	0.65	0.4231

Hypotheses 4, 8, and 12
Support of Decision vs. Behavior

General Linear Models Procedure

Level of SEX	N	SUPPORT Mean	SUPPORT SD	ARGRAW Mean	ARGRAW SD
f	24	40.6666667	3.33188374	16.8750000	5.79589435
m	26	39.5000000	4.95782210	17.4230769	7.37114958

Level of SEX	N	VARAW Mean	VARAW SD	TIME Mean	TIME SD
f	24	0.87500000	1.62353613	6.56958333	2.13134267
m	26	0.76923077	1.27460401	8.54961538	3.38587475

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Hypotheses 4, 8, and 12
Alternate Support of Decision vs. Behavior

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SEX	2	f m

Number of observations in data set = 50

Dependent Variable: SUPPORT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	148.80039	18.60005	1.03	0.4274
Error	41	738.01961	18.00048		
Corrected Total	49	886.82000			

R-Square	C.V.	Root MSE	SUPPORT Mean
0.167791	10.59086	4.2427	40.060

Source	DF	Type I SS	Mean Square	F Value	Pr > F
ARGRATIO	1	0.060626	0.060626	0.00	0.9540
VARATIO	1	17.396027	17.396027	0.97	0.3313
TIME	1	51.518911	51.518911	2.86	0.0983
SEX	1	35.177638	35.177638	1.95	0.1696
AGE	1	4.084618	4.084618	0.23	0.6363
OUT_US	1	21.439045	21.439045	1.19	0.2815
WITH_EMP	1	9.611469	9.611469	0.53	0.4691
REALSHAM	1	9.512058	9.512058	0.53	0.4714

Source	DF	Type III SS	Mean Square	F Value	Pr > F
ARGRATIO	1	0.180374	0.180374	0.01	0.9208
VARATIO	1	0.914424	0.914424	0.05	0.8228
TIME	1	45.129984	45.129984	2.51	0.1210
SEX	1	26.037145	26.037145	1.45	0.2360
AGE	1	1.033871	1.033871	0.06	0.8118
OUT_US	1	19.426915	19.426915	1.08	0.3050
WITH_EMP	1	13.287669	13.287669	0.74	0.3952
REALSHAM	1	9.512058	9.512058	0.53	0.4714

Hypotheses 4, 8, and 12
Alternate Support of Decision vs. Behavior

General Linear Models Procedure

Level of SEX	N	SUPPORT Mean	SUPPORT SD	ARGRATIO Mean	ARGRATIO SD
f	24	40.6666667	3.33188374	2.65611306	0.76724494
m	26	39.5000000	4.95782210	2.11434884	0.63446792

Level of SEX	N	VARATIO Mean	VARATIO SD	TIME Mean	TIME SD
f	24	0.12219920	0.21870839	6.56958333	2.13134267
m	26	0.08218689	0.13856875	8.54961538	3.38587475

Level of SEX	N	AGE Mean	AGE SD	OUT_US Mean	OUT_US SD
f	24	38.3750000	10.5616719	11.6583333	14.5417515
m	26	42.8846154	10.9848147	17.3461538	15.4969476

Level of SEX	N	WITH_EMP Mean	WITH_EMP SD	REALSHAM Mean	REALSHAM SD
f	24	4.5833333	7.0335634	20.9583333	2.23566286
m	26	11.4230769	10.2924169	20.9230769	2.79890088

Correlation of Trait vs. Behavior

Trait vs. Behavior
ARGgt VA CA vs ARGB VAB ARGBratio VAratio and CAB

Correlation Analysis

8 'VAR' Variables: ARGGT VA CA ARGRAW VARAW
ARGRATIO VARATIO TIME

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
ARGGT	50	3.7000	9.4074	185.0	-18.0000	22.0000
VA	50	39.3000	8.0490	1965.0	25.0000	58.0000
CA	50	56.0800	18.0801	2804.0	28.0000	112.0
ARGRAW	50	17.1600	6.6004	858.0	1.0000	31.0000
VARAW	50	0.8200	1.4384	41.0000	0	7.0000
ARGRATIO	50	2.3744	0.7460	118.7	0.9569	3.9924
VARATIO	50	0.1014	0.1807	5.0696	0	0.9524
TIME	50	7.5992	2.9966	380.0	0.5100	16.1200

Trait vs. Behavior
ARGgt VA CA vs ARGB VAB ARGBratio VAratio and CAB

Correlation Analysis

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 50

	ARGGT	VA	CA	ARGRAW
ARGGT	1.00000 0.0	0.01199 0.9341	-0.57435 0.0001	-0.05804 0.6889
VA	0.01199 0.9341	1.00000 0.0	0.25464 0.0743	0.03096 0.8310
CA	-0.57435 0.0001	0.25464 0.0743	1.00000 0.0	-0.11571 0.4236
ARGRAW	-0.05804 0.6889	0.03096 0.8310	-0.11571 0.4236	1.00000 0.0
VARAW	0.20557 0.1521	0.23391 0.1021	-0.14853 0.3033	0.17291 0.2298
ARGRATIO	-0.31386 0.0264	0.02958 0.8384	0.16766 0.2445	0.33259 0.0183
VARATIO	0.17377 0.2275	0.29485 0.0376	-0.08256 0.5687	0.13655 0.3444
TIME	0.23131 0.1060	-0.06371 0.6603	-0.27878 0.0499	0.68795 0.0001

Trait vs. Behavior
ARGgt VA CA vs. ARGB VAB ARGBratio VAratio and CAB

Correlation Analysis

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 50

	VARAW	ARGRATIO	VARATIO	TIME
ARGGT	0.20557 0.1521	-0.31386 0.0264	0.17377 0.2275	0.23131 0.1060
VA	0.23391 0.1021	0.02958 0.8384	0.29485 0.0376	-0.06371 0.6603
CA	-0.14853 0.3033	0.16766 0.2445	-0.08256 0.5687	-0.27878 0.0499
ARGRAW	0.17291 0.2298	0.33259 0.0183	0.13655 0.3444	0.68795 0.0001
VARAW	1.00000 0.0	-0.04517 0.7555	0.97804 0.0001	0.18897 0.1887
ARGRATIO	-0.04517 0.7555	1.00000 0.0	0.02509 0.8627	-0.40331 0.0037
VARATIO	0.97804 0.0001	0.02509 0.8627	1.00000 0.0	0.09327 0.5194
TIME	0.18897 0.1887	-0.40331 0.0037	0.09327 0.5194	1.00000 0.0