REINFORCEMENT PROCESSES AND THE GROUP-INDUCED SHIFT: THE EFFECTS OF NONVERBAL BEHAVIOR WITHIN A GROUP DISCUSSION

by

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Abstract

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The purposes of the research presently being reported are to compare three models of the group-induced shift and to study the effects of nonverbal behavior within a group discussion. The three theories being tested emphasize interpersonal comparison processes, informational influence, and reinforcement effects as the primary mechanisms causing shifts in judgment following group discussions. The experimental design of this research is a 3 x 2 x 2 x 3 factorial. The between-subject variables are nonverbal behavior (3 levels), situational ambiguity (2 levels), and discussion orientation (2 levels). Item type (2 levels) is a within-subject variable.

Each discussion group contained two confederates of the experimenter and a naive subject. The actors were trained to emit specific nonverbal behaviors that induced positive affect, negative affect or were affectively neutral.

These behaviors were emitted contingent upon statements by any group member that corresponded with the dominant verbal response class for that item. Discussion orientation was manipulated so that group members argued in favor of or contrary to their prediscussion, individual decisions. Situational ambiguity was varied so that the subjects were aware or unaware of whether or not group members argued for or against their prediscussion, individual choices. Each group discussed six choice dilemma-like items--two each of risk, caution and neutral items. The verbal behavior of the experimenter's confederates was controlled so that standardized sets of arguments were presented to subjects.

Independent evaluations of the experimental manipulations were made. Responses to the Interpersonal Judgment Scale indicated that the nonverbal behavior of the confederates was successful in inducing the appropriate affect experienced by the subjects and the perceived attractiveness of the confederates in the anticipated directions. Responses to the situational ambiguity questionnaire indicated that in ambiguous-favorable discussions, subjects were able to guess accurately the orientation of the discussion in which they participated on four of the six items discussed. However, for these same items, subjects in ambiguous-contrary discussions were unable to guess accurately on any item. Responses to the choice-dilemma items were analyzed with an ANCOVA. Significant within-subject effects were found for item type and the following interactions--situational ambiguity x item

type, discussion orientation x item type, and nonverbal behavior x discussion orientation x item type. Shifts in judgment were obtained only on risk items. The results support a "persuasive arguments" interpretation of the group-induced shift. Explanations for the absence of reinforcement effects emphasize the lack of precision and specificity of gross nonverbal behaviors which hindered their reinforcement-effectiveness. Lastly, the relationship of reinforcement processes to group polarization is discussed.

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CHAPTER I

INTRODUCTION

It is the popular conception that a group demands adherence by its members to its values and decisions. In formal organizations, acceptance of the implicit values of "getting the job done,""being logical and rational," and "optimal efficiency via direction, control and coercion," most probably induces the development and perpetuation of a group which smothers attempts at innovation, squelches creativity in its members, and inhibits risk taking (Argyris, 1968). "Don't make waves" is a succinct directive indicating the traditional road to success in an organization. Indubitably, social psychological research has substantiated this popularized belief.

As early as 1920, Floyd Allport showed that the presence of others induces individuals to make more conservative judgments. More recently, it has been demonstrated that communication to the deviant in artificial laboratory groups is excessive in the early stages of a group discussion and tapers off as he adopts the group's position. However, if the deviant remains adamant and does not conform as the discussion progresses, then communication to him decreases also. Presumably in the latter situation, redefinition of the

group's boundaries by its members supporting the majority decision occurs, rejecting the deviant. This ostracism is characteristic of groups high in cohesiveness that do not require a unanimous consensus. The majority can also show rejection by relegating the deviant to a peripheral role when making task assignments to the membership (see Jones & Gerard, 1967; chap. 10). With this history, there is little wonder at the surprise shown toward and attention given to Stoner's initial research "demonstrating that groups after discussion to consensus make riskier decisions than individuals" (see Cartwright, 1971) and the almost total neglect of other research done at the same time (Atthowe, 1961; Lonergan & McClintock, 1961) that obtained the uncontroversial results indicating that groups are no different from individuals, or in fact are more conservative in risk taking.

"Risky shift" as Stoner's and subsequent similar research has been called is a misnomer. Although most work exploring this phenomenon has involved the Choice Dilemma Questionnaire (CDQ) (see Kogan & Wallach, 1964) under the assumption that a general risk taking tendency was being assessed, analysis of subjects' responses to individual items indicated that group discussion can lead to a shift toward caution also. New items have been written which characteristically elicit this "cautious shift" (Stoner, 1968). In addition, it must be acknowledged that group members are making hypothetical judgments concerning risk and "it is not clear that subjects interpret the meaning of the choices

available on any CDQ-like item as related to risk" (Cartwright, 1971; p. 369). Furthermore, shifts in judgment toward a more extreme position have been demonstrated following group discussions of category widths (Vidmar, 1973), racial and dominant attitudes (Myers & Bishop, 1970; 1971), attitudes toward Americans and Charles deGaulle (Moscovici & Zavalloni, 1969), altruism (Schroeder, 1973), predicted judgments of ethical risk taking (Rettig, 1966), bets to be attempted in a gambling situation (Pruitt & Teger, 1969), difficulty of C.E.E.B. test items to be attempted (Wallach, Kogan & Bem, 1964) and anticipated aversive consequences following the testing of toxic substances (Bem, Wallach & Kogan, 1965). A more appropriate name, as Pruitt (1971a) suggests, for this obviously more general phenomenon is "group-induced shift." This term will be adopted in this report and will be used henceforth, when referring to the "risky shift."

The purposes of this project are to elucidate the types of reinforcers operating within this small group situation which influence the individual decision making process and to present a behavior theory of the group-induced shift that focuses upon mediational learning.

Review of Research on the Group-Induced Shift

Most research concerning the group-induced shift (G.I.S.) has utilized the same task, the Choice Dilemma Questionnaire or other CDQ-like items, and a within-subject

design. Sample items are presented in Appendix I. Usually the riskier alternative is more attractive than the more cautious one.

Generally after making private individual decisions (I_1), subjects are formed into small groups to discuss each item. They may or may not be instructed to come to a group consensus (GC). In either case, they are instructed to make post-discussion individual decisions (I_2). The usual finding is that the group consensus, if it occurs, and the post-discussion decisions are equivalent to each other, and both of these are more extreme than the pre-discussion individual decisions. The direction of the shift in judgment, whether toward advising greater risk or caution is contingent upon the item content.

Stoner in his seminal research with the CDQ had business administration graduate students make private individual decisions and then discuss each item to consensus. Afterward each subject made private decisions for each item again. His results showed that the GC and I_2 decisions were reliably "riskier" than the I_1 decisions. Similar results have been obtained with male and female, undergraduate, same-sex groups demonstrating that Stoner's findings were not caused by professional role stereotyping ("businessmen are expected to be risky") or sex role stereotyping ("boldness is a facet of masculinity") that may have been enhanced in the small group (Wallach, Kogan & Bem, 1962).

What then are the significant processes of the group interaction that underlie this shift in judgment? For one, it appears that the group consensus is not essential for the emergence of the shift (Kogan & Wallach, 1967a; Rettig & Turoff, 1967; Wallach & Kogan, 1965). The shift occurs when groups discuss each item to consensus or when private choices are required after discussion without an intervening unanimous group decision.

When the group discussion occurs, it must be relevant to the items about which the members are going to make a subsequent decision. Discussion of irrelevant topics does not induce a shift in judgment (Alker & Kogan, 1967; Pruitt & Teger, 1967; 1969; Lamm et al., 1970). This eliminates the possibility that a generalized, nonspecific social interaction process, by itself, would cause a polarization of group members' choices.

In the repeat-measures design that is typically used, the group discussion is the second exposure that the subjects have had to these items. A "familiarization" hypothesis argues that the group-induced shift is a pseudo-group effect. The group discussion is only the setting in which individuals gain greater comprehension of the CDQ items. A full-sized shift had been obtained when individuals privately listed the pertinent information concerning the alternative choices for each item (Bateson, 1966; Flanders & Thistlethwaite, 1967). However, six independent laboratories have attempted to reproduce these results, and more than this many

replications have failed (see Cartwright, 1971, p. 364; Pruitt, 1971a, p. 342).

Several authors report that exchanging information with other group members about one's initial decisions without any discussion induces a shift, whereas other authors indicate no shift obtained via information exchange. However, "there has been considerable variation in the wording of instructions, the items used, and the ways in which the information about the choices of others is presented," (see Cartwright, 1971, p. 364). When information exchange has led to a shift, it has been only a partial one at best.

The relevant group discussion provides two types of information to the membership. It is a source of knowledge pertaining to others' initial choices, and secondly, it yields information of those arguments that others in the group have weighed in making their initial decisions, but of which the individual may have been ignorant or considered unimportant. Because information exchange, when effective, can produce only a partial shift, some process operating while the group members discuss "relevant arguments" seems to be critical.

St. Jean (1970) had groups discuss CDQ items in which members were restricted to presenting only the arguments that they considered in making their pre-discussion private decisions and were instructed to not mention their actual initial decisions. A full magnitude shift did

obtain. Unfortunately, this is not a very cogent demonstration because ". . . subjects may infer the risk preferences of others from the discussion and base their posttreatment choices on these inferences. It does appear, though, that an explicit statement of initial choices is not required for a shift to occur" (Cartwright, 1971, p. 364).

In an ambiguous situation in which an individual does not know if other group members are arguing for the position they have advocated initially or its opposite, knowledge of others' choices, presumably, is not available. Here we would be capable of differentiating the influence of others' initial judgments from the influence of persuasive arguments. (Burnstein refers to "relevant arguments" as "persuasive arguments"). Burnstein and his colleagues (Burnstein & Vinokur, 1973; Burnstein, Vinokur & Trope, 1973) have reported that in an ambiguous or an unambiguous situation when subjects argue <u>against</u> their preferred position, the shift does not occur, but when they argue <u>for</u> their initial choices, the shift does obtain. Burnstein proposes that the shift results from the persuasive arguments inherent in each situation being raised during the discussion. When these arguments are not verbalized, other group members do not accept the position normally associated with them.

Furthermore, several authors have indicated that the verbal content of the discussion is biased toward the direction that the shift will take. On items that shift

toward risk, "risk" arguments outnumber "cautious" ones by twelve to one and on those items that shift in the opposite direction, "cautious" arguments are five times more frequent (Silverthorne, 1971). Similar results have been obtained by Nordhoy(discussed in Brown, 1965) and Myers & Bishop (1971).

Most research on the group-induced shift has focused upon the verbal communication process. Only one author (Pruitt, 1971a) considers the possible significance of nonverbal communication. However, in his recent book, Scheflen (1972) indicates that communication between individuals occurs not only on a verbal level, but also on vocal, kinesic and proxemic levels. In all likelihood, the nonverbal messages may surpass the verbal ones in salience (Hall, 1959). More specifically, facial cues are more effective in communicating affect than verbal or vocal ones (Zaidel & Mehrabian, 1969) and when inconsistent verbal and vocal messages (i.e. - voice intonation) are presented, the vocal is dominant (Mehrabian, 1970).

Several studies have been reported that are relevant to nonverbal modes of communication, but generally the authors of these have been more concerned with demonstrating the efficacy of some theory or some group process other than nonverbal communication. When subjects are allowed to listen to a tape recording of a group discussion about CDQ items (Kogan & Wallach, 1967b; Bell & Jamieson, 1970) or of predicted ethical risk taking (Rettig & Turoff, 1967), or are permitted to read a transcript of a CDQ-item-discussion

(St. Jean, 1970), an attenuated shift results. Furthermore, individuals that listen to an ongoing discussion evince a partial shift, whereas those that observe a discussion without participating in it show the full-sized effect (Lamm, 1967). Lastly, subjects who are involved in a discussion, but who communicate via an intercom system with no visual contact possible demonstrate a shift (Kogan & Wallach, 1967b). In this last study, it is concluded that face-to-face interaction is not necessary to cause a shift. However, a control group participating in face-to-face interaction was not included, preventing evaluation of the impact of visual communication within the group. This data is only suggestive concerning the influence of the nonverbal media. However, it would seem, as Scheflen and Hall suggest, that other channels of communication besides the verbal may be important during the group discussion.

Similarly, researchers have ignored the significance of reinforcement processes operating during the group interaction. Several authors (Cartwright, 1971; Pruitt, 1971a, Rettig, 1972; Schulman, 1973) mention this possibility. Certainly, the bias in the verbal content of the discussion suggests, amongst other things, that members may be reinforcing each other during the discussion for statements that adhere to the more attractive alternative. The often demonstrated positive correlation between mean initial choices and magnitude of shift also would suggest this possibility.

Certainly there is support for this alternative from other areas of research. Oakes and his colleagues, in a series of studies, have demonstrated the efficacy of social reinforcement during a group discussion for modifying such behaviors as amount of talking time (Oakes, Droge & August, 1960) decisions reached (Oakes, Droge & August, 1961) and proportion of content falling into Bales categories of interaction (Oakes, 1962). In addition, kinesic, vocal and verbal reinforcers have been efficacious in modifying verbal behavior and attitudes within a small group (see Krasner, 1958). Therefore, it is suggested here that group members may be reinforcing each other for verbal responses that adhere to certain values which the individuals have brought to the group. If this is the case, it would account for the bias in discussion content, and ultimately, for the decisions that the members reach.

To conclude, the group-induced shift occurs when individuals participate in a group discussion that is relevant to the subsequent judgments that will be made. Some mechanism other than the general process of social interaction, familiarization, or information exchange about initial preferences is operating during this situation and is responsible for the shift. However, restricting individuals to the verbal mode of communication attenuates the shift. It appears that the verbal medium is sufficient for the effect to occur, but that communicating via other channels is essential for a full magnitude shift. Lastly, it

is suggested that reinforcement processes are operating during the group discussion.

Current Theories of the Group-Induced Shift

Currently there are two viable theories which attempt to account for the group-induced shift, value theory, and the diverse mechanisms associated with it, and persuasive arguments theory. Value thoery, as originally proposed by Brown (1965) and later modified, suggested that there are cultural values of "risk" and "caution," i.e. - in certain situations moderate levels of risk or caution are admired. Furthermore, Brown assumed that individuals believe that they adhere to these values more than their peers do. Therefore, the main function of the group discussion is to provide information to each individual concerning the other group members' preferred risk levels. The individual, upon learning that he is not adhering to the cultural value as closely as he believed, can change his decision so as to adhere more closely to the more attractive alternative. Generally, value theorists have advocated a two-process theory, because of the discrepancy in shift magnitude resulting from group discussion as opposed to some form of information exchange.

There seems to be some dispute with Brown as to the nature of the values that each item elicits. Stoner (1968) argues that each situation represented in a CDQ item elicits a set of multiple values, other than risk and caution, which

are accentuated during the group discussion. Another approach is that each item is associated with a value for risk or caution in addition to item-specific values, but that there is a general tendency to favor risky alternatives (Fraser, 1971). Lastly, Pruitt (1971b) favors the view that values are not cultural or social, but are personal ones (ego ideals). The primary distinction between Pruitt's conception and the former three is that in his framework adherence to a personal value would be self-reinforcing, whereas in the structures of Brown, Stoner, and Fraser reinforcement for adherence to a value would originate socially.

Each value theory assumes that an individual is initially attracted toward advocating one course of action (risky or cautious) to the hypothetical protagonist of each CDQ item. Certainly, there is sufficient data to corroborate that on "risky" items individuals believe they are riskier than their peers and that they "admire most" decisions riskier than their own. For items that typically shift toward caution, individuals generally believe themselves more cautious than their peers and admire decisions more cautious than their own (see Cartwright, 1971; Pruitt, 1971a, b).

Brown, Fraser, and Stoner, in presenting their conception of the kind of values involved, assume that the process causing the shift is social comparison. However, interpersonal comparison processes can account only for the partial shift that occurs following the exchange of

information about initial preferences, and cannot explain that part of the shift resulting from group discussion (Pruitt, 1971a). Of course, Pruitt is critical of and rejects the finding of those reports that did not demonstrate a partial shift following information exchange (see Pruitt, 1971a, p. 343, footnote).

Two alternative mechanisms have been proposed to explain not only the shift following a choice-dilemma-discussion, but also the more generalized phenomenon. These are pluralistic-ignorance theory and release theory. They will be discussed briefly. Relevant arguments theory (St. Jean, 1970), although originally presented as a modification of Brown's value thoery, will be considered as part of persuasive arguments theory because of the more elaborate and detailed nature of this latter alternative.

Pluralistic-ignorance theory, proposed by Levinger & Schneider (1969), is a "conflict-compromise" model. The individual when placed in a choice situation is in conflict between making his "ideal" choice and choosing an "assumed and more realistic group standard." He compromises by choosing an alternative that is intermediate between these two endpoints. The group discussion provides the individual with the knowledge that there is more social support for his "ideal" choice than he had expected, thus allowing him to shift further toward his "most admired" choice.

Release theory (Pruitt, 1971a) also assumes a "conflict-compromise" model. Presumably, there are forces

acting upon the individual that make advocating greater risk attractive, but simultaneously certain social constraints favoring moderation influence the individual. The result is that he conforms to a more cautious social standard. During the group discussion, "the discovery of a single group member (the model) who endorses high risk-taking releases the more cautious group members from the assumed social constraints that are holding them back from risk taking" (p. 351). Both pluralistic-ignorance and release theory suffer from the same restriction as interpersonal comparison theories. They cannot explain the stronger shift that arises following a group discussion.

Although each of these theorists proposes a mechanism slightly different from the others, all of them require that the individual within the group gains some knowledge of the initial decisions of others either directly or inferentially. This is essential whether the mechanism is social comparison, pluralistic-ignorance or release. None of these explanations can account for the shift that occurs when individuals argue for their preferred choices in an ambiguous situation where each individual does not know if others are arguing for or against their own preferences nor can they explain why an attenuated shift should occur when communication is restricted to the verbal mode. Lastly, they cannot account for the absence of the shift when inferences about others' initial preferences are available even though group members argue for the opposing alternative.

The alternative theory, persuasive arguments theory, proposed by Burnstein and his colleagues (Vinokur & Burnstein, 1974), is a combination of Burnstein's leader-confidence hypothesis (1969) and relevant arguments theory (St. Jean, 1970). The tack taken by these authors is a group problem solving approach, i.e.--subjects within each group view each CDQ item as a problem to be solved. Associated with each item are a series of persuasive arguments. When these are espoused by any group member, they are readily accepted by the others. Hence, a shift in judgment subsequent to discussion would be observed. The degree of persuasibility of any argument is based on two factors, the inherent cogency of the argument and the confidence displayed by the person espousing the argument during the discussion. An individual who is aware of most of the critical arguments pertaining to a given item should shift only slightly, if at all. His judgment should be extreme with respect to the other group members and should favor the more attractive alternative. This theory would propose that the shift resulting from discussion in an ambiguous setting or the lack of one when discussion occurs in an unambiguous setting is caused by the presence or absence of persuasive arguments, respectively.

There is support for the "cogency" factor advocated here. If a persuasive argument is inherently cogent, and therefore influential, presenting these arguments to an individual who is not involved in a discussion should induce

a shift, and in fact, a partial shift has been obtained (St. Jean, 1970). This argument would account also for the attenuated shift observed when communication (either one-way or two-way) is restricted to the verbal channel only.

However, several flaws exist with this interpretation also. It would be expected that the individual possessing greater knowledge of these very cogent arguments not only should be riskier than the other group members initially (on those items that shift toward risk), but also should act more confidently because of this greater awareness (Burnstein & Vinokur, 1973; Vinokur & Burnstein, 1974). Therefore, a positive correlation between a group member's confidence and his initial risk levels should exist. Support for this thesis is tenuous. No relationship between confidence in one's initial decisions and initial risk level has been demonstrated (Bell & Jamieson, 1970; Teger & Pruitt, 1967). Alternatively, when working on a reaction time task, individuals who are more committed to their choices are perceived as more influential during the discussion period (Burnstein & Katz, 1971). A shift toward risk occurred more frequently when the high risk taker was highly committed and a shift toward caution was more likely when the low risk taker was highly committed. However, their measure of commitment is based on two questions to which subjects responded using a six-point scale ("likelihood of changing your decision" and "confidence that it is a good one") and on the time taken to reach an individual decision. The validity of these two

questions as a measure of commitment, confidence or adherence to one's decisions is questionable because it is not clear that a subject's verbal reports of self-confidence and adherence to his decisions actually indicate that he will act more confidently within a group context.

The conclusions drawn from their measure of commitment are doubtful also. For one, there are no significant differences between high, intermediate and low risk-takers with respect to their confidence ratings, and secondly, high risk-takers reported a low likelihood of changing their decision only when their individual decisions preceded the group decisions. When individual decisions followed the group decisions, then high risk-takers reported a greater likelihood of changing their decisions. This would not be consonant with the hypothesis that the more committed individual is more influential in the group, and in turn, is less influenced by the other group members.

Lastly, their measure of influence is of perceived influence only and is open to two interpretations. These are that more confident individuals are actually more influential during the discussion, and the alternative is that the process of making a decision leads group members to perceive that individual whose initial decision was closest to the group decision as more persuasive (see Pruitt, 1971a). This same criticism has been raised for similar results obtained using CDQ items (Wallach, Kogan & Burt, 1968).

One final criticism of persuasive arguments theory still remains. On those neutral items that typically do not elicit a shift toward risk or caution, persuasive arguments theory would predict that there exist an equal number of cogent arguments for shifting in both directions (or very few exist for either alternative) and/or no speaker displays any confidence while espousing any of these arguments. However, when arguing for one's own choice in an ambiguous setting, the neutral item under discussion elicited a shift toward caution and when arguing against one's own position in the same ambiguous setting, the identical item elicited a shift toward risk. Persuasive arguments theory cannot account for these shifts and, matter of fact, it is suggested that these neutral item-shifts are errant and discrepant results that have no bearing on either persuasive arguments or value theories (Burnstein & Vinokur, 1973, p. 131). It is proposed here that these neutral item-shifts are not cursory, insignificant data that should be discarded. They indicate the impact of other processes operative during the group discussion, i.e.--associative learning mechanisms.

A Learning Model of the Group-Induced Shift

The following is a discussion of mediational learning theory and its application to the group-induced shift. In relating this theory to the shift effect, emphasis is placed upon the associative mechanism involved and, particularly, upon the conditioning of affect. In this regard, similar

propositions have been offered by Aronfreed (1968), Byrne & Griffith (1973), Estes (1969) and Lott & Lott (1972). However, it must be noted that the mediational mechanism proposed by Oakes (1973) and that offered by the latter group of theorists differ although this does not significantly influence the application to the group shift. Major advantages of this approach are that it can easily accommodate verbal and nonverbal channels of communication and account for the more generalized phenomenon.

For the purpose of this exposition, a positive reinforcer is defined as a stimulus that has been associated with positive affect (A+) and a punishing stimulus is a cue that has negative affect (A-) associated with it.

Basically, stimuli that affect an organism can be of three types, internal, external and response-produced feedback. Furthermore, " stimulus that impinges upon an organism's sense receptor initiates a distinctive sensory process that can be reinstated on a later occasion" (Oakes, 1973, p. 5). This representative sensory process (RSP), e.g.--an image, is a sensory event and can act as a substitute for the actual stimulus by reinstatement during the associational process.

Images are conditioned to each other by contiguity. "When the organism attends to a stimulus contiguously with the arousal of an RSP, there will be an increment in the tendency for that RSP to be aroused upon recurrence of that stimulus or its RSP" (p. 7). Similarly, affect can be

conditioned to the RSP of a stimulus. The association of positive or negative affect with the presentation of some stimulus or its RSP will increase the probability that on a future occasion when that stimulus or its RSP recurs it will arouse the affect that has been associated with it previously. However, the affective quality associated with a stimulus is relative to the individual's adaptation level at the given moment that the stimulus or its RSP occurs. The adaptation level functions as a reference level with which the individual can evaluate the affective quality of some cue.

It is assumed, of course, that an individual responds so as to maximize the positive affect experienced in any given situation and to minimize the experienced negative affect. In addition, if the RSP of the feedback stimuli associated with some response is associated with positive affect, then there will be an increasing probability of that response occurring. If this same RSP had been associated with negative affect, then the tendency of that response occurring would be inhibited (see Oakes, 1973, pp. 16-17).

There are several facets to the application of a behavior theory to the group-induced shift. First, values are an important feature of this theory. The values that an individual holds, and he may or may not be aware of their nature, act as discriminative stimuli signalling those responses emitted by the individual or others in the group

that would be positively reinforced or those that would be censured.

An individual's values are viewed as generalizations indicating those types of behaviors that in the past have been associated with positive affect. This association develops not only in the individual's natural social environment, but also during the group discussion occurring in the artificial laboratory environment where group members argue predominantly about the subjective values of the various alternatives rather than about minimum probability of success (Burnstein et al., 1971). For example, in item #1 of the CDQ, an electrical engineer must choose between a safe, secure job with low pay or a potentially high paying one with a company having an uncertain future. This item consistently shifts toward risk. This would occur because given this type of a situation risky responses have been positively reinforced in the past. These risky responses can be verbal or nonverbal and it is not essential that the individual has engaged in these behaviors himself. He can observe the rewards that a risky individual receives from his social environment. This latter mechanism would be an adequate means of associating positive affect with the RSP's of risky behaviors. Furthermore, values in this framework are viewed as multiple and item specific, i.e.--there are numerous values associated with each situation represented in a CDQ item and these are also specific to that situation and item. The degree of overlap of values when comparing

different items is dependent upon the similarity of the situations represented in the items under comparison. In addition, values are sociopersonal, i.e.--they signal when it is appropriate to positively reinforce the behaviors of another in one's social environment and when one would provide self-reinforcement for his own behavior.

Secondly, during a social interaction the essential process maintaining the behavior of the discussants and ultimately responsible for the decisions reached is an affective-associational mechanism, i.e.--a process during which affect-producing behaviors occur contiguously with the emission by a speaker of verbal responses that fall within a specified response class. More specifically, as a CDQ item, or any other material, is discussed, those arguments that adhere to the values elicited by the specific item are associated with the positive affect that had been conditioned previously to the RSP's of specific behaviors presently emitted by other group members or the individual himself on the average. In this case, it may be possible to observe other group members emitting, for example, such positive affect-producing nonverbal cues as positive head nods and forward body lean when an individual made a statement favoring the valued course of action. Other arguments not adhering to these values become associated on the average with negative affect which had previously been associated with the RSP's of certain behaviors presently being emitted in the group, or with no affect as others are not responsive

or emit neutral behaviors. In these latter cases, it might be possible to observe others in the group shaking their heads and frowning--examples of negative affect-producing cues--as someone in the group made a statement favoring the devalued alternative. In the neutral situation, it may be possible to observe group members ignoring the speaker, relinguishing eye contact with him or in other ways being non-reinforcing as he verbally advocates the devalued choice. Therefore, by contiguity, the RSP's of the various alternatives available to the hypothetical protagonist within the specific CDQ item are being associated with either positive, negative, or no affect. When the item is reconsidered at a later time for the purpose of making a decision, the affect previously associated with each alternative is aroused and will influence the choice-decisional response emitted. Generally, if some positive affect had been associated with the majority of risk (cautious) verbal responses, then the decision will be riskier (more cautious) than the initial one. If negative affect had been associated with the majority of risk (cautious) verbal responses raised during the group discussion, then a risky (more cautious) decision will be inhibited. On those neutral items that do not consistently elicit a shift toward risk or caution, it would be expected that affect-producing cues have not been associated systematically with either of the two response classes. If the discussion is to culminate in a group consensus, then by

a similar process the group members will have been attracted toward the alternative associated with positive affect and will avoid advocating the course of action associated with negative affect or no affect at all.

This associative mechanism has no difficulty in explaining the observations which are critical for value or persuasive arguments theory or which these latter theories cannot adequately explain. In a situation that is ambiguous or unambiguous, a shift in the anticipated direction will occur if arguments adhering to the discriminative stimuli (values) are available during the discussion. In this case, these verbal behaviors will become associated with positive affective cues emitted during the discussion. However, when the group membership argues for the less desirable alternative, most of the arguments presented will not adhere to the item-specific values, and therefore, they will not be associated systematically with positive-affect-producing behaviors. It would be expected that the typical shift would be absent in this situation.

More important are the shifts on neutral items that persuasive arguments theory cannot explain. On these items, a consistent set of values have not been developed. Interpersonally, a coherent, stable set of discriminative stimuli does not exist for these situations. It may be possible that intra-individual variation also exists over time. It would be expected, therefore, that when these neutral or inconsistent items are discussed in one situation a shift toward

risk is obtained. However, discussion by different individuals or in a different discussion situation results in a shift in the opposite direction. Here also, the shift mechanism is the contiguous association of verbal responses with positive-affective cues. Individual differences are determined by a person's prior reinforcement history.

Lastly, in light of the importance attributed to nonverbal communication by some social scientists, it would not be implausible to consider nonverbal-affect-producing cues as critical during any social interaction and especially in these types of group discussions. The absence of these stimuli during a visually restricted communicational situation would result in an attenuated shift. Here, mediational learning theory would attribute the partial shift to the influence of verbal and vocal affect-producing cues only. Certainly, it has been demonstrated often enough that vocal cues such as "mmm-hmm" and statements in agreement with a speaker, repeating the speaker's opinion and words such as "good" or "I agree" have functioned effectively as vocal and verbal reinforcers, i.e.--positive affect-producing stimuli, respectively (see Krasner, 1958). In the restricted one-way communication situation (Bell & Jamieson, 1970; Kogan & Wallach, 1967a; Rettig & Turoff, 1967; St. Jean, 1970), we would expect that arguments that adhere to the values of the listener or reader would reinforce his adherence to these values, associating them with more positive affect and creating a greater attraction towards those values. It has

been shown that statements agreeing or disagreeing with one's attitudes can function as positive and negative reinforcers, respectively (Golightly & Byrne, 1971).

This affective-behavior theory is viewed as augmenting locus of control theory (Rettig, 1969). This latter proposition suggests that an individual transfers control of his outcomes to the group upon entering it with the assumption that in this way he can increase the favorable outcomes that he experiences. If it is assumed that favorable outcomes are correlated with an individual's experience of positive affect within the group and that unfavorable outcomes are ones associated with his experience of negative affect, then it is expected that control over outcomes would be transferred by the individual in the group in which other members are emitting predominantly positive affect-producing behaviors and locus of control would be retaken by the individual in a group whose members are behaving in a negatively affective style. The application of mediational learning theory to this group phenomenon provides locus of control theory with an explicit mechanism for the production of favorable and unfavorable outcomes.

However, affective-behavior theory is not another version of Wallach & Kogan's (1965) affective-bonds version of diffusion of responsibility theory. For one, diffusion of responsibility cannot account for those situations in which a shift toward advocating greater caution has occurred nor can this theory effectively be generalized to choice shifts

pertaining to other types of tasks (see Pruitt, 1971a). Second, diffusion of responsibility theory provided no explicit mechanism for the development of affective bonds. They were presumed to develop because of the social interaction and there was no distinction made between positive and negative affective experiences. Third, group members are involved in advocating a course of action to a hypothetical protagonist. They are not taking any actual risks themselves, and therefore, it does not seem that decisional-responsibility is applicable to this situation (Lamm, 1967). The counterargument of the affective-bonds theorists that ". . . subjects get so deeply involved in role playing that the outcomes are real to them" is not very compelling (Pruitt, 1971a, p. 341). Lastly, this hypothesis predicts that the emotional ties between the membership would allow individuals to diffuse greater responsibility to the group. However, suggestive evidence exists that a greater shift occurs in groups of low cohesiveness (Dion, Miller & Magnan, 1971). Although issue can be taken with the methodology of that study, the conclusion that greater affective bonds induces a heightened assumption of responsibility for the decision does seem plausible.

Affective-Behavioral Mechanisms during a Group Discussion

The association of affect with the RSP's of a verbal cue can occur in several ways. Before elaborating these mechanisms, however, it is essential to clarify the

various alternative sources of affective arousal and the different perspectives available for consideration of a verbal cue. The RSP's of a verbal behavior can originate from external or response-produced stimulation. From the vantage point of the speaker, a verbal statement is a response by that person, in which case, the RSP's aroused in him are those of feedback stimuli from the speaker's own effector processes. From the position of other group members as listeners, this same verbal cue is an auditory stimulus, and in this case, the RSP's which are aroused in each listener are those aroused by external stimuli impinging on one's auditory sense receptors. In similar fashion, it is possible to view the arousal of affect as the product of one's own responses (e.g.--a person can experience anxiety, or negative affect, as he evaluates his own "foolish" verbal message or "inappropriate" nonverbal action that he has initiated in an interpersonal situation or which violates some social norm). Secondly, affective arousal can result from stimulation originating in one's external environment (e.g.--someone present in an individual's social environment may indicate their approval or disapproval of some action causing the initiator of that act to experience positive or negative affect, respectively).

Now, to return to the actual mechanisms for associating affect with the RSP's of verbal stimuli. For one, as an individual is speaking in a group situation, the feedback stimuli from his own verbal responses can be associated with

the affect aroused by the behavior of other group members or his own nonverbal behaviors. For example, when an individual makes a pro-risk statement (for an item that typically shifts toward risk), the RSP's of the feedback stimuli may be aroused. Contiguous with this verbal response and the arousal of its associated RSP's, may be the emission of certain positive affect-producing cues by other group members (e.g.--leaning toward the speaker, positive head nods, murmurs of agreement). The positive affect aroused in the speaker by these behaviors contiguously with the arousal of the RSP's of the feedback stimuli from his own speech will lead to the association of the positive affect with the images of the pro-risk statement. Secondly, as an individual is listening to another group member, the RSP's of the affective behaviors emitted by the speaker can be associated with the RSP's aroused by the external auditory stimuli impinging upon the individual's receptors. For example, as a person makes a statement favoring the cautious alternative (on an item that usually shifts toward cautious), he may be emitting simultaneously nonverbal positive affect-producing cues such as forward body lean or frequent smiling. Within a listener in the group, the RSP's of the pro-caution statement will be aroused over the auditory channel of communication simultaneously with the affect evoked over the visual channel by the nonverbal affective behaviors of the speaker. Because of the contiguous arousal of the auditory RSP's and the positive affect, it would be expected that the affect will become

associated with the image of the pro-caution statement. Thirdly, as an individual is listening to a speaker, affect-producing behaviors emitted by himself or others in the group in response to the verbal communicator's message can be associated with the RSP's aroused by the external auditory stimuli impinging upon the individual's sensory equipment. For example, a speaker may make a statement favoring the cautious alternative on an item that characteristically shifts toward risk. In response to this support for the de-valued alternative, an individual may observe other group members emitting such negative affect-producing behaviors such as backward body lean, frowning, or negative head nods. In this case, the RSP's of the pro-caution statement will be aroused contiguously with the negative affect evoked by the nonverbal behaviors of other listeners in the group, there-fore, the association of the two would be expected. In addition, it is the common stimulus characteristics of mem-bers of the verbal response class (i.e.--pro-risk, pro-caution or neutral) that have the positive or negative affect conditioned to them and so arouse it on subsequent occasions. Lastly, it must be emphasized that any group member can act as the source of these affective cues, not only the high risk-taker (on risk items) or the low risk-taker (on caution items). These mechanisms encompass the leader-confidence factor of persuasive arguments theory.

This discussion emphasizes interpersonal origins of affect-producing cues. However, other sources of affective

stimulation are available--although these may not seem very relevant to the small group setting. For example, primary affective stimuli, such as food, electric shock, or loud noises could be effective in manipulating the conditioning of affect. Also, social reinforcers, e.g.--lights or buzzers, when defined appropriately could be efficacious. Flashing of a signal light when it indicates to a subject that his statement shows "psychological insight" was effective in controlling participation in a group discussion (Oakes et al., 1960) and the conclusions reached by the members of the group (Oakes et al., 1961). When this same signal light meant that a subject's statement indicated the "lack of psychological insight," participation in the discussion could be controlled effectively also (Oakes et al., 1960). In addition, a neutral stimulus, a 600 cps tone, can acquire secondary reinforcing properties and prevent extinction of a conditioned verbal response (Kennedy et al., 1971).

The affect-producing behaviors occurring during the group interaction can be verbal, vocal, kinesic and/or proxemic. In an interview situation, frequent eye contact and smiling and infrequent hand movements by the interviewee were effectively used to induce a positive attitude toward him in the interviewer. In contrast, the absence of these behaviors, i.e.--infrequent eye contact and smiling, and frequent "finger-drumming," were able to induce a nonpositive attitude (Holstein et al., 1971). Furthermore, the speech disturbance ratio, a measure of anxiety, increased when

psychiatric interviews were conducted at interpersonal distances of three, six and nine feet, respectively (Lassen, 1973). Lastly, vocal communication of attitude can be decoded accurately as positive, neutral, or negative in affective quality by males and females (Zaidel & Mehrabian, 1969). Therefore, to test the validity of the application of mediational learning theory in the proposed research, nonverbal affective cues will be utilized to produce (positive or negative) affect at specific points during the group discussion. The primary purpose of this is to attain control of the verbal content of each discussion, particularly of the verbal information transmitted to the subject present within each group because value theory and persuasive arguments theory have focused upon the verbal mode of communication as explanatory mechanisms. In this way, the essential factors requisite for the testing of value theory (knowledge of others' initial preferences) and persuasive arguments theory (cogent arguments) will be present. A second purpose is to use a method of control and manipulation that is subtle and not readily obvious to the naive subjects. In western culture, nonverbal communication is de-emphasized generally. Individuals focus upon the verbal channel of communication to the almost complete unawareness of nonverbal cues, even though their own behavior is being influenced by the nonverbal behaviors emitted by others, and, in turn, their nonverbal cues are influencing others during a social encounter (Hall, 1959; Holstein et al., 1971).

Some studies in the area of nonverbal behavior and interpersonal attraction are relevant to the "confidence" factor that Burnstein considers essential for his theory. Mehrabian & Williams (1969) indicate that the intended persuasiveness of a speaker and the perceived persuasiveness by the listener are correlated. ". . . In the case of all of the following nonverbal behaviors, their occurrence in the direction indicated was associated both with increasing intent to persuade and decoded as enhancing the persuasiveness of a communication: more intonation, more speech volume, higher speech rate, more facial activity, higher rate of gesticulation, greater unhalting quality of speech, and more eye contact with the addressee. In addition, it was found that smaller reclining angles and more head nodding were associated with increasing persuasive effort and that a lower rate of self-manipulation was correlated with the perceived persuasiveness of a communication" (p. 52). These behaviors along with frequent smiling and forward body lean have been associated with the encoding and decoding of positive affect (Mehrabian, 1968; Reece & Whitman, 1962; Rosenfeld, 1966a, b). It must be cautioned, however, that the intent to be persuasive and the perception of it does not mean that the communicator was actually influential.

For the conditioning of affect, an individual's nonverbal cues emitted simultaneously with his own verbal responses as well as the nonverbal cues emitted contingent on another individual's verbal responses must be considered.

Affective cues may be considered affectively positive, neutral, or negative. The evidence bearing on each of these will be considered in turn. The affective cues of frequent eye contact and smiling, and few hand movements emitted as an interviewee responded to an interviewer's questions have been effective in inducing positive affect in the interviewer (Holstein et al., 1971). The verbal operant conditioning literature is useful in elucidating effective response contingent nonverbal reinforcers. Positive head nods and the vocal response, "mmm-hmm," were effective reinforcers for increasing an interviewee's speech duration (Matarazzo, Wiens & Saslow, 1965). In addition, positive head nods, smiling and forward body lean have functioned as positive reinforcers to modify the content of a subject's verbal responses (see Krasner, 1958; Verplanck, 1955; Wickes, 1956). Each of these behaviors has been associated with the experiencing of positive affect.

Several studies have been concerned with an affectively neutral social encounter, although it has been diffcult to distinguish neutral from negative affective behaviors (Holstein, 1973, personal communication). In one study, subjects instructed to avoid the approval (but also to not incur disapproval) from another, emitted few smiles and positive head nods (Rosenfeld, 1966a). A series of non-positive (yet not negative) cues was effective in preventing an interviewer from being attracted toward the interviewee (Holstein et al., 1971). These were the absence of eye

contact, infrequent smiling and the presence of hand gesticulations while speaking.

Affectively neutral behaviors generally have encompassed the absence of positive reinforcers or punishing stimuli. The absence of smiling, positive head nods and forward body lean have been utilized as a control condition. The contingent presentation of these nonverbal cues was effective in changing verbal behavior whereas their absence was correlated with no change in verbal responding (Wickes, 1956). In less structured situations, systematic presentation of positive head nods has been effective in increasing an interviewee's speaking time, whereas the absence of these behaviors was associated with no change (Matarazzo et al., 1965). In a group discussion, the demonstration of inattention, turning the head away from the speaker, and ignoring what he was saying were effective in reducing talking time (Cieutat, 1959). However, Verplanck (1955) cautioned that complete nonreinforcement of a person's verbal behavior would lead to extinction. Generally, those individuals who were ignored in Verplanck's experiments would make some excuse and break off the conversation prematurely. It seems that a minimal amount of positive affect-producing behaviors must be emitted in a presumably affectively neutral situation in order to maintain the verbal behavior of the target person and to prevent the situation from becoming an aversive one.

Last are the negative affect-producing behaviors. There may be some difficulty, as has been mentioned above,

in distinguishing a neutral from a negatively affective situation. It would be expected, however, that the complete nonreinforcement of an individual's verbal behavior would be aversive. Furthermore, negative head nods (head shakes) have been effectively utilized as punishing stimuli in a verbal conditioning situation (see Krasner, 1958) and in a dyadic interaction (Rosenfeld, 1972). Backward trunk lean and "drumming the fingers on the table top" have been rated as "coldness" cues (Reece & Whitman, 1962). Considering that a smile is associated with positive affect and infrequent smiling is correspondent to an affectively neutral encounter, it is expected that a "frown," a sign of disapproval, would be capable of generating negative affect (Rosenfeld, 1967).

Body position has been associated also with affective experiences. Immediacy refers to the directness of orientation between individuals in a social situation (Mehrabian, 1972). Positive affect as decoded by a subject is maximal when high body immediacy is jointly emitted with a high degree of positive head orientation, whereas maximal negative affect was reported when high-immediate-body-orientation cues occurred simultaneously with a low proportion of positive head orientation (i.e.--a high proportion of looking away from the speaker, 90% of the communication period). Low body immediacy whether with a high or low proportion of positive head orientation was experienced as intermediate between these two extremes (Mehrabian, 1967).

General Outline of Present Research

During the affect conditioning procedures of the present research, different classes of affective cues will be systematically emitted or inhibited contingent upon the emission of the dominant response associated with a specific CDQ item by the target person within each group. The dominant response class will vary for the same item depending upon the context of the discussion. For example, for an item that typically shifts toward risk, the dominant response class in a situation in which group members argue for their initial choices is risky verbal responses. For this same item, but in a setting in which members argue against their initial preferences, the dominant response class would be cautious verbal responses.

In those groups in which positive affect is to be associated with the dominant response class of each CDQ item, the experimenter's confederates present in each group will be instructed and trained to emit the following cues contingent upon the emission of a dominant verbal response by any other group member: positive head nods, smiling, forward body lean, and high body immediacy toward the naive subject will occur jointly with a high proportion of positive head orientation.

The confederates will be instructed to emit positive affective cues when their verbal responses are dominant. These will include forward body lean, frequent smiling, frequent eye contact with the naive subject and infrequent self-manipulations.

In those groups that are to be affectively neutral, each confederate will smile infrequently, emit few positive head nods, sit upright and make eye contact with the target person and hand gesticulations will occur infrequently. Lastly, the confederates will orient their bodies between the other two group members, while turning their heads toward the speaker. The confederates will act similarly when their own verbal responses are in the dominant response class.

In those groups in which dominant verbal behavior is to be paired with negative affect, each of the experimental confederates in the group will emit the following cues to each speaker contingent upon a dominant response: negative head nod, finger drumming, frown, backward trunk lean, and high body immediacy toward the target person coupled with a low proportion of positive head orientation when he speaks. Confederates will emit the same negative cues when their verbal responses are within the dominant response class (see Table 1 for a summary of these affective behavior repertoires).

One problem that can arise in running small groups with experimental confederates involves the authenticity of the situation. Ideally, it would be desirable to have these group discussions appear "natural" to the target person and for him to be unaware of the response contingencies and affective-associational mechanisms operating

TABLE 1

AFFECTIVE-BEHAVIOR REPERTOIRES TO BE EMITTED BY CONFEDERATES FOR THE PURPOSE OF CONDITIONING AFFECT AROUSAL TO DOMINANT VERBAL RESPONSE CLASSES

	Affective-Behavior Repertoire		
	Positive Affect (A+)	Neutral (A^{O})	Negative Affect (A-)
Behaviors to be Emitted while <u>listening</u> to Other Group Members	1. positive head nods 2. smiling 3. forward 4. no finger drumming 5. high body immediacy and high proportion of positive-head-orientation	1. few positive head nods 2. infrequent smiling 3. sitting upright 4. infrequent finger drumming 5. body oriented between other group members and head turned toward speaker	1. no positive head nods 2. frequent frowning 3. backward body lean 4. frequent finger drumming 5. high body immediacy toward target person when he speaks but low proportion of positive head orientation
Behaviors to be Emitted while <u>speaking</u> to Other Group Members	1. frequent eye contact 2. smiling 3. forward body lean 4. no finger drumming	1. infrequent eye contact 2. infrequent smiling 3. sitting upright 4. infrequent finger drumming	1. no eye contact 2. frequent frowning (and no smiling) 3. backward body lean 4. frequent finger drumming

during the discussion. Certainly if one of the accomplices emitted all of the behaviors within an affective repertoire consistently upon the emission of a dominant response, this would reduce the credibility of the situation, In addition, the situational authenticity can be damaged if both accomplices jointly emit the same stimuli too consistently. Therefore, the attempt will be made to train the confederates to develop "natural styles" that incorporate the appropriate cues within them. This will involve intermixing the behavioral cues so that the conditioning of affect is consistent while there is behavioral variability.

The following section summarizes the conditions necessary for the testing of the three theories in this exposition.

Summary

The mechanisms espoused by value theorists require a setting for the discussion in which each member can gain knowledge of the preferences of others. Alternatively, persuasive arguments theorists do not consider an unambiguous situation as important. They emphasize that the actual discussion content is critical. In a discussion that is devoid of persuasive arguments, a shift should not occur. The mediational learning theory advocated here proposes that neither knowledge of others' preferences nor the actual verbal content are critical except to the extent that certain verbal responses function as verbal reinforcers. The essential factor according to this theory is the

systematic association of affect-producing cues with verbal responses that favor a certain course of action. The direction of the shift will be contingent upon which alternative choice is associated with positive affect. The association of negative affect with verbal responses advocating a specific preference may or may not lead to a shift in the opposite direction.

This distinction between the effect of positive and negative stimuli is due to the information inherent in these different types of cues. Positive affective stimuli not only increase the probability of occurrence of those behaviors with which they are associated systematically, but also they indicate the classes of behaviors that are acceptable, and by implication, those that are unacceptable, i.e.--they convey information as to the direction that behavior should take. Negative affective cues when systematically associated with behaviors of a specific response class lead to response suppression. These stimuli indicate those behaviors which are unacceptable, but do not specify the identity of acceptable responses.

In conclusion, distinction between the three theories will be possible if:

(1) group discussion occurs in an ambiguous or an unambiguous setting,

(2) group members are instructed to argue <u>for</u> or <u>against</u> their initial choices, and

(3) in different groups, positive, negative or no affect is associated systematically with the dominant response class.

Each group will discuss three types of Choice Dilemma-like items, i.e.--those that typically elicit a shift toward risk, a shift toward caution, or no shift at all. Each group member will be instructed to make pre-and-post-discussion individual decisions. A group consensus will not be required.

CHAPTER II

HYPOTHESES

The purpose of this research was to test certain differential predictions relevant to the G.I.S. which are derived from mediational learning theory, value theory and persuasive arguments theory. The specific predictions are listed below.

If mediational learning theory provides an accurate explanation of the processes occurring in this group situation, then it would be anticipated that Predictions 1, 1a, 1b and 1c would be verified by the data analysis.

Prediction #1. Producing positive affect during discussions will strengthen the dominant response class more than providing negative affect during the discussions regardless of item type.

Prediction #1a. Associating pro-risk arguments with positive affect will induce more risky decisions than associating these same arguments with negative affect.

Prediction #1b. Associating pro-caution arguments with positive affect will induce more cautious decisions than associating these same arguments with negative affect.

Prediction #1c. Decisions made subsequent to the affectively neutral discussions should be intermediate

between those decisions following positive and negative affective group discussions.

If the mechanisms advocated by value theorists are responsible for the group-induced shift, then Predictions 2, 2a, 2b, 2c, and 3 will be verified.

Prediction #2. Decisions following discussions in unambiguous settings will favor the valued choice more than decisions following discussions occurring in ambiguous settings.

Prediction #2a. Decisions after an unambiguous discussion of risk items will be riskier than those decisions following an ambiguous discussion.

Prediction #2b. Decisions subsequent to an unambiguous discussion of cautious items will be more cautious than those following an ambiguous discussion.

Prediction #2c. Decisions made concerning neutral items will be the same regardless of situational ambiguity.

Prediction #3. No interaction between situational ambiguity and/or discussion orientation and/or affective behavior repertoire will be present.

If persuasive arguments account for the shift phenomenon, then Predictions 4, 4a, 4b, 4c, and 5, and 5a will be verified.

Prediction #4. Shifts should occur only when group members argue for their initial preferences, i.e.--when cogent arguments are present.

Prediction #4a. For risk items, greater riskiness is expected in favorable than contrary discussions.

Prediction #4b. For caution items, greater cautiousness is expected in favorable than contrary discussions.

Prediction #4c. Discussion orientation is not expected to affect the choices made on neutral items.

Prediction #5. In favorable discussion groups, choices will be more extreme in the valued direction in positive nonverbal behavior groups than in negative nonverbal behavior groups. In contrary discussions, choices will be equivalent in positive and negative affect groups.

Prediction #5a. Decisions subsequent to affectively neutral discussions will favor the admired alternative more than decisions following negative affective discussions.

Both mediational learning theory and persuasive arguments theory predict an interaction between affective behavior, discussion orientation and item type. However, the nature of this interaction is different for each theory. Persuasive arguments theory (Predictions 5 and 5a) would propose that the speaker's confidence is displayed, in part, by nonverbal cues. As the affect-producing nonverbal behavior is manipulated systematically from positive affect-producing to neutral to negative affect-producing, each speaker will be perceived as being less and less confident. Therefore, if inherently cogent arguments are presented during the discussion, their impact should be inhibited or

even reversed contingent upon the affective nonverbal behaviors being emitted during the group interaction. Furthermore, no shifts should occur with any type of item when group members argue contrary to their prediscussion choices. Presumably, inherently cogent arguments are present only when Ss argue in favor of their initial choices.

Mediational learning theory (Predictions 1, 1a, 1b, and 1c) would predict a different interaction between these same three variables. For one, shifts should obtain when individuals argue in favor of or contrary to their initial choices. However, these shifts would be in opposite directions because the dominant verbal response class to be systematically associated with affect changes as the orientation of the discussion changes. For example, on a risk item, pro-risk arguments predominate when group members argue for their initial decisions, and therefore, associating these pro-risk arguments with positive affect should induce a shift toward risk. On this same item, pro-caution arguments would be more frequent when subjects argue contrary to their initial preferences. Association of these statements with positive affect should cause a shift toward caution.

In neutral groups, verbally-produced affect can still occur, and presumably would be responsible for any attenuated shifts that occur in these groups. Lastly, in negative affect groups, no shift or a shift away from the dominant verbal response class should occur. For example,

as Ss argue for their preferences on a risk item, systematic association of negative affect with the more frequent pro-risk arguments should inhibit a shift toward risk or induce a reverse shift (toward caution). When Ss argue against their prediscussion choices, the association of negative affect with the conservative statements should cause a reverse shift (toward risk) or inhibit the shift. In either discussion situation, shift-inhibition or shift-reversal would be a satisfactory avoidance response. Therefore, comparison of the three-way interaction of Prediction #1 with that of Prediction #5 would allow differentiation between mediational learning and persuasive arguments theories.

CHAPTER III

METHOD

The design of this experiment is a 3 x 2 x 2 x 3 factorial with the following between-subject variables: affective behavior repertoire (3 levels), situational ambiguity (2 levels), and discussion orientation (2 levels). Item type (3 levels) is a within-subject variable. There are 10 same-sex groups per cell generated by the three between-subject variables for a total of 120 groups. However, reference is made to "subject" variables and not "group" variables because the membership of each group consists of two male confederates of the experimenter posing as naive subjects, and one naive, male subject. These subjects were assigned randomly to treatment groups.

The subjects for this research were undergraduates at Brooklyn College of the City University of New York registered for an Introductory Psychology course and recruited from the Psychology Department subject pool. Introductory psychology students must participate in psychological research for two hours per semester as a course requirement. At the time they were recruited, they were informed that this is a study of interaction processes during group discussion.

The experimenter's confederates were majoring in psychology and were hired through the Placement Office at Brooklyn College. They were trained to emit, in a "natural" style, the affective behavior repertoires described in Table 1. Each confederate was paid two dollars for each group in which he participated. They were not informed about the purpose of this research.

There were six choice-dilemma-like items for each group to discuss: two each of risk items, caution items and neutral items (see Appendix I for the items and the instructions). The actual items were chosen based on pilot research and previously reported results (Kogan & Wallach, 1964; Stoner, 1968). The risk and caution items were selected according to the following criteria: the individual's "own" decisions must be intermediate between two endpoints, the choices that these same individuals believe, on the one hand, to be the majority estimates, and on the other, indicate as their "most admired" choice. For risk items, the "most admired" choice is the most risky of the three choices made for that item and for caution items, the "most admired" choice is the most cautious. On neutral items, i.e.--those for which neither course of action is more attractive, there are no statistically significant differences between the "own" decisions, majority estimates, and admired-most-choice. The mean risk levels for subjects' "own" decisions in pilot search are presented in Appendix II.

All group members were required to make pre-and-postdiscussion individual decisions. The choices available on each item were 1, 3, 5, 7, and 9 chances out of 10 and "not at all" which was scored as a choice of 10 out of 10 that the riskier alternative will be successful. Group members were instructed to indicate the lowest probability of success that they would require before advocating the riskier choice to the hypothetical protagonist. The influence of processes operating during the group discussion upon an individual's preferences was ascertained by an analysis of covariance of postdiscussion choices using the prediscussion choices as the covariate.

The verbal behavior of the confederates during the discussion was controlled. Standardized sets of arguments in favor of the risky alternative and the cautious choice were established from pilot research. This was done by presenting the CDQ items to an introductory psychology class and having the students indicate their preferred choices and the arguments pertinent to each alternative that should be considered when making a decision. Each set of arguments consists only of arguments favoring risk or caution. When groups were instructed to argue <u>for</u> their initial preferences, the confederates presented arguments favoring the more attractive alternative. When groups were instructed to argue <u>contrary to</u> their initial preferences, the confederates presented arguments for the less attractive alternative. On neutral items, the confederates presented pro-risk and pro-

caution arguments. (See Appendix III-A and III-B for the sets of arguments presented by the experimenter's confederates in favorable and contrary discussions.)

The prediscussion decisions presented by the confederates at the onset of each discussion were determined in the following manner. For favorable discussions, one confederate indicated as his choice the mean probability "own decision" chosen in pilot research. The other confederate's choice was two scale positions further in the admired direction. For contrary discussions, the decisions stated by the confederates were one and three scale positions from the mean "own decision," but toward the less attractive alternative. This applied to risk and caution items. For neutral items, both confederates presented the same choice which was equal to the mean "own decision" made during pilot research.

The affective nonverbal behaviors of the confederates were emitted contingent upon any statement that concurred with a position which the confederates were advocating at that time. During discussions of neutral items, the confederates remained nonreactive to verbal information presented. The vocal intonation of each actor was affectively flat.

Each group member was informed, prior to the first discussion, as to the direction his arguments should take for each item. When groups were instructed to argue <u>against</u> their initial decisions, the probability choice assigned to

each person was the "mirror-image" of his actual choice. "Thus, an initial choice of 1, 3, or 5 chances out of 10 were assigned 'not at all,' 9, or 7 chances out of 10, respectively, and vice versa" (modified from Burnstein & Vinokur, 1973, p. 128). In the ambiguous settings, group members were instructed not to reveal their initial choices and whether or not the choice they were advocating corresponded to their actual preference.

Postdiscussion individual decisions were made immediately after the discussion for that item. After the last item had been discussed and the postdiscussion decision made, questionnaires were administered to all subjects to assess the efficacy of the experimental manipulations.

All subjects filled out the Interpersonal Judgment Scale (IJS) with respect to each other group member. (A copy of the Interpersonal Judgment Scale is presented in Appendix IV.) Because of the close relationship between the affect experienced by an individual and the attraction for another who has been associated with that affect (see Byrne, 1971; Gouax, 1971), the decision had been made to use this instrument to test the affective behavior manipulation of this research. Subjects who have experienced positive affect during the group discussion should rate the other group members more positively than those subjects who have participated in neutral groups or negative affect groups. Furthermore, subjects in the negative affect group discussions should yield more negative ratings of other group

members than the subjects who participated in the affectively neutral groups. The scoring of each IJS protocol was as stipulated by Byrne (1971). However, the scores were summed over the two questionnaires filled out by each subject to yield a total affect score. These total affect scores are those to be analyzed later.

Secondly, to assess the efficacy of the situational ambiguity manipulation, a questionnaire was administered to those subjects who participated in the ambiguous discussions only (see Appendix V). If the ambiguity manipulation is satisfactory, subjects should be unable to predict the discussion orientation of other group members at better than chance levels.

CHAPTER IV

PROCEDURE

As subjects arrived, they were seated in the laboratory. When the entire group had formed, each group member was given a copy of the choice dilemma-like items and told to read the instructions and to look at the sample item. After this was done, instructions were read emphasizing the characteristics of their task (see Appendix VI). Finally, any questions were clarified by the experimenter. After subjects made individual decisions for all items, the booklets were collected. The group was led to a second, nearby room for the discussion. This room contained tape recording equipment, a chair for the experimenter in one corner and three chairs positioned at the vertices of an equilateral triangle and spaced five feet from each other. This distance was measured from the centerpoint of each seat. It was chosen as an appropriate interpersonal distance for this type of social interaction (Hall, 1966). In entering the discussion room, the confederates chose seats that required the real subject to sit in a seat from which he was unable to observe the experimenter without turning around. Fresh copies of the choice dilemma questionnaire were distributed and taped instructions presented.

These instructions differed for groups that argued in an ambiguous situation (see Appendix VII) or in an unambiguous one (see Appendices VIII-A and VIII-B). After all questions were answered, "subjects" were informed what decisions they were to advocate during the discussions. These were given privately to each group member with instructions (see Appendix IX). After five minutes of discussion, the experimenter interrupted at a "natural" break in the conversation and verbally presented additional directions (see Appendix X). The postdiscussion, individual decisions for the item that had just been discussed were made at this time. When everyone had complied with this request, the subjects were instructed to discuss the next item after consulting their private instruction card.

After the last discussion and postdiscussion decisions took place, the booklets were collected and the IJS and the situational ambiguity questionnaire were administered. The naive subject was debriefed. Each experimental session lasted approximately 60 minutes.

CHAPTER V

RESULTS

Independent Evaluation of the Experimental Manipulations

The total affect scores calculated from each subject's responses to the IJS were analyzed using a one-way analysis of variance. The null hypothesis is that subjects' ratings of the attractiveness of other group members were not influenced by the affective behaviors emitted by these group members during the group discussions, i.e.--$\mu(A+) = \mu(A0) = \mu(A-)$. The results are presented in Table 2 and indicate that the perceived attractiveness of group members was affected in the expected direction by the nonverbal behavior they emitted. The mean ratings by the subjects in each type of affective behavior treatment are presented in Table 3.

Responses to the situational ambiguity questionnaire were analyzed using the χ^2 statistic. The null hypothesis is that subjects' guesses as to the situation in which they participated is independent of the actual situation in which they participated. Ratings for each item were analyzed independently. The results are presented in Table 4 and show that in the ambiguous-favorable discussion groups, subjects were able to predict accurately the orientation of the discussion in which they were involved on items 2,

TABLE 2

ANOVA OF AFFECT SCORES ON IJS

Source	Ss	df	F
Treatment (Nonverbal Behavior)	408.2166	2	16.9216*
Within Groups	1411.25	117	
Total			

*p << .001

TABLE 3

MEAN RATINGS OF ATTRACTIVENESS ON THE INTERPERSONAL JUDGMENT SCALE

Nonverbal Behavior	Mean Rating
Positive affective (A+)	21.15
Neutral (A^{O})	18.375
Negative affective (A-)	16.675

TABLE 4

ANALYSIS OF RESPONSES TO THE SITUATIONAL AMBIGUITY QUESTIONNAIRE

Treatment	Item	Correct Responses	Incorrect Responses	χ^2
Ambiguous-Favorable Discussion	1	11	19	2.18
	2	13	17	5.38*
	3	16	14	12.84***
	4	13	17	5.38*
	5	10	20	1.11
	6	17	13	16.04***
Ambiguous-Contrary Discussion	1	0	30	10**
	2	3	27	3.6
	3	3	27	3.6
	4	5	25	1.11
	5	5	25	1.11
	6	2	28	5.38*

*$p < .05$
**$p < .01$
***$p < .001$

3, 4, and 6. However, in the ambiguous-contrary discussion groups, subjects were unable to predict better than chance on any items. Predictions by subjects involved in these latter discussions were significantly poorer than chance levels on items 1 and 6.

Responses to the Independent Variables: Scores on Choice Dilemma Items

Typically, prior research has analyzed the mean shift scores (mean difference scores between pre-and-postdiscussion decisions) for each item. However, the analysis of variance of difference scores assumes that b_w, the best estimate of the common population regression coefficient does not depart greatly from 1.00. If it does, then an inflated estimate of experimental error is obtained (see Edwards, 1968, pp. 343-44). This problem can be eliminated by using an analysis of covariance with repeat meausres on each item type.

An assumption underlying the analysis of covariance is that an interaction between treatment and slope is absent. A test of the assumption that the between-subject and within-subject regression coefficients are homogeneous can be made, i.e.--H_o: $\beta_p = \beta_w$ (Winer, 1971). For $n > 20$, the t' statistic approximates the normal distribution N(0,1). For this data, $\beta_p = .695$ and $\beta_w = .247$, $t' = 4.667$ and $p < .01$. Therefore, the null hypothesis is rejected indicating that $\beta_p \neq \beta_w$ and that there is an interaction between experimental treatment and regression coefficient.

In order to eliminate this heterogeneity a decision was made to transform the data to another scale of measurement. The logarithmic, square root and reciprocal transformations were considered. The data were transformed as follows: $f(y) = \frac{1}{X+1}$ because the reciprocal transformation consistently provided the smallest range of scores within each treatment group. For the transformed data, $\beta_p = .710$ and $\beta_w = .606$, $t' = 1.121$ and $p > .05$. Therefore, the H_o: $\beta_p = \beta_w$ is accepted. Subsequent data analyses are reported for the transformed data. Because of the nature of the transformation applied, higher scores now indicate greater riskiness.

Analysis of variance of the transformed prediscussion, individual decisions indicates that the only significant F-ration relates to item type, a within-subject factor. This indicates that no systematic biases in subject assignment were present although subjects tended to respond differently to the three types of choice dilemma items presented. The summary of the analysis is presented in Table 5.

Mean reciprocal scores for each item type are presented in Table 6. Comparison of the above values using the Newman-Keuls test shows that the responses to risk items are significantly riskier at the .05 level than the responses to caution or netural choice dilemma items, and that the latter do not differ.

The analysis of variance and covariance of the postdiscussion, individual decisions are presented in Tables 7 and 8. Because $\beta_p = \beta_w$ for the transformed data, the

TABLE 5

ANOVA OF THE RECIPROCAL PREDISCUSSION, INDIVIDUAL DECISIONS

Source	SS	df	F
Between - S	2.7193	119	
A (nonverbal behavior)	.038	2	<1
B (situational ambiguity)	.0157	1	<1
C (discussion orientation)	.0007	1	<1
AB	.0593	2	1.295
AC	.0329	2	<1
BC	.0218	1	<1
ABC	.0777	2	1.697
Ss within groups	2.4732	108	
Within - S	5.8499	240	
D (item type)	.9056	2	21.47*
AD	.1155	4	1.369
BD	.0461	2	1.093
CD	.0051	2	<1
ABD	.057	4	<1
ACD	.1458	4	1.728
BCD	.0109	2	<1
ABCD	.0078	4	<1
D x Ss within groups	4.5561	216	
Total	8.5692	359	

*$p << .01$

TABLE 6

MEAN RECIPROCAL SCORES
FOR EACH ITEM TYPE

Item Type	Mean Reciprocal Score*
D_1 (Risk)	.3873
D_2 (Neutral)	.3184
D_3 (Caution)	.2648

*Note: High scores indicate greater riskiness.

within-subject regression coefficient (β_w = .606) was used in making all adjustments. The significant effects of concern for the research herein reported are the B x D, C x D, and A x C x D interactions which involve situational ambiguity and item type, discussion orientation and item type, and nonverbal behavior repertoire, discussion orientation and item type, respectively. Each of these interactions is considered in turn. Comparisons of the differences between adjusted, reciprocal cell means were made using the method described by Winer (1971, pp. 800-803). All tests are one-tailed.

TABLE 7

ANOVA OF THE RECIPROCAL POSTDISCUSSION, INDIVIDUAL DECISIONS

Source	SS	df	F
Between - S	3.2689	119	
A (nonverbal behavior)	.1995	2	3.9072*
B (situational ambiguity)	.0291	1	1.1398
C (discussion orientation)	.0811	1	3.1767
AB	.105	2	2.0564
AC	.0021	2	< 1
BC	.0167	1	< 1
ABC	.0778	2	1.5237
Ss within groups	2.7576	108	
Within - S			
D (item type)	1.1398	2	27.0351***
AD	.0954	4	1.1338
BD	.1781	2	4.2244*
CD	.3717	2	8.8164**
ABD	.0259	4	< 1
ACD	.2633	4	3.1226*
BCD	.0216	2	< 1
ABCD	.0686	4	< 1
D x Ss within groups	4.5523	216	
Total	9.9856	359	

*p < .05
**p < .01
***p < .001

TABLE 8

ANALYSIS OF COVARIANCE OF THE RECIPROCAL POSTDISCUSSION, INDIVIDUAL DECISIONS

Source (adjusted)	SS	df	F
Between - S			
A[1]	.1142	2	4.011*
B[1]	.0089	1	<1
C[1]	.0903	1	6.344**
AB[1]	.0330	2	1.158
AC[1]	.0172	2	<1
BC[1]	.0016	1	<1
ABC[1]	.0179	2	<1
Ss within groups[1]	1.5376	108	
Within - S			
D[1]	.2017	2	7.527**
AD[1]	.0549	4	1.025
BD[1]	.1301	2	4.853**
CD[1]	.3289	2	12.271**
ABD[1]	.0417	4	<1
ACD[1]	.1812	4	3.381*
BDC[1]	.0434	2	1.621
ABCD[1]	.0905	4	1.688
D x Ss within groups[1]	2.8802	215	

*p < .05
**p < .01

Analysis of the situational ambiguity by item type interaction indicated that responses on risk items were significantly riskier in an unambiguous situation than in the ambiguous one. Although differences were in the predicted direction for responses to caution items, they lacked statistical significance. The adjusted mean-reciprocals are presented in Table 9.

Analysis of the discussion orientation by item type interaction indicated that following a favorable discussion, choices made on risk items were significantly riskier than following a discussion in which group members argued contrary to their predicussion choices. Responses to caution items were more cautious following a favorable discussion than a contrary one, however this difference was not significant. The adjusted mean-reciprocals are presented in Table 10.

Analysis of the interaction between nonverbal behavior repertoire, discussion orientation and item type indicated that responses to risk items were riskier in a favorable discussion when positive behaviors were emitted by group members than when negative behaviors were emitted. Although in the predicted direction, the differences in responses to caution items in a positive-favorable discussion as compared to a negative-favorable discussion lacked statistical significance. No significant differences were obtained for any comparisons made of decisions subsequent to contrary discussions. The adjusted mean-reciprocals are presented in Table 11. For none of the three interactions

TABLE 9

ADJUSTED TREATMENT MEAN-RECIPROCALS
FOR THE SITUATIONAL AMBIGUITY
x ITEM TYPE INTERACTION

Item Type (D)	Situational Ambiguity (B)	
	Unambiguous (B_1)	Ambiguous (B_2)
Risk (D_1)	.3987*	.3355*
Neutral (D_2)	.3240	.3335
Caution (D_3)	.2923	.3160

NOTE: Greater mean-reciprocal values indicate greater risk.

*B_1D_1 vs. B_2D_1, $p < .05$

TABLE 10

ADJUSTED TREATMENT MEAN-RECIPROCALS
FOR THE DISCUSSION ORIENTATION
x ITEM TYPE INTERACTION

Item Type (D)	Discussion Orientation (C)	
	Favorable (C_1)	Contrary (C_2)
Risk (D_1)	.4170*	.3172*
Neutral (D_2)	.35	.3075
Caution (D_3)	.2805	.3278

NOTE: Greater mean-reciprocal values indicate greater risk.

*C_1D_1 vs. C_2D_1, $p < .01$

TABLE 11

ADJUSTED TREATMENT MEAN-RECIPROCALS FOR THE NONVERBAL BEHAVIOR x DISCUSSION ORIENTATION x ITEM TYPE INTERACTION

Nonverbal Behavior (A)	Discussion Orientation (C)					
	Favorable (C_1)			Contrary (C_2)		
	Item Type (D)					
	Risk (D_1)	Neutral (D_2)	Caution (D_3)	Risk (D_1)	Neutral (D_2)	Caution (D_3)
Positive (A)	.4915*	.3481	.2603	.3311	.3529	.3510
Neutral (A_2)	.3775	.3289	.3075	.2904	.2908	.2787
Negative (A_3)	.3819*	.3731	.2738	.3302	.2787	.3536

NOTE: Greater mean-reciprocal values indicate greater risk.

*$A_1C_1D_1$ vs. $A_3C_1D_1$, $p < .01$

discussed above were any comparisons involving neutral items found to be statistically significant following differential experimental manipulations.

The between-subject main effects do not provide any information concerning the three theories being tested by this research. Because analysis of these factors requires that we disregard within-subject factors, the influence of between-subject effects on different types of choice dilemma-like items would not be detected. The main effect due to nonverbal behavior repertoire indicated that subjects' choices were riskier following participation in positive affective discussions than in neutral groups regardless of item type, discussion orientation or situational ambiguity. Adjusted mean-reciprocal values for the three levels of the nonverbal behavior main effect are presented in Table 12. The discussion orientation treatment has only two levels, favorable and contrary. Therefore, the significant F-ration of the analysis of covariance demonstrates that subjects' decisions following favorable discussions were riskier than those responses made subsequent to a contrary discussion. Inasmuch as the analysis of this main effect disregards item type, interpretation of it becomes meaningless. Adjusted mean-reciprocal values for the discussion orientation main effect are presented in Table 13.

Item type is a within-subject factor. A posteriori analysis of this main effect showed that independent of the

TABLE 12

ADJUSTED MEAN-RECIPROCALS FOR THE NONVERBAL BEHAVIOR MAIN EFFECT

Nonverbal Behavior (A)	Adjusted Mean-Reciprocal
Positive (A_1)	.3558*
Neutral (A_2)	.3123*
Negative (A_3)	.3319

*A_1 vs. A_2, $p < .05$

TABLE 13

ADJUSTED MEAN-RECIPROCALS FOR THE DISCUSSION ORIENTATION MAIN EFFECT

Discussion Orientation (C)	Adjusted Mean-Reciprocal
Favorable (C_1)	.3491*
Contrary (C_2)	.3175*

*C_1 vs. C_2, $p < .01$

TABLE 14

ADJUSTED MEAN-RECIPROCALS FOR THE ITEM TYPE MAIN EFFECT

Item Type (D)	Adjusted Mean-Reciprocal
Risk (D_1)	.3671*,**
Neutral (D_2)	.3287*
Caution (D_3)	.3041**

*D_1 vs. D_2, $p < .01$

**D_1 vs. D_3, $p < .01$

treatment to which subjects were assigned, responses to risk choice dilemma-like items were significantly riskier than responses to either the neutral or cautious items. Adjusted mean-reciprocals for the respective item types are presented in Table 14.

A comparison of the predicted relationships with the actual results is presented in Table 15. Only three of the hypothesized relationships attained statistical significance. All of them concern the responses to risk-oriented items. All comparisons involving caution or neutral items were statistically nonsignificant. For hypothesis 1, responses to risk and caution items in the contrary discussions were in the opposite direction from that predicted and the results obtained relating to hypothesis 1c were contrary

TABLE 15

A COMPARISON OF THE PREDICTED MAIN AND INTERACTION EFFECTS WITH THE OBTAINED RESULTS

Hypothesis	Predicted Relationship	Actual Results
1a	$ACD_{111} > ACD_{311}$ $ACD_{123} > ACD_{323}$	$.4915 > .3819$** $.3510 < .3536$
1b	$ACD_{113} < ACD_{313}$ $ACD_{121} < ACD_{321}$	$.3481 < .3731$ $.3311 \approx .3302$
1c	$ACD_{111} > ACD_{211} > ACD_{311}$	$.4915_{ACD_{111}} > .3819_{ACD_{311}} > .3775_{ACD_{211}}$
	$ACD_{113} < ACD_{213} < ACD_{313}$	$.2603_{ACD_{113}} < .2738_{ACD_{313}} < .3075_{ACD_{213}}$
	$ACD_{121} < ACD_{221} < ACD_{321}$	$.2904_{ACD_{221}} < .3302_{ACD_{321}} \approx .3311_{ACD_{121}}$
	$ACD_{123} > ACD_{223} > ACD_{323}$	$.3536_{ACD_{323}} \approx .3510_{ACD_{123}} > .2787_{ACD_{223}}$
2a	$BD_{11} > BD_{21}$	$.3987 > .3355$*
2b	$BD_{13} < BD_{23}$	$.2923 < .316$
2c	$BD_{12} = BD_{22}$	$.3240 \approx .3335$
3	No ABD, BCD, ABCD interactions	F-ratios not significant
4a	$CD_{11} > CD_{21}$	$.4170 > .3172$**
4b	$CD_{13} < CD_{23}$	$.2805 < .3278$
4c	$CD_{12} = CD_{22}$	$.35 > .3075$
5	$ACD_{111} > ACD_{311} > ACD_{211}$ $ACD_{113} < ACD_{313} < ACD_{213}$ $ACD_{121} = ACD_{321} = ACD_{221}$ $ACD_{123} = ACD_{323} = ACD_{223}$	$.4915 > .3819 > .3775$ $.2603 < .2738 < .3075$ $.3311 \approx .3302 > .2904$ $.3510 \approx .3536 > .2787$

*p < .05
**p < .01

to the predicted relationship. For hypotheses 2b and 2c, the obtained results for caution and neutral items were in the anticipated direction. For hypothesis 3, those interactions that were predicted to be absent evinced adjusted F-rations that lacked statistical significance. For hypothesis 4b, the obtained results were similar to the predicted results whereas the prediction of hypothesis 4c was not confirmed. For hypothesis 5, the actual results were in the predicted directions although they did not attain statistical significance.

CHAPTER VI

DISCUSSION OF RESULTS

The purpose of the research herein reported was to distinguish between the influence of three factors upon the group-induced shift. These factors are knowledge of other group members' decisions, persuasive arguments, and the systematic association of affect with specific verbal response classes. The possible outcomes for the different interaction effects will be considered in turn subsequent to a discussion of the effectiveness of the experimental manipulations. The main effects of discussion orientation and nonverbal behavior repertoire do not elucidate the comparison of the three processes being examined here for reasons stated above. Therefore, these two main effects will receive no further consideration.

Efficacy of the Experimental Procedure

The analysis of responses to the Interpersonal Judgment Scale indicated that the nonverbal behavior of the experimenter's confederates was effective in eliciting the appropriate positive and negative affective responses from the subjects. This was essential for testing the influence of nonverbally-induced affect within the group discussion situation.

The ambiguity questionnaire was administered to those subjects who participated in the ambiguous discussions to assess the degree to which the experimental manipulation was able to eliminate the effect of interpersonal comparison from this group interaction. Thirty subjects each were involved in the ambiguous-favorable and the ambiguous-contrary discussions. The analysis of responses by those subjects who participated in the ambiguous-favorable groups indicated that they were able to accurately predict the orientation of the other group members' verbal statements on items 2, 3, 4, and 6. However, subjects in the ambiguous-contrary groups were unable accurately to choose the discussion-orientation of other group members on any items. In fact, their choices regarding items 1 and 6 were significantly poorer than chance. In this case, wrong choices meant that subjects were indicating that group members argued in favor of their pre-discussion, individual decisions even when they did not.

Several alternative explanations for the responses to the ambiguity questionnaire are possible. Previous research has shown that subjects in experiments involving the verbal reinforcement of attitudes are more aware of the reinforcement contingencies operating in those situations when there is consistency between the experimenter's affiliation either with experimental or clinical psychology and the direction of reinforcement for responses favoring these different disciplines (Insko, Rall & Schopler, 1972).

With respect to the data herein reported, this suggests that subjects show greater awareness when there is consistency between the confederates' prediscussion choices and the response classes reinforced by them. Unfortunately, this explanation is inapplicable to the significantly poor predictions made by those subjects in the ambiguous-contrary discussions. A more parsimonious explanation is that all subjects who participated in ambiguous group discussions had a response bias toward "favorable" responses. This response bias can account for the accuracy or lack of it of those subjects who have participated in either ambiguous-favorable or ambiguous-contrary interactions.

The causes of this response bias are uncertain. Inasmuch as the experimenter was present during all group discussions, the possibility exists that he conveyed this information concerning favorable discussions to the subjects in a subtle, nonverbal manner. Secondly, in contrary and favorable discussions, the experimenter's confederates presented an equal number of persuasive arguments for the position they were advocating. Subjects may have perceived the confederates as being equally persuasive or knowledgeable in the contrary as in the favorable discussion, and therefore, the response bias would be observed. Thirdly, inasmuch as the ambiguity questionnaire was answered after all group discussions and postdiscussion, individual decisions had occurred rather than after each discussion and postdiscussion decision, subjects' responses may have been

unduly influenced by the later discussion. In any event, the analyses of responses to the ambiguity questionnaire and to the choice-dilemma items suggest that the former responses may be unrelated to the latter decisions.

Discussion of the Analysis of Choice Dilemma Responses

The interactions between situational ambiguity and item type, discussion orientation and item type, and nonverbal behavior, discussion orientation and item type are of most importance for the present research. Shifts in judgment subsequent to group discussion were obtained on risk items only. The consistent difficulty in observing choice shifts on caution items has been documented previously (Cartwright, 1971) while Burnstein and Vinokur (1973) have discussed the erratic results following discussion of supposedly neutral items.

The significant interaction between situational ambiguity and item type suggests that interpersonal comparison processes are operating within this group situation. However, recently reported research may indicate that knowledge of others' decisions may affect one's own decision for other reasons than interpersonal comparison.

One of the main arguments for the effect of interpersonal comparison processes during a small group discussion has been the discrepancy found between one's own decision, admired decision and the decision attributed to one's peers. Typically, the choices that a subject admires are more

extreme in the valued direction than his/her own decisions, while the choices attributed to others are further from the valued alternative than one's own decisions (Myers & Lamm, In press). However, Burnstein, Vinokur & Pichevin (1974) have shown that subjects attribute more highly valued decisions to themselves than to their peers because they are more certain and confident of their own decisions than those they believe others would make. Alternatively, subjects tend to admire choices more extreme than their own because the more extreme decisions imply a greater knowledge of persuasive arguments than do the latter. In addition, Lamm, Trommsdorf & Rost-Schaude (1972) have observed no relationship between own, admired and attributed choices and shifts in judgment.

The interaction between discussion orientation and item type indicates that when subjects are instructed to argue in favor of their prediscussion, individual decisions as compared to arguing contrary to these same decisions, a choice shift obtains. After a favorable discussion of risk items, group members postdiscussion, individual decisions tended to be riskier than those decisions subsequent to contrary discussions. These results offer support for a persuasive arguments interpretation of the group phenomena.

Additional evidence favoring persuasive arguments theory has been reported recently. Morgan & Aram (1975) have found that as the "percent of risky expression" during group discussion favored risk, the group shift was

toward risk. When the "risky-expression" index favored caution, the group choice favored greater caution, and finally, when neither alternative was preferred, a change in group discussion was not observed. Ebbesen & Bowers (1974) manipulated the proportion of risky and cautious arguments in a taped discussion to which subjects were exposed. Subjects evinced a shift in that direction favored by the majority of arguments, whether risk or caution. No shift occurred when equal numbers of risky and cautious arguments were presented to the subjects. The linear relationship between shift scores and proportion of risky or cautious arguments was found to be the same for live discussion groups and for individuals exposed to a taped discussion. In addition, a decision-making analysis has indicated that arguments generated in public and in private are concerned with evaluating outcomes. Only a limited number of arguments focus on probabilities or on the value of risk or caution specifically. Furthermore, the distributions of arguments generated publicly and privately are very similar, suggesting that group discussion enhances the dissemination of information to group members but does not actually generate new arguments (Vinokur, Trope & Burnstein, 1975).

The interaction of affective nonverbal behavior, discussion orientation, and item type was the crucial interaction to examine to assess the influence of reinforcement effects during a group discussion while

controlling the verbal content of the discussion. The results indicate that decisions following favorable discussions of risk items were riskier when the group members emitted positive affective behaviors than when they emitted negative affective ones. Two alternative explanations of these results are available.

Reinforcement theory and persuasive arguments theory can account for these results. A reinforcement interpretation proposes that the negative affective behaviors emitted contingent upon statements supporting the risky alternatives have suppressed risky decisions whereas the positive affective behaviors emitted according to the same contingency have reinforced greater riskiness by the subjects. This would substantiate previous results reported by Oakes (1961) concerning the effects of social reinforcement on the decisions reached by group members following a discussion. A reinforcement theory also would predict choice shifts on all types of choice-dilemma items and subsequent to contrary discussions given the appropriate reinforcement schedule. However, that prediction was not substantiated by the data.

Persuasive arguments theory would suggest that the difference in private decisions following positive rather than negative affective discussions results from the variations in persuasibility attributed to other group members. Discussants are perceived as more persuasive in positive affective groups than in negative affective groups.

Secondly, choice shifts should not be observed after contrary discussions because of the absence of persuasive arguments. Parsimoniously, it is necessary to favor this latter explanation as opposed to a reinforcement approach.

The ineffectiveness of reinforcement processes in influencing postdiscussional, individual decisions is puzzling considering previous research. The contrary discussion presents a situation very similar to that used in research concerning attitude change following counter-attitudinal advocacy. Group approval has been an effective reinforcer for counterattitudinal debates when subjects maintain an extreme attitude on an issue (Scott, 1957). The effects of content and role reinforcers has been studied (Wallace, 1966). Content reward refers to the content of the arguments presented in the debate whereas role reinforcement refers to the style in which subjects presented their arguments. Role reinforcement was found to be more effective in the counterattitudinal advocacy situation. Lastly, greater attitude change has been observed subsequent to writing counterattitudinal essays when the writers received a grade of "A" as opposed to a grade of "D" (Bostrom, Vlandis & Rosenbaum, 1961).

Several alternative explanations for the absence of reinforcement effects in this research are available. One possibility focuses on the rapport between group members and the consistency between the group members' prediscussion choices and the verbal response classes

reinforced by them. A positive rapport (i.e.--liking) between the experimenter and the subject-interviewee facilitated the effects of verbal reinforcers such as "good" on attitudinal statements (Insko & Butzine, 1967). That a negative rapport only suppressed the reinforcement effects partially instead of completely may be related to the manner in which the rapport was established. The negative rapport between interviewer and subject in that study was formed by the former's insulting reactions to statements made by the subject. Subsequent to that the interviewer dispensed positive verbal reinforcers for appropriate attitudinal statements made by the interviewee-subject. Subsequent research (Insko & Cialdini, 1969) indicates that in a negative rapport situation no differences were obtained when subjects were reinforced for pro or con statements concerning an attitudinal issue. In the research herein reported, the negative affective behaviors which established negative rapport were continuous throughout the discussion, and may have inhibited the punishing effect of these same behaviors on the appropriate verbal response classes.

Prior research on attitudinal verbal reinforcement (Cialdini & Insko, 1969) has shown reinforcement effects when there is consistency between the experimenter's affiliation and the direction of reinforcement. Influence was absent when these two factors were inconsistent. In the presently reported research, the contrary discussions

provide a situation in which the group members' prediscussion, individual decisions were inconsistent with the position they were instructed to advocate during the discussion and with the verbal response classes being reinforced by the experimenter's confederates. The possibility must be considered that this inconsistency has inhibited the effects of nonverbal reinforcers during the group discussion.

Reflecting on the experience of running the groups in the present experiment, it now seems clear that an important factor that precluded the finding of significant reinforcement effects has to do with the specificity and precision of the nonverbal behaviors provided by the confederates during group discussions. Although those behaviors were able successfully to generate positive or negative affect, it seems now that they lacked sufficient specificity to reinforce specific verbal responses. Typically, previous verbal conditioning research has used very simple behaviors, e.g.--head nodding, eye contact and vocal reinforcers, but not behavior patterns as complex as those used in this research. The greater complexity of the present behavior patterns includes incorporating larger proportions of the body and greater body movement than the previously used simpler behavior. Furthermore, the precision necessary for a stimulus to be an effective reinforcer requires that these nonverbal behaviors be emitted with a short latency of onset and offset on <u>precise</u> contingency

with subjects' behavior. Trying to move large parts of the body rapidly and with the precision required for an effective response-reinforcer contingency, e.g.--changing sitting position or body lean, would have made the actors appear unrealistic and incongruous and would have reduced the credibility of the experimental situation. On the other hand, those simple behaviors that have functioned as effective reinforcers in previous research have been ones that appear realistic when emitted with a short latency of onset and offset. Therefore, these more complex behaviors used in the present research appear to be capable of influencing global responses of the subject, e.g.--attraction toward the person emitting the behavior and perceived persuasiveness of the speaker, and communicate the social status, dominance-submissiveness and responsiveness of the person emitting the behavior (see Mehrabian, 1972). However, simpler nonverbal behaviors whose onset and offset may be more precisely contingent on the subject's specific verbal response classes are needed to reinforce more effectively precisely defined response classes, such as making risky or cautious statements.

Other social reinforcers have been more efficacious than these complex behavior patterns. Signal lights used by Oakes (1961) as social reinforcers were more salient and onset was more readily controlled than the nonverbal behaviors used here. In addition, the verbal definitions given to the signal lights were more precise and interpretable

than the nonverbal behaviors used herein. Furthermore, the use of negative affective behaviors presented a problem similar to that involving the negatively defined signal lights used by Oakes et al. (1960). It was observed that those subjects who received negative feedback signals participated less than subjects receiving positive signals, and also evinced signs of discomfort, e.g.--fidgetting, hesitant speaking, frequent looking down at the questionnaire in front of them or looking around the experimental room. This, it seems now, was the most crucial factor producing the absence of a significant reinforcement effect.

Another factor that probably contributed to the absence of reinforcement effects in this research is the possible lack of sensitivity in the experimental design. Inspection of the nonverbal behavior, discussion orientation, by item type interaction indicates that three of the four comparisons between positive and negative affective groups on risk and caution items were in the direction anticipated by reinforcement theory. However, only one of those was statistically significant. A more precise test of reinforcement effects in this type of social encounter would have involved using only positive affective behaviors to reinforce either risky or cautious arguments on any given item without attempting to manipulate the dominant verbal response class. In effect, manipulation of discussion orientation produced sufficient variability thereby reducing the sensitivity of the present experiment to reinforcement.

Theoretical Overview

A criticism of research on the group-induced shift has been that it is not related to any main area of psychological interest within the current zeitgeist (Smith, 1972). Reinforcement theory is one attempt to relate this group process to previously reported behavior control research. However, the difficulty presently experienced in demonstrating reinforcement effects in this type of social interaction suggests that other factors may be more salient. Since this research was undertaken, a group polarization hypothesis (Myers & Lamm, In press) has been proposed to account for the group-induced shift effects. This hypothesis associates research on the group-induced shift with the broader areas of attitude change and social influence. It offers some ideas on the effects of group discussion on the individual and on the mechanisms of attitude change and development within a social situation.

This recent hypothesis integrates interpersonal comparison processes, the verbal behavior occurring within the group interaction and the intrapersonal conceptual integration. The conceptual integration is comprised of the rehearsal of arguments that the individual presents verbally within the group and of new cognitive learning derived from new arguments presented to the individual by other members of the group. According to the group polarization hypothesis,

> social motivation produces a small direct impact by motivating the person to verbalize arguments which are socially desirable and in accord with his ideals. By offering arguments which tend toward the outer limits of his range of acceptibility, the individual tests his ideals and also presents himself favorably to the group since, as we noted earlier, extremity in the direction of the ideal connotes knowledgeability and competence. (The expression of arguments is, of course, also determined by the individual's existing cognitions.) The expression of these arguments may have some direct impact on the relevant attitude, through a dissonance reduction or self-attribution process, and it also constitutes both a form of cognitive rehearsal for the speaker and of information to be received and responded to by the other group members. The resultant cognitive learning and rehearsal contributes significantly to subsequent attitude change. (pp. 32-33)

Although as it is formulated currently the group polarization hypothesis omits the influence of reinforcement during a group interaction, it seems that it can be expanded to incorporate the concept of reinforcement within it.

In the light of the results obtained in this study, plus additional suggestions appearing in the literature since this study was planned, here is how the group-induced shift would seem best to be accounted for. Under this expanded view, the values that are held by the group members also function as discriminative stimuli indicating those verbal and nonverbal behaviors, e.g.--risky statements or risk-taking actions, which are to be reinforced. A person is motivated to emit socially desirable behaviors, and in part, it is his social environment that reinforces and maintains those behaviors so they will be emitted on future occasions. It is at this point--a person verbalizing socially desirable arguments and other group members responding approvingly--

that commitment to a specific position can occur and facilitate attitude change. If an individual were to emit arguments that were not socially desirable and the other group members were to respond disapprovingly, then that individual would not be as committed to the point of view he was advocating. Thus the commitment of an individual to risk, caution or whatever is determined by the affect generated by the responses of others to his statements--those responses being verbal or nonverbal. Lastly, the arguments verbalized by an individual provide new information to some group members, in which case cognitive learning may occur. However, a group member will be more influenced by that new information to which he observes other group members respond approvingly and thereby associating positive affect with the new information. Even though a group member may listen to arguments that favor the devalued alternative (e.g.--cautious arguments on an item that typically shifts towards risk), they will not be very influential if he observes other group members' disapproving reactions towards the speaker thereby associating negative affect with these arguments. In this view, the systematic association of affect with specific verbal response classes is seen as playing an important role in the group-induced shift. It remains for more sensitive designs in future research to demonstrate this with unequivocal empirical evidence.

APPENDIX I

CHOICE DILEMMA ITEMS

Opinion Questionnaire

INSTRUCTIONS. On the following pages, you will find a series of situations that are likely to occur in everyday life. The central person in each situation is faced with a choice between two alternative courses of action, which we might call X and Y. Alternative X is more desirable and attractive than alternative Y, but the probability of attaining or achieving X is less than that of attaining or achieving Y.

For each situation on the following pages, you will be asked to indicate the minimum odds of success you would demand before recommending that the more attractive or desirable alternative, X, be chosen.

Read each situation carefully before giving your judgment. Try to place yourself in the position of the central person in each of the situations. There are six situations in all. Please do not omit any of them.

1. Mr. K has a well paying job with a large company. He has been married for six months and his wife has just become pregnant. For a number of years he has spent many of his summer weekends racing sports cars. He enjoys the sport very much. He is a good driver and although he races purely for the excitement and fun of the sport he does win enough to cover all of his racing expenses. Mr. K has never been in a racing accident, but realizes that such accidents, although rarely fatal for the type of races he enters, can still be quite serious. He is deciding whether or not to give up racing.

Imagine that you are advising Mr. K. Listed below are several probabilities or odds that Mr. K will not be involved in any racing accidents if he continues to pursue the sport.

PLEASE INDICATE THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR MR. K TO CONTINUE TO RACE.

____ The chances are 1 in 10 that Mr. K will not be involved in any racing accidents.

____ The chances are 3 in 10 that Mr. K will not be involved in any racing accidents.

____ The chances are 5 in 10 that Mr. K will not be involved in any racing accidents.

____ The chances are 7 in 10 that Mr. K will not be involved in any racing accidents.

____ The chances are 9 in 10 that Mr. K will not be involved in any racing accidents.

____ Mr. K should not continue racing no matter what the probabilities.

2. Mr. B is about to board a plane at the airport at the beginning of his overseas vacation. Although he has been looking forward to this trip for some time, he is troubled because he awoke this morning with a severe abdominal pain. Because he has never flown before, he thinks that the pain may simply be an upset stomach brought on by anticipation of the flight. Although he is not far from a hospital where he knows he will obtain quick attention, he realized that a visit to the hospital will cause him to miss his flight which in turn will seriously disrupt his vacation plans. The pain has gotten more severe in the last few minutes.

Imagine that you are advising Mr. B. Listed below are several probabilities or odds that Mr. B's abdominal pains will <u>not</u> become more severe during the trip.

PLEASE INDICATE THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR HIM TO BOARD THE PLANE.

____ Mr. B should not board the plane no matter what the probabilities.

____ The chances are 9 in 10 that the pains will <u>not</u> become more severe during the trip.

____ The chances are 7 in 10 that the pains will <u>not</u> become more severe during the trip.

____ The chances are 5 in 10 that the pains will <u>not</u> become more severe during the trip.

____ The chances are 3 in 10 that the pains will <u>not</u> become more severe during the trip.

____ The chances are 1 in 10 that the pains will <u>not</u> become more severe during the trip.

3. Mr. D is the captain of College X's football team. College X is playing its traditional rival, Colleye Y, in the final game of the season. The game is in its final seconds, and Mr. D's team, College X, is behind in the score. College X has time to run one more play. Mr. D, the captain, must decide whether it would be best to settle for a tie or, on the other hand, should he try a more complicated and risky play which could bring victory if it succeeded, but defeat if not.

Imagine that you are advising Mr. D. Listed below are several probabilities or odds that the risky play will work.

PLEASE INDICATE THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR THE RISKY PLAY TO BE ATTEMPTED.

____ Mr. D should not attempt the risky play no matter what the probabilities.

____ The chances are 9 in 10 that the risky play will work.

____ The chances are 7 in 10 that the risky play will work.

____ The chances are 5 in 10 that the risky play will work.

____ The chances are 3 in 10 that the risky play will work.

____ The chances are 1 in 10 that the risky play will work.

4. Mr. and Mrs. H have been attempting to have a child for a number of years. Mrs. H is now pregnant but a complication has arisen. The doctor has advised Mr. and Mrs. H that if the pregnancy is allowed to progress, Mrs. H's life will be in danger. If further complications do develop, the doctor will not be able to save the child and may not be able to save Mrs. H. If the pregnancy is terminated, at this time, it will be impossible for Mrs. H to become pregnant again.

Imagine that you are advising Mr. and Mrs. H. Listed below are several probabilities or odds that no further complications will occur during Mrs. H's pregnancy.

PLEASE INDICATE THE LOWEST PROBABILITY OF THE OCCURRENCE OF NO ADDITIONAL COMPLICATIONS THAT YOU WOULD CONSIDER ACCEPTABLE FOR MR. AND MRS. H TO ALLOW THE PREGNANCY TO PROGRESS.

____ Mr. and Mrs. H should not allow the pregnancy to continue, no matter what the probabilities.

____ The chances are 9 in 10 that further complications will not arise.

____ The chances are 7 in 10 that further complications will not arise.

____ The chances are 5 in 10 that further complications will not arise.

____ The chances are 3 in 10 that further complications will not arise.

____ The chances are 1 in 10 that further complications will not arise.

5. Mr. E is president of a light metals corporation in the United States. The corporation is quite prosperous, and has strongly considered the possibilities of business expansion by building an additional plant in a new location. The choice is between building another plant in the U.S., where there would be a moderate return on the initial investment, or building a plant in a foreign country. Lower labor costs and easy access to raw materials in that country would mean a much higher return on the initial investment. On the other hand, there is a history of political instability and revolution in the foreign country under consideration. In fact, the leader of a small minority party is committed to nationalizing, that is, taking over, all foreign investments.

Imagine that you are advising Mr. E. Listed below are several probabilities or odds of continued political stability in the foreign country under consideration.

PLEASE INDICATE THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR MR. E'S CORPORATION TO BUILD A PLANT IN THAT COUNTRY.

____ The chances are 1 in 10 that the foreign country will remain politically stable.

____ The chances are 3 in 10 that the foreign country will remain politically stable.

____ The chances are 5 in 10 that the foreign country will remain politically stable.

____ The chances are 7 in 10 that the foreign country will remain politically stable.

____ The chances are 9 in 10 that the foreign country will remain politically stable.

____ Mr. E's corporation should not build a plant in the foreign country, no matter what the probabilities.

6. Mr. F is currently a college senior who is very eager to pursue graduate study in chemistry leading to the Doctor of Philosophy degree. He has been accepted by both University X and University Y. University X has a world-wide reputation for excellence in chemistry. While a degree from University X would signify outstanding training in this field, the standards are so very rigorous that only a fraction of the degree candidates actually receive the degree. University Y, on the other hand, has much less of a reputation in chemistry, but almost everyone admitted is awarded the Doctor of Philosophy degree, though the degree has much less prestige than the corresponding degree from University X.

Imagine that you are advising Mr. F. Listed below are several probabilities or odds that Mr. F would be awarded a degree at University X, the one with a greater prestige.

PLEASE INDICATE THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE TO MAKE IT WORTHWHILE FOR MR. F TO ENROLL IN UNIVERSITY X RATHER THAN UNIVERSITY Y.

____ Mr. F should not enroll in University X, no matter what the probabilities.

____ The chances are 9 in 10 that Mr. F would receive a degree from University X.

____ The chances are 7 in 10 that Mr. F would receive a degree from University X.

____ The chances are 5 in 10 that Mr. F would receive a degree from University X.

____ The chances are 3 in 10 that Mr. F would receive a degree from University X.

____ The chances are 1 in 10 that Mr. F would receive a degree from University X.

APPENDIX II

MEAN RISK LEVELS FOR SUBJECTS' "OWN" DECISIONS IN PILOT SEARCH

Choice Dilemma	(Item Type)	Mean Risk Level*
#1	(Neutral)	6.39
#2	(Caution)	6.95
#3	(Risk)	4.80
#4	(Caution)	7.93
#5	(Neutral)	7.27
#6	(Risk)	5.70

*Mean risk levels are the means of the numerators of the probabilities chosen by subjects.

APPENDIX III-A

ARGUMENTS PRESENTED BY THE EXPERIMENTER'S CONFEDERATES IN FAVORABLE GROUP DISCUSSIONS

Item #1 (Neutral)

Arguments favoring "risk"

1. You only live once. As long as Mr. K finds auto racing to be a rewarding and enjoyable hobby, he should continue to do it.

2. For Mr. K, auto racing is a self-supporting hobby. He does not need to take money from other sources to cover his expenses.

3. If he wins enough money from racing, he would be able to pay the forthcoming expenses of his expected baby or save his winnings for later life.

4. Mr. K is a good driver. His awareness of the possible dangers involved with auto racing would lead him to take greater precautions before and during the race.

5. He has not had any accidents in the several years that he has been racing. Besides, racing accidents occur infrequently, and when they do, they are rarely fatal or serious ones.

Arguments favoring "caution"

6. Auto racing is potentially a very dangerous sport. An accident, if it was to occur, easily could cause serious, if not fatal, injuries.

7. Mr. K enters amateur races only. Although he is a good driver, the other drivers may not be as careful or as aware of the danger involved as he is.

8. For Mr. K, auto racing is only a hobby. He should not have too much difficulty finding a substitute sport that would be equally enjoyable.

9. Mr. K has a well-paying job. Therefore, the money he obtains from racing is not really very important.

Item #2 (Caution)

Arguments favoring "caution"

1. Mr. B should not board the plane because his abdominal pains could be the beginning symptoms of a serious illness, e.g.--appendicitis.

2. There is a good hospital nearby that could provide prompt medical attention. He may not be able to receive good care in a foreign hospital.

3. Mr. B's health is more important than his vacation. These pains may lead to lasting complications, or even be fatal, if they are unattended.

4. Mr. B should go to the hospital immediately. He can always take another vacation.

5. If he goes to the hospital and learns that he is not seriously ill, he will still be able to enjoy the remainder of his vacation.

6. If Mr. B ignores the pains and starts his vacation, his trip will be ruined if he should become seriously ill. He would have wasted all that money for nothing.

7. Medical attention on the plane would be inadequate if he should become seriously ill. He might even die.

8. If Mr. B becomes seriously ill on board the airplane, it could severely disrupt the plans of the other passengers. The plane might have to be re-routed to get Mr. B to the nearest hospital.

9. His pains have been getting worse in the past few minutes. If the plane has a rough flight, it could aggravate his condition.

Item #3 (Risk)

Arguments favoring "risk" (taken from Ebbesen & Bowers, 1974)

1. Consider what would happen if you made that last second play for the win! Defeating your traditional rival on the last play of the last game of the season--fantastic! It's worth the risk.

2. By trying the risky play, College X might take College Y by surprise and pull it off. College Y doesn't know what to expect--they are off-balance and guessing.

3. If you try for the last second winning play and fall a little short at least you will have tried everything. It is better than holding back.

4. Besides, football is only a game. If they lose, at least they would lose dramatically with everyone's respect.

5. And what if you do get the tie? You would always have the thought that you might have won if only you had gambled a little. It would haunt you for a long time.

6. It's foolish to play conservative football--not only do you usually lose, but you look bad. The style with which you play the game is important.

7. What good is a tie? It's so ambiguous--you cannot feel good about it--it's only one step above a defeat. It's better to try for the win.

8. In an unimportant game, it might not be so critical, but in a game against the traditional rival, College X should go all out to win.

9. It is the last game of the season, and it is important for a team to end the year with a big win. It makes the whole season worthwhile and it sets the tone for next year.

Item #4 (Caution)

Arguments favoring "caution"

1. Mrs. H's life is in danger. Her health should be the major concern not that of an unborn child.

2. If they terminate the pregnancy, they can still adopt a child. This would be good for the homeless child also.

3. Mr. & Mrs. H love each other and will have each other even if they have no children.

4. If the pregnancy continues, there is no guarantee that the baby will be free of birth defects.

5. If the pregnancy is allowed to continue and further complications develop, Mrs. H may suffer permanent injury or even death.

6. Perhaps the baby cannot be saved. They may lose the baby anyway.

7. As long as Mrs. H's health is endangered, there can be no religious or moral objection to terminating the pregnancy.

8. Having a child is not the only criterion of womanhood. Besides, there is an increasing number of childless couples these days anyway.

9. Imagine the trauma to Mr. H if both his wife and child died as a result of further complications. He would be completely alone.

Item #5 (Neutral)

Arguments favoring "risk"

1. The corporation wants to make as much profit as possible. They would receive a greater return for their investment if they build the foreign plant.

2. Easy access to raw materials and low labor costs would give Mr. E's company an advantage over its competitors.

3. Access to raw materials and cheap labor would keep production expenses down. Mr. E's corporation could sell their products at a reduced price, making their customers happy.

4. Investing in the foreign country would provide employment for the citizens of that country and would improve the standard of living of these people.

Arguments favoring "caution"

5. Political instability in this foreign country increases the probability that there might be a revolution. Mr. E's company would suffer a complete financial loss.

6. If the minority party that favors nationalization gains political power, Mr. E's corporation would lose everything.

7. If Mr. E's corporation continues expansion in the U.S., it would provide jobs for unemployed Americans.

8. Many other U.S. corporations that have made foreign investments have exploited the people and the economy of those countries. They have been unconcerned about improving the standard of living in these foreign places.

9. Mr. E's corporation could find a foreign country that is politically stable in which to make its new plant.

Item #6 (Risk)

Arguments favoring "risk"

1. By going to University X, Mr. F will get an excellent education from world famous chemists, so he will be much better equipped to study chemistry once he has his Ph.D. and he is on his own.

2. If Mr. F goes to University E and, for one reason or another, drops out, he can always reapply to University Y and probably get in. Since it is a step below University E, University Y cannot be as selective, plus Mr. F has already been accepted there.

3. Often the reputation of the school and its faculty are very important factors in getting a good job initially and in moving up as your career progresses. Who you know and who you studied under are extremely important.

4. By going to University Y, Mr. F may be virtually certain to get his Ph.D., but in turn he will probably find a good job that much harder to get. Especially with the excess number of Ph.D.'s we have in this country. Only the really top Ph.D.'s are getting the good jobs.

5. If Mr. F is good enough to be accepted by University X, he must have the potential to make it through their program. All he must do is work very hard and never give up.

6. If Mr. F is willing to put in a lot of time and work, he can probably make it at University X. In return for that work, he will be making a big step for his future career. The sacrifice now will be worth it later.

7. If Mr. F is at all interested in chemistry, he would do much better to choose University X where he will have a chance to really learn to his full potential.

8. Even in a school like University X, if you have the basic intelligence, the determining factor for success will be an individual's motivation.

9. In our present world, reputation, prestige and level of training are all very important. If Mr. F wants to have a successful career in chemistry, he should definitely choose University X.

APPENDIX III-B

ARGUMENTS PRESENTED BY THE EXPERIMENTER'S CONFEDERATES IN CONTRARY GROUP DISCUSSIONS

Item #1 (Neutral)

Arguments favoring "risk"

1. He should not be overconcerned about having a racing accident. Probably, accidents occur more frequently on the highway or while driving in the street.

2. Mr. K has a mechanic check out the car before each race and he is thoroughly rested before entering a race.

3. Generally, large companies have good medical benefits for their employees. If he was involved in a racing accident, the medical expenses would be covered.

4. His wife has not asked him to quit. But if she had, Mr. K might begin to resent his family for trying to prevent him from doing something he really wanted to do.

Arguments favoring "caution"

5. Mr. K should be concerned about his wife. A serious injury while racing would place an extra burden on her.

6. Mr. K's wife is pregnant. A serious injury at this time might endanger the pregnancy.

7. If he was involved in a serious accident, his child might have a crippled father, or even worse, might be fatherless.

8. A serious injury might prevent Mr. K's continued employment.

9. Mr. K's wife wants him to stop. His marital responsibilities should have higher priority than his hobbies.

Item #2 (Caution)

Arguments favoring "risk"

1. Mr. B should keep in mind that medical attention will be available overseas when he reaches his destination.

2. Everyone gets nervous before flying. The abdominal pains probably are the result of his excitement about the trip.

3. Mr. B has been lo king forward to this vacation and nee s it to relax.

4. Mr. B has never flown before so its a new experience and his "nervousness" is understandable. Besides, if he boards the plane, it would help him to lose his fear of flying for next time.

5. Mr. B can receive aid on the plane once he boards it. He could take a pill to calm his stomach.

6. If Mr. B does not board the plane, he will ruin his vacation and he might not have another opportunity to go.

7. If he does not start his vacation now, he will experience difficulty in changing his plans. He would lose several valuable days in scheduling a new flight not to mention the expense of his unused airplane ticket.

8. Once Mr. B boards the plane and begins his vacation, his abdominal pains may disappear without any medication.

9. It certainly would be disappointing to postpone his vacation to go to the hospital. Imagine the disappointment he would feel (about his delayed vacation) when he learns that the pains were only a nervous reaction.

Item #3 (Risk)

Arguments favoring "caution" (taken from Ebbesen & Bowers, 1974)

1. In a situation like this the defense has the advantage because they can spread their men out in a "prevent defense" so a long play is difficult. All they have to do is force the offense into one mistake and they would win the game. It would be better to try for the tie.

2. Sure, this is a big game. But it is your entire season's record that counts, not one game out of many. A tie would help the overall record and it could be important in the ratings or the conference standings.

3. The risky play is supposed to be complicated. In football, complicated play rarely work--they are too complex for all eleven men to execute perfectly. You only need one small mistake to ruin the play and lose the game.

4. I doubt if the risky play will fool College Y. They know College X must be considering a winning play and they will be ready for everything.

5. College X has battled back to a position where they have a tie virtually clinched. It's stupid to give that all up for a wild play that only has a chance of working.

6. The play for the tie is the safest and best bet. At least you know that you can't lose. It is an almost certain play.

7. Sure, a tie isn't ideal, but it is far better than a loss. And a loss seems very probable with a complicated last-ditch play.

8. Losing is to be avoided at all costs! It is much better to have a tie. There is only an extremely small chance that they wouldn't get the tie to salvage the game from defeat.

9. Some people only like flashy football, but they are wrong. It's better to be realistic about the risks involved and take the nearly certain tie. You rarely do well by taking big risks like this.

Item #4 (Caution)

<u>Arguments favoring "risk"</u>

1. The development of further complications is not a certainty. Both mother and child may come through this crisis safely.

2. Mr. & Mrs. H have no other children and want a baby very much. This seems to be their last chance.

3. Raising an adopted child would not be as fulfilling as raising their own child. Besides, it might be difficult for them to even adopt a child.

4. Mr. & Mrs. H have been trying to have a child for years. It is worth the risk to continue the pregnancy.

5. Besides the fact that an abortion is risky, terminating a pregnancy might violate the religious and moral beliefs of Mr. & Mrs. H.

6. The doctor could have made an incorrect diagnosis. Before terminating the pregnancy, they should get another opinion.

7. If Mrs. H loses the child but lives through the pregnancy, she could become pregnant again.

8. Every pregnancy is risky. The chances of both mother and child dying as a result of further complications are low.

9. Mrs. H will be disappointed if she can't have a child. It is necessary for her womanhood.

Item #5 (Neutral)

Arguments favoring "risk"

1. Mr. E's corporation is prosperous. They could absorb the loss if the foreign country nationalized all outside investments.

2. The United States government would do its best to prevent nationalization.

3. The foreign country could become politically stable. The minority party that favors nationalization is a small one so Mr. E's corporation could make a deal with the government that is in power.

4. Higher operating costs and unionized labor increase the possibility of the plant failing if it is opened in the U.S.

5. It certainly would increase Mr. E's prestige and power within his corporation if this foreign investment works out satisfactorily.

Arguments favoring "caution"

6. If Mr. E decides to invest overseas and this country nationalizes all foreign investments, Mr. E's position in his own company will be seriously weakened.

7. Mr. E's company has little control over the foreign government. To be safe, they should build a new industrial plant in the U.S.

8. Opponents to this American industrial plant within the foreign country might incite the poorly paid workers to rebel or might sabotage the plant.

9. If the foreign country does nationalize their investment, American officials or workers might be injured or killed in the take over.

Item #6 (Risk)

Arguments favoring "caution"

1. I think people judge you on your abilities, not just the name of the school you went to. If Mr. F has the intelligence he will do well with a Ph.D. from University Y.

2. At University Y he could do the work he was interested in for its own sake without having to worry about impressing people. It will give him more personal freedom.

3. Although prestige from a good university can rub off on its grad students, those students must make their own prestige within their professions. What you do in your work is much more important than just who you know.

4. At University Y, Mr. F wouldn't have to worry about competing against his fellow students. He could work in a more relaxed and pleasant atmosphere.

5. Even if he does get into another school (after dropping out of University X), he would effectively have to start their Ph.D. program at the beginning. Very few schools transfer units at the graduate level. He would waste that year, or two, at University X.

6. If Mr. F has doubts about his ability or motivation to succeed at University X, then he should not go there. He must know his own abilities, and he'd be foolish to set his sights too high.

7. At University X, Mr. F would be thrown up against some of the best chemistry students in the country and be lost among them. At University Y he would be one of the better students there and probably highly regarded by the other students and faculty.

8. University X's reputation in chemistry and their excellent training program won't do Mr. F any good when he flunks out. What is important for him is to actually get the Ph.D. as soon as possible. That is his first concern.

9. If Mr. F goes to University Y he is sure to get the Ph.D., but if he goes to University X his chances of getting it are slim. He might just be wasting his time at University X.

APPENDIX IV

INTERPERSONAL JUDGMENT SCALE*

Instructions

The following questionnaire pertains to the impression you have developed about the person with which you have just interacted. It would be appreciated if you would complete the questionnaire honestly and accurately. Your response will be kept strictly confidential.

1. Intelligence (check one)

____ I believe that this person is very much above average in intelligence.

____ I believe that this person is above average in intelligence.

____ I believe that this person is slightly above average in intelligence.

____ I believe that this person is average in intelligence.

____ I believe that this person is slightly below average in intelligence.

____ I believe that this person is below average in intelligence.

____ I believe that this person is very much below average in intelligence.

2. Knowledge of Current Events (check one)

____ I believe that this person is very much below average in his (her) knowledge of current events.

____ I believe that this person is below average in his (her) knowledge of current events.

____ I believe that this person is slightly below average in his (her) knowledge of current events.

____ I believe that this person is average in his (her) knowledge of current events.

____ I believe that this person is slightly above average in his (her) knowledge of current events.

____ I believe that this person is above average in his (her) knowledge of current events.

____ I believe that this person is very much above average in his (her) knowledge of current events.

3. Morality (check one)

____ This person impresses me as being extremely moral.

____ This person impresses me as being moral.

____ This person impresses me as being moral to a slight degree.

____ This person impresses me as being neither particularly moral nor particularly immoral.

____ This person impresses me as being immoral to a slight degree.

____ This person impresses me as being immoral.

____ This person impresses me as being extremely immoral.

4. Adjustment (check one)

____ I believe that this person is extremely maladjusted.

____ I believe that this person is maladjusted.

____ I believe that this person is maladjusted to a slight degree.

____ I believe that this person is neither particularly maladjusted nor particularly well adjusted.

____ I believe that this person is well adjusted to a slight degree.

____ I believe that this person is well adjusted.

____ I believe that this person is extremely well adjusted.

5. Personal Feelings (check one)

____ I feel that I would probably like this person very much.

____ I feel that I would probably like this person.

____ I feel that I would probably like this person to a slight degree.

____ I feel that I would probably neither particularly like nor particularly dislike this person.

____ I feel that I would probably dislike this person to a slight degree.

____ I feel that I would probably dislike this person.

____ I feel that I would probably dislike this person very much.

6. Working Together in an Experiment (check one)

____ I believe that I would very much dislike working with this person in an experiment.

____ I believe that I would dislike working with this person in an experiment.

____ I believe that I would dislike working with this person in an experiment to a slight degree.

____ I believe that I would neither particularly dislike nor particularly enjoy working with this person in an experiment.

____ I believe that I would enjoy working with this person in an experiment to a slight degree.

____ I believe that I would enjoy working with this person in an experiment.

____ I believe that I would very much enjoy working with this person in an experiment.

NOTE: Only the last two items are scored for interpersonal attraction. The most positive response is scored at +7 and the most negative response is +1. Therefore, the highest positive affect score is +28; a completely neutral score is +16 and the most negative score possible is +4.

*See Byrne, 1971, pp. 426-27.

APPENDIX V

AMBIGUITY QUESTIONNAIRE*

Opinion Questionnaire

We are interested in your opinions concerning the experiment in which you have just participated. For each item that you have discussed in this group, it would be appreciated if you would indicate which one of the various alternatives you believe to be true. You can do this by circling the identifying letter of the appropriate choice.

Item 1. Mr. K who has a well paying job recently has gotten married and his wife is pregnant. Because of the possibility of being involved in a racing accident, he must decide whether to continue or discontinue his weekend racing.

(a) Everybody in the group argued for his initial position.

(b) Everybody in the group argued against his initial position.

(c) Some group members argued for and some argued against their initial positions.

(d) I do not know.

Item 2. Mr. B is leaving by plane on an overseas vacation. However, he has developed severe abdominal pains and must decide whether to continue his vacation or to go to a nearby hospital for a checkup, thereby disrupting his vacation plans.

(a) Some group members argued for and some argued against their initial positions.

(b) Everybody in the group argued against his initial position.

(c) Everybody in the group argued for his initial position.

(d) I do not know.

Item 3. Mr. D, the captain of his football team, must decide between making a safe play and settling for a tie score or making a risky play that would either win or lose the game depending on the success or failure of this play, respectively.

(a) Everybody in the group argued <u>for</u> his initial position.

(b) Everybody in the group argued <u>against</u> his initial position.

(c) Some group members argued <u>for</u> and some argued <u>against</u> their initial positions.

(d) I do not know.

Item 4. Mrs. H is pregnant, however complications have developed. Of the pregnancy is terminated at this time, Mrs. H will not be able to become pregnant again. However, continuing the pregnancy could possibly endanger the life of Mrs. H and cause the loss of the child.

(a) Some group members argued <u>for</u> and some argued <u>against</u> their initial positions.

(b) Everybody in the group argued <u>against</u> his initial position.

(c) Everybody in the group argued <u>for</u> his initial position.

(d) I do not know.

Item 5. Mr. E, the president of a light metals corporation, must decide between expansion in the U.S. that would produce small profits or expansion in a politically unstable foreign country that could yield large profits.

(a) Everybody in the group argued <u>for</u> his initial position.

(b) Everybody in the group argued <u>against</u> his initial position.

(c) Some group members argued <u>for</u> and some argued <u>against</u> their initial positions.

(d) I do not know.

Item 6. Mr. F must decide between doing graduate work at a non-prestigious university where everyone gets a Ph.D. or at a university that has a very good reputation but does not award the Ph.D. to all graduate students.

(a) Some group members argued for and some argued against their initial positions.

(b) Everybody in the group argued against his initial position.

(c) Everybody in the group argued for his initial position.

(d) I do not know.

*This questionnaire is a modified version of that used by Burnstein & Vinokur (1973).

APPENDIX VI

INSTRUCTIONS PRIOR TO PREDISCUSSION INDIVIDUAL DECISIONS*

"There are two points I should like to bring to your attention which may seem clear enough at the outset, but are easily overlooked when you become involved in some of the situations. The first is that alternative X--the riskier alternative--is always assumed to be more desirable than the safer course. The second point concerns the meaning of the odds that you are being asked to mark. It is not your task to decide what the odds might actually be in a life situation. The odds you mark indicate the lowest odds you would be willing to accept and still advise the central figure to give the risky alternative a try.

There is no time limit, so take you time and consider the six situations carefully. You may return to one if you wish to change your answer after seeing some of the others."

*These instructions are taken from Wallach & Kogan (1965).

APPENDIX VII

INSTRUCTIONS PRIOR TO GROUP DISCUSSION (AMBIGUOUS SITUATION)*

"The questionnaire that you now have in front of you is the same one which you just finished taking. We have had each of you fill out the questionnaire so that you would become familiar with all of the situations it contains. What we are really interested in is having you discuss each of the situations as a group. Let me now describe the purpose of these discussions. We are trying to develop a set of case materials for a research project involving human interaction. This means that we would like to develop situations for which people are likely to hold many different points of view.

In order that a wide variety of positions is represented in the discussion, you will be informed privately by the experimenter, beforehand, what position to take. You may be instructed to argue in favor of or contrary to the position that you have chosen initially. In either case, you are to argue as effectively as you possibly can for the position assigned to you. At the beginning of the discussion explicitly state the position for which you are going to argue. However, at no time during the discussion should you indicate whether or not this position corresponds to your actual initial choice.

You will have five minutes for this discussion. I will not participate in this discussion, however, I will be here to answer any procedural questions that may arise."

*These instructions are modified from those used by Wallach & Kogan (1965) and Burnstein & Vinokur (1973).

APPENDIX VIII-A

INSTRUCTIONS PRIOR TO GROUP DISCUSSION (UNAMBIGUOUS, CONTRARY)

"The questionnaire that you now have in front of you is the same one which you just finished taking. We have had each of you fill out the questionnaire so that you would become familiar with all of the situations it contains. What we are really interested in is having you discuss each of the situations as a group. Let me now describe the purpose of these discussions. We are trying to develop a set of case materials for a research project involving human interaction. This means that we would like to develop situations for which people are likely to hold many different points of view.

In order that a wide variety of positions is represented in the discussion, each of you will be instructed to argue for a position contrary to the one that you had initially chosen. Several examples can probably illustrate clearly what is meant by a "contrary position". If one of you had initially chosen a position of 1 in 10, then he would be instructed to argue for a choice of "not at all". If 3 in 10 had been chosen initially, then 9 in 10 would be argued for; if 5 in 10, then 7 in 10, and vice versa.

In any case, you are to argue as effectively as you possibly can for the position assigned to you. At the beginning of the discussion explicitly state the position for which you are going to argue.

You will have five minutes for this discussion. I will not participate in this discussion, however, I will be here to answer any procedural questions that may arise."

APPENDIX VIII-B

INSTRUCTIONS PRIOR TO GROUP DISCUSSION (UNAMBIGUOUS, FAVORABLE)

For those groups in the unambiguous situations which are instructed to argue for their initial choices, the following paragraph will replace paragraph 2 of the instructions presented in Appendix VIII-A. The remainder of those instructions will be the same.

"In order that a wide variety of positions is represented in the discussion, each of you is to argue for that position which you have chosen initially when you first answered this questionnaire. Whatever that choice may be, you are to argue as effectively as you possibly can for the position assigned to you. At the beginning of the discussion explicitly state the position for which you are going to argue."

APPENDIX IX

WRITTEN INSTRUCTIONS TO INDIVIDUALS IN ALL DISCUSSION GROUPS

For subjects in AMBIGUOUS DISCUSSIONS:

Name: _____

Item: Life Situation	You Argue for the Position of:
1. Mr. K (sports car racing)	_____ in 10
2. Mr. B (to board the airplane)	_____ in 10
3. Mr. D (football team captain)	_____ in 10
4. Mr. & Mrs. H (abortion)	_____ in 10
5. Mr. E (overseas investment)	_____ in 10
6. Mr. F (college senior)	_____ in 10

Explicitly state the position for which you are arguing at the beginning of each discussion. DO NOT INDICATE IN ANY WAY DURING THE DISCUSSION WHETHER OR NOT THIS POSITION CORRESPONDS TO YOUR OWN INITIAL CHOICE. Remember, argue as effectively as you possibly can.

For subjects in UNAMBIGUOUS DISCUSSIONS:

Name: _____

Item: Life Situation	You Argue for the Position of:
1. Mr. K (sports car racing)	_____ in 10
2. Mr. B (to board the airplane)	_____ in 10
3. Mr. D (football team captain)	_____ in 10
4. Mr. & Mrs. H (abortion)	_____ in 10
5. Mr. E (overseas investment)	_____ in 10

6. Mr. F (college senior) _____ in 10

Explicitly state the position for which you are arguing at the beginning of each discussion. Remember, argue as effectively as you possibly can.

APPENDIX X

INSTRUCTIONS FOR POSTDISCUSSION DECISIONS*

"All right. That was a good discussion. Several different points of view were expressed. For some of you, the discussion may have raised issues that you had overlooked when filling out the questionnaire individually. Now, we would like to find out whether the discussion influenced your judgment in any way. When making your decision now, don't feel bound by what you did when filling out the questionnaire the first time. We're not interested in your prior opinion, but rather in just how you feel about the situation now. If you still feel the same way, that's quite all right, but we should like you to consider each situation in the light of the discussion. As I told you before, we're interested in seeing how much diversity of opinion is generated by each situation. Obviously, the expression of such diversity should have some impact on everyone's personal opinions.

All right, now make your decision for the item that you have just discussed."

*These instructions are taken from Wallach & Kogan (1965).

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