GROUPTHINK IN DECISION MAKING: TESTING FOR ITS EXISTENCE, EFFECTS AND PREVENTION

by

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Abstract

Groupthink is a theory concerning decision making developed by Janis (1972) on a case study basis. He uses the theory to explain several international fiascoes such as the Bay of Pigs invasion of Cuba. Highly cohesive, isolated groups operating in stressful circumstances, under highly assertive leaders may support the leader's position in the attempt to maintain group consensus. Experimental research reviewed by the present author is re-interpreted as not supporting the theory. Criticisms concerning the original development of the theory and the possibility of obtaining disconfirming evidence are outlined.

The present experiment obtained for subjects 192 staff members from government and corporate organizations. Leadership style, cohesiveness and stress were manipulated to simulate the groupthink conditions. The four-person groups attempted to develop solutions to two current social problems: (1) Canadian immigration, and (2) capital punishment. The sessions were taperecorded and subjects were given post-experimental questionnaires. The questionnaires provided information for manipulation checks and the attempt to observe specific symptoms of groupthink. The audio-tapes were rated by two independent observers for the quality of the decision making discussions. The proposed solutions (in transcript form) were rated for their quality by experts from Immigration and law.

Groupthink theory was not supported by the analyses at the various levels. The independent variable manipulations were moderately successful. The results indicated that leadership style played the dominant role in affecting both the group atmosphere and the quality of the decision making. These findings are interpreted as being consistent with earlier research.
on groupthink theory. It was also found that the time limitations employed in the study influenced the task oriented dimensions of the group processes. It was suggested that the role of leadership may be more crucial to groupthink theory than is the role of group cohesiveness. However, before reaching a decision on the validity of the groupthink theory based upon the current laboratory research, it is recommended that groupthink be tested in a fashion more appropriate to the level of analysis of the theory.
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Decision making is a process engaged in by both individuals and groups. There are numerous ways of conceptualizing the decision making process and there is a large number of problems that may hinder the task of reaching a decision. In considering group decision making, one potential difficulty is that the members may become caught up in a process that Janis (1972; Janis and Mann, 1977) has labelled "groupthink". This is a tendency for cohesive groups under strongly opinionated and assertive leaders to react to a stressful decision making task by supporting the leader's view. In its attempt to maintain consensus on the decision, the group may dramatically decrease its critical analysis of the problem and thus impair the quality of the subsequent decision. Before dealing with the specifics of groupthink theory we will consider the relationship between it and general theories on decision making. Of particular interest is the relationship between groupthink theory and both the earlier decision making theory developed by Allison (1971) as well as the decision making theory developed subsequently to groupthink theory by Janis and Mann (1977).

**General Decision Making Models**

Writers in many areas of organizational behaviour and psychology have outlined their perceptions of the stages associated with the decision making process. Theorists in systems analysis (Bell, Keeney & Raiffa, 1977; Dickerson & Robertshaw, 1975; Katz & Kahn, 1978; King, 1978) have discussed the decision making aspects of problem assessment, generating alternatives, evaluating alternatives, selecting an alternative, implementation and evaluation. The literature on operations research (Ackoff & Sasieni, 1968),
decision analysis (La Valle, 1978), program evaluation (Ross, 1980) and social psychology (Hoffman, 1978) also makes reference to problem identification and formulation, idea generation, solution evaluation or analysis, selection, and implementation. Similarly, there are many references within the area of organizational behaviour which discuss the basic components of decision making outlined above (Alexander, 1979; Bonczek, Holsapple, & Whinston, 1979; MacCrimmon & Taylor, 1976; Miner, 1979; Thompson & Tuden, 1971). In particular, basic texts on organizational behaviour (e.g., DuBrin, 1978; Gibson, Ivancevich & Donnelly, 1979) usually contain very explicit outlines and discussions of the decision making process. To simplify and extract the basic, agreed upon components, the decision making process is generally viewed as occurring in the following sequence. Decision making starts with problem identification and this leads to the generation of potential solutions. The alternatives are then evaluated and a choice is made. The last step is the implementation of the decision and the evaluation of the outcomes.

**Allison's Decision Making Model**

The theory outlined by Allison (1971) suggests that the above view of the decision making process represents only one dimension within possible conceptualizations of decision making. Allison (1971) adds a second dimension concerned with the type of decision making model that one employs as an explanation of the decision making process. He proposed that theories of decision making processes can be viewed in terms of the following three models: (1) the rational actor model; (2) the organizational model; and (3) the political process model. Within each of these models Allison (1971) visualized three distinct components: (1) information input; (2) the decision making component; and (3) the implementation aspect (see Figure 1).
Figure 1
Allison's Classification of the Components Within Decision Making Theories

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<td>Dimension 1: Model Decision Making Process</td>
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These latter three components encompass the dimension concerned with the decision making process.

The rational actor model is the classical model in this area. The basic components of the rational actor model are: (1) Goals and Objectives—The actor has specific goals and objectives that he attempts to meet when dealing with the problem. (2) Alternatives—The rational actor must choose among a set of alternative potential solutions. (3) Consequences—There are specific consequences associated with each particular decision choice and these consequences can be ranked in terms of preferences. (4) Choice—The rational actor simply chooses the most preferable or most optimum alternative. This means that, by and large, the rational actor behaves in order to maximize his payoff.

In this model, organizations are conceived of as unitary agents with the information input, decision making and implementation functions being handled by that one agent. Thus, we speak of "the government's decision" or "the corporation implementing cost cutting measures".

The organizational process model extends the rational actor model by describing the organizational influences that affect both the information input component and the implementation component of the decision model. The organization is no longer conceived of as a unitary agent, nor are the organizational processes "rational" in the sense outlined previously under the rational actor model. The basic concepts of the organizational process model are: (1) There is often no internal consensus concerning the organization's goals and objectives. Instead there are multiple goals, and conflicts among the goals of subunits. (2) Organizations attempt to avoid uncertainty by: (a) solving immediate problems rather than dealing with long range strategies and (b) regulating environmental variability through the use of plans, standard operating procedures, industry traditions, etc.
(3) They engage in "satisficing" behaviour regarding the achieving of goals and objectives, that is, involvement in a course of action that is adequate, that produces satisfactory outcomes rather than maximal outcomes. (4) Organizational behaviour is generally stable but does change as the result of experience.

The political process model considers the influence imposed on the decision making by the activity that can be described as bargaining among the members or coalitions within the organization. The actions of the organization are seen as the result of the intricate and subtle maneuvers made by both the central figures and the formal and informal subgroups within the organization. The process is analyzed in terms of which individuals and groups are involved; what determines their relative degrees of power or influence; and how all of the groups, positions and influences combine to yield the organizational decisions and actions. The organization is not seen as a unitary agent and the aspects of information input, decision making, and implementation are seen as being quite distinct. Goals, interests and power bases may clash and the moves are generally played out according to established rules of the game. The significant outcome is that the events at all three stages, from information input to implementation, are influenced by the political forces within the organization.

Janis and Mann's Decision Making Model

In terms of the taxonomy of decision theories developed by Allison (1971), most decision making theories, including the theory of decision making proposed by Janis and Mann (1977), are located within the rational actor model. In addition, the theory of Janis and Mann is concerned primarily with the decision making component, although it does take note of some of the informational input aspects of the rational actor model. It is
interesting that in the 1972 book on groupthink Janis briefly proposes what he calls a group dynamics model for the analysis of decision making. This model would be in addition to the rational actor, organizational process, and political process models outlined by Allison (1971). Janis' model is concerned with how the group dynamics associated with a small group of decision makers may influence the rationality of the decision reached. As far as the present author knows there is no specific research comparing the different models. The utility of the different models seems to lie primarily in the extent to which the reader is convinced that one model or combination of models rather than another constitutes the most accurate or useful theoretical representation of reality.

Janis and Mann (1977) point out that two major limitations on the quality of decision making stem from the limited nature of man's capacity to process information and from the need to make decisions which satisfy the demands of bureaucratic traditions, procedures and politics. Other limitations stem from the personality characteristics of the decision makers such as the degree to which they tend to mentally simplify complex material (conceptual complexity), their stereotyping behaviour, tolerance for ambiguity, and self-esteem.

Decision making stress. The central thesis of Janis and Mann's theory is that apart from factors such as those listed above, there are also severe limitations placed upon the quality of decision making by the fact that engaging in or preparing to make decisions produces psychological stress. This stress varies with the psychological make-up of the individual and with the perceived magnitude of the decision to be made.

They outline a series of five basic assumptions about stress and reactions to stress: (1) The degree of stress is proportional to the expected number of unsatisfied goals and their importance; (2) When
considering possible new courses of action, decisional stress is a function of the extent of commitment to the present course of action: (3) Defensive avoidance of threat cues will occur as a result of high levels of decisional stress in situations where all perceived alternatives are associated with serious risks and there is little hope of finding a solution better than the least objectionable choice; (4) Under high threat conditions where there is an anticipation of insufficient time to choose a course that will avoid serious losses, there will exist a state of severe decision conflict and stress that will increase the likelihood of hypervigilance (panic) in the decision maker; (5) Threat producing a moderate level of stress will result in a vigilant search for alternatives which may yield an adequate solution, if the decision maker feels that it will be possible to find such a solution.

Optimal decision making. Janis and Mann (1977) also specify seven ideal procedures that, if followed, would indicate that the decision maker was operating under a condition they characterize as "vigilant information processing". They suggest that as best possible, within the limitations of his cognitive abilities, the decision maker should: (1) survey a wide range of alternative policies, (2) consider the full scope of the objectives and values that need to be met, (3) carefully consider the costs and benefits associated with each alternative, (4) intensively seek out additional information on the alternatives, (5) assimilate without bias all the information both supporting and not supporting the preferred choices, (6) reexamine all the information on each known alternative, including those considered unacceptable, before making a commitment to a final choice, (7) outline detailed plans for implementing the decision and for dealing with contingent risks.

To the extent that these conditions for vigilant information processing are met, it is suggested that there is an increased probability for successful decision making. Given this underlying set of premises concerning stress
and vigilant information processing, the major focus of the theory is concerned with the causes and consequences of decision making when the conditions for vigilant information processing are not met. The theory may perhaps be best described by considering a representational drawing (see Figure 2) which amalgamates the features from three aspects of the model outlined by Janis and Mann (1977, see Figures 3, 4 and 8).

Stages in the decision stress model. The decision stress model of Janis and Mann (1977) is concerned with the antecedent conditions, mediating processes, and consequences that exist at the five different stages in the decision making process. Initially, there must be a challenge to the existing course of action that threatens the decision maker with the possibility of serious losses or the possibility of a failure to gain valuable outcomes. This initial challenge motivates the individual (or group) to enter the first stage of the decision making process, that is, the process of appraising the seriousness of the challenge. In this first stage, information is reviewed concerning possible losses if the present course of action is not altered. If the risks of maintaining the current policy or behaviour are not serious then the challenge is rejected and the individual adheres to his or her present position with little decisional conflict. However, if it appears that there may be some risk from not changing, the individual proceeds to the second stage of decision making and prepares to survey the possible alternative courses of action.

In this second stage, alternatives are considered and if unacceptable are discarded; if acceptable, then the risks associated with the alternative are considered. If the associated risks are not serious then there may occur a change, with little decisional conflict, to accepting the alternative as a solution. Janis and Mann (1977) note that decision makers attempting to solve problems by using a satisficing strategy, often repeat this process.
Antecedent Conditions

START: Challenging Negative Feedback or Opportunity

Additional Information About Losses From Continuing Unchanged

Discard of Unacceptable Alternative

Information About Losses From Changing

Signs of No More Information or Other Resources Available

Information About Deadline and Time Pressures

Information About Whether Others Can Be Involved

STAGE 1: Appraising the Challenge

Risks serious if I don’t change?

Maybe or Yes

STAGE 2: Surveying Alternatives

Search for Another Alternative

Is this alternative acceptable?

Maybe or Yes

Is it realistic to hope to find a better solution?

Maybe or Yes

Are the risks serious if I postpone the decision?

Maybe or Yes

Can I turn the decision over to someone else?

Maybe or Yes

Is there sufficient time to search for and evaluate a better alternative?

Maybe or Yes

Have I sufficiently surveyed the alternatives?

Yes

STAGE 3: Weighing of Alternatives

Might a modified alternative be better?

Further Search For and Evaluation of Consequences

Which alternative is best?

No

Can I relax the requirements?

No

Could the best alternative meet the essential requirements?

Yes

STAGE 4: Deliberating About Commitment

Shall I adopt the best alternative and allow others to know?

No

Unconflicted Adherence

Unconflicted Change

Defensive Avoidance Type A: Procrastinating—Lack of Interest in Issue. No Search, Appraisal or Continuity Planning

Defensive Avoidance Type B: Shifting Responsibility—Commitment to Someone Else’s Choice. No Search, Appraisal or Continuity Planning

Defensive Avoidance Type C: Bolstering—Commitment to Least Objectionable Alternative, With Biased Search, Appraisal and Continuity Planning

Defensive Avoidance Type D: Displacement—Commitment to Replacement Alternative, With Unsearched, Appraisal and Continuity Planning

END. Stage 5 of Prior Decision

END. Weak Stage 5. Vulnerability to Unanticipated Challenges

Attenuated Stages 3 & 4: Superficial Weighing of Alternatives and Little Deliberation About Commitment

Supervigilance

over and over again each time the alternative runs into difficulty. This leads to a pattern of incremental changes in the policy or action with no serious consideration of the full range of possibilities.

If there are serious risks associated with an alternative it is then decided whether or not there is reason to hope that a better solution may be found. If the answer to this question is negative then the decision maker is likely to engage in what Janis and Mann (1977) term defensive avoidance. Defensive avoidance is the evasion of threatening cues which arouse awareness of the potential losses. According to Janis and Mann, defensive avoidance is probably the most pervasive reaction that occurs in response to important and stressful decision making and is also the most difficult response to prevent or correct. The decision maker will postpone the decision if possible or shift the responsibility to someone else; or if all else fails, he will accept the least objectionable solution as the best alternative possible and bolster the decision by emphasizing the benefits and down-playing the anticipated losses. It is this last case of defensive avoidance through bolstering that is of principal interest in this paper, for it is this process that, when it occurs in decision making groups, is labelled groupthink by Janis and Mann (1977).

Janis and Mann (1977) outline six main bolstering tactics that they have observed in their studies on decision making: (1) Exaggeration of the favourable outcomes, (2) Minimization of the unfavourable outcomes, (3) Denial of the aversive nature of feelings associated with unfavourable outcomes, (4) Once a decision is made, exaggerating the length of time that will occur before action on the decision need be taken, (5) Minimizing the degree of social surveillance of the decision commitment, (6) Minimizing personal responsibility for the decision.

Groupthink is defined by Janis and Mann (1977) as a collective pattern
of defensive avoidance through bolstering. The major difference between the bolstering of individual decision makers and decision makers in a moderately or highly cohesive group is that the group supplies a context of social support or disapproval for the actions. Which of the above tactics will be employed by a decision maker is considered to be a product of the type of decision, the situational context, and the individual's predispositions. It should be noted that Janis and Mann view the occurrence of bolstering under some conditions as useful. When a thorough search and appraisal of the alternatives has been made and the individual has selected one which is clearly the best choice, bolstering the decision may be valuable in producing a confident commitment by avoiding last minute demoralization over feelings of uncertainty about the choice.

However, to complete our discussion of the second stage of the theory, if the group (or individual) feels that it is reasonable to hope to find a better solution they must then decide whether or not they have sufficient time to consider the other alternatives. In a situation where the group members feel that they do not have sufficient time because of rapidly approaching deadlines or the apparent closing off of alternatives, they may be subject to high levels of psychological stress. This will lead to a state of rapid oscillation between choice, superficial information intake, and obsession with the apparently inevitable losses, and will often result in the hasty selection of the first potential means of escaping the perceived danger. Janis and Mann (1977) label this state of panic as hypervigilance.

On the other hand, if the decision makers feel that it is realistic to hope for better solutions and there is sufficient time to search for these solutions, then the degree of stress will be lowered to a moderate level and they will enter into vigilant decision making. At this point, the decision maker will proceed through the third stage of decision making by engaging in
a vigilant evaluation of the alternatives. When an alternative has been found that will meet the essential requirements of a good solution, the fourth stage is reached, which involves making a decision to publicly commit oneself to the choice. When this last phase of commitment is completed the individual or group has reached a strong decision (stage 5) on the basis of a thorough research and evaluation of the potential risks, benefits, and losses. Janis and Mann (1977) suggest that individuals or groups completing the fifth stage will also have developed contingency plans to deal with potential difficulties and the decision will be less vulnerable to the anticipated possibilities of negative feedback or required alterations.

Janis and Mann (1977) consider their theory to be applicable both for decision making on an individual level and decision making accomplished through a group process. The model is also meant to be applicable with respect to the making of vitally important decisions as well as routine, commonplace decisions. Janis and Mann (1977) stress the fact that the theory is designed for the understanding of decision making where the outcomes of the decision are of some consequence to the individual or group. They suggest that typical laboratory research on hypothetical decisions is useful for looking at basic cognitive processes but has limited applicability to real-life decisions. The theory is based upon the importance of consequentiality in decision making, but in terms of normal decisions the consequences need not be life or death; "we also expect the model to apply to everyday personal decisions concerning such matters as how to handle work assignments, whether or not to carry out social obligations, and the like—provided that they evoke at least a mild degree of worry about the outcome" (Janis and Mann, 1977, p. 75).

Group Cohesiveness

In addition to understanding the relationship between groupthink and
Janis and Mann's (1977) general theory on decision making, it is also important to consider the relationship between groupthink and group cohesiveness. Group cohesiveness is a variable that is of importance to the group decision making process and has received extensive psychological study.

Early research by Schachter (1951) considered the effects of group cohesiveness and task relevance upon the group decision making process. He manipulated cohesiveness by forming four bogus campus clubs where the high cohesiveness clubs were composed of members all of whom had indicated a strong preference for joining that particular club. In contrast, the low cohesiveness groups contained members who had indicated a strong preference for joining a different club. Task relevance was manipulated by choosing a discussion topic of interest to some clubs but irrelevant to the interests of the other clubs. He found that under conditions of high group cohesiveness and task relevance, an experimental confederate who disagreed consistently with the group's viewpoint became the focus of efforts by the others to change his attitude. In addition, continued refusal to change his position threatened the solidarity of the group. The outcome was that the deviant was rejected, disliked and in a social sense, excluded from the group.

A number of authors have described the cohesiveness of a group in terms of the sum of the forces that act to cause members to remain in the group (Festinger, Schachter, & Back, 1950; Sherif & Sherif, 1964, 1969). Three major factors contributing to group cohesiveness were felt to be the attractiveness of the group, the duration of the past association, and the extent to which the group could mediate the attainment of important goals. Some individuals join groups to socialize or learn new skills, and others join to gain prestige, but regardless of the reason, members highly attracted to the group have been found to frequently attempt to reconcile differences of
opinion among other members (Back, 1951). In addition, groups composed of individuals who liked the other members tended to communicate more, reached quicker consensus on the group's position, and then applied group pressure on recalcitrant participants to comply (Lott & Lott, 1965). This is not a surprising finding since a number of authors have noted that highly attractive groups exert influence over their members' opinions and behaviours (Berkowitz, 1954; Festinger, 1950; Festinger, Schachter, & Back, 1950).

In terms of general factors affecting group cohesion, it has been found that competition, threat, and stress which are exerted upon the group by an external force typically produce increases in internal group cohesion (Coser, 1956; Ferguson & Kelly, 1964; Julian, Bishop, & Fiedler, 1966; LeVine & Campbell, 1972). In this case, group cohesiveness is often defined in terms of the lack of internal conflict. This raises an important issue in terms of defining group cohesiveness since, as mentioned earlier, some authors have defined it as attraction to the group. The research of Weiss and his co-workers (Lombardo, Weiss, & Stich, 1973; Weiss, Lombardo, Warren, & Kelley, 1971) has demonstrated how apparent internal conflict in the form of disagreement may, under the right conditions, increase the cohesiveness of the group. Their studies indicate that while attraction and social cohesion may be due, in part, to attitude similarity, these outcomes may also be due to the reinforcing effects of being able to reply to another's comments in cases where attitude conflict is demonstrated through verbal disagreement. The ability to reply reduces the noxious state caused by the disagreement and thus, based upon learning principles, may either increase attraction to the other person or decrease the amount of dislike for the person. In a group situation, this would therefore tend to enhance cohesiveness, particularly in comparison to situations where group norms restricted a full "give and take" discussion of disagreements.
It is of value to note that the groupthink theory of Janis (1972) appears to rely most heavily on the definition of group cohesiveness as attraction to the group. The cohesiveness defined as attraction to the group is seen to exist as a necessary precursor to groupthink, before the decision stress on the group produces the "second" kind of cohesiveness, which is a lessening of internal conflict and the seeking of consensus.

Groupthink Theory

As mentioned earlier, an important aspect of Janis and Mann's (1977) theory on decision making is its description of the circumstances leading to the defensive avoidance technique of bolstering. Groupthink has been explained by Janis and Mann as simply being the bolstering of an apparent group decision before it has been completely accepted. In situations where there are serious risks associated with the alternatives, where there are apparently no better solutions to be found, and the decision cannot be postponed or shifted to someone else, a group will be subject to severe stresses. In a moderately or highly cohesive group it is postulated that these stresses will lead to strong feelings of affiliation which in turn produce conformity pressures and a striving for unanimity. The least objectionable choice is made and the group provides shared support, rationalizations, etc., to bolster the decision. In an article written in 1971, and in a subsequent book published in 1972, Janis discusses the entire groupthink process at length. To facilitate a detailed discussion of his theory it will be useful to outline the steps that will be taken in examining his work.

First, we will mention the examples which Janis (1972) used as the basis of support for the derivation of the groupthink principles. Second, we will consider the many group processes and personality factors that may act as the necessary conditions for producing groupthink. The nature of the "groupthink
symptoms" will then be discussed. Other aspects of the decision making process apart from the groupthink symptoms will be considered, as well as the decision outcome which is the result of groupthink. Then, several examples and a summary of ways to avoid groupthink will be outlined. From there we will move to a brief mention of the problems associated with non-cohesive group decision making approaches. We will consider some of the problems associated with the way Janis (1972) has presented the theory of groupthink and then discuss his concepts concerning the type of studies which are needed in future groupthink research. Last, we will examine the case studies and experimental research that have attempted to test groupthink theory.

Examples of groupthink. Janis (1972) provides five examples of the circumstances surrounding major international decisions that resulted in what he feels to be fiascoes. He uses these examples as the basis for outlining the types of processes and outcomes involved when decision making groups engage in groupthink.

The first example concerns the Bay of Pigs invasion of Cuba in 1961 by Cuban exiles, supported, developed and financed by the United States government under the Eisenhower and Kennedy administrations. The second example is found in the unwillingness on the part of the naval commanders in Hawaii to accept the possibility that Pearl Harbor might be attacked by the Japanese as a prelude to war with the United States. The decision by the Truman administration to allow General MacArthur to invade and attempt to conquer all of North Korea, that resulted in the Chinese intervention and subsequent major American military losses, provided the third case of groupthink processes at work. The fourth illustration was the decision on the part of President Johnson's policy making group to escalate the war in Vietnam during the mid-1960's. The last example is related to the events surrounding the decisions made by Neville Chamberlain's group in the attempt to deal with
Nazi Germany under Hitler just prior to World War II.

Groupthink preconditions. As a result of examining these cases in detail, Janis (1972; Janis & Mann, 1977) proposes that a number of conditions underlie the production of groupthink in group decision making situations. The first, and one of the most essential conditions, is the existence of a moderate or high degree of group cohesiveness. High group cohesion results from strong commitment to the group, a highly valued membership in the group, and is associated with feelings of camaraderie. Mutual friendships and loyalties are valuable bonds establishing cohesiveness preconditions. Similarly, acceptance by the others is an important feature of group cohesiveness that leads to the freedom to speak one's views without fear of rejection or losing one's standing in the group, especially when those views deviate from the group norm. Janis (1972) suggests that group cohesiveness may be increased through the feelings of competence produced by successfully dealing with problems as a group and through social rewards such as friendships within the group and the prestige of belonging to the group. Janis (1972) views group cohesiveness as a major condition promoting groupthink, "the more amiability and esprit de corps among the members of an in-group of policy makers, the greater is the danger that independent critical thinking will be replaced by groupthink..." (p. 198).

Apart from cohesiveness, there are several additional variables that are seen as antecedent conditions for the production of groupthink. First, isolating the decision making group from outside expert opinion restricts the input of vital information and critical opinion that may rectify errors that are due to the concurrence seeking of the group's members. Second, in conjunction with the group's isolation, the group will often fail to systematically search out and appraise the alternative courses of action. This will allow cursory and biased judgements to be made on policy issues. A
third condition is the setting of a strong norm by the leader for a particular type of decision or solution. This directive leadership coupled with the leader's power will help to induce conformity to the proposed solution on the part of the group members. This state leads to the final pair of antecedent conditions. Under stressful conditions, the leader's favouring of a particular alternative may tend to produce in the group a feeling that there is little hope of finding a better or more acceptable solution. Group cohesiveness, isolation, poor search and appraisal procedures, directive leadership, decisional stress, and a lack of hope for a better solution all combine to produce concurrence seeking on the part of the group members. This pressure to maintain consensus on important issues will result in the leader's decision being bolstered by the group members.

It is suggested that the striving for unanimity found in groupthink overrides the group member's ability and motivation for independent or counter-normative thinking. This leads the group to reject the views of members who deviate, producing compliance even among members who may have doubts concerning the group's decisions.

In combination with group process factors that influence groupthink, Janis (1972) suggests that certain personality characteristics such as fear of social disapproval and rejection may make individuals more susceptible to conformity pressures and subsequent groupthink. He notes that personality predispositions for groupthink may include social support seeking by people with: (1) low self-esteem, (2) high responsiveness to social disapproval, and possibly (3) low levels of moral development (footnote 6, pp. 238-239).

What are the dynamics behind groupthink? Groupthink fills some very powerful psychological needs. The striving for concurrence helps to maintain feelings of harmony and togetherness within the group. In a groupthink situation it appears to the members that there is consensus on the decision,
that everyone is basically in agreement. Groupthink therefore functions to help reduce one's anxiety and possible guilt about having made the correct choice. The groupthink process of stressing the positive features and downplaying the negative features of the proposed solution helps avoid damage to one's self-esteem, and it also helps to avoid the painful feelings associated with severe criticism of one's pet ideas by respected associates.

**Groupthink symptoms.** As noted earlier, the actual existence of the phenomenon of groupthink is established by the existence of a specific set of group processes. These processes may occur when the conditions outlined above prevail during the attempt to reach a significant group decision. Janis (1972) outlines these processes as the eight major symptoms of groupthink: (1) illusory feelings of invulnerability and security that lead to excessive optimism and risky decisions; (2) the use of rationalizations to avoid warnings of danger that might otherwise lead to a reconsideration of assumptions underlying past policy decisions; (3) unquestioned feelings of moral correctness leading to decisions that are assumed to be moral; (4) the development of shared negative stereotypes of the enemy leaders as too evil to be genuinely negotiated with, or too stupid or weak to counter the actions being considered against them; (5) the application of direct pressure upon members who are not seen as being loyal to the group when they strongly question the illusions, stereotypes or commitments of the group; (6) the use of self-censorship to minimize the importance of one's doubts and counterarguments and thus to inhibit deviation from apparent group consensus; (7) a shared sense of unanimity concerning the majority view that is illusory due to the existence of self-censorship and the false assumption that silence means agreement; (8) the phenomenon of self-appointed "mind guards" who function to protect the leader and group from strongly opposing views and disturbing information concerning the effectiveness and morality of the
decisions being made.

According to Janis (1972) the "symptoms of groupthink will be found most often when a decision poses a moral dilemma, especially if the most advantageous course of action requires the policy makers to violate their own standards of humanitarian behavior. Under these conditions, each member is likely to become more dependent than ever on the in-group for maintaining his self-image as a decent human being and accordingly will be more strongly motivated than ever to maintain a sense of group unity by striving for concurrence" (p. 206).

**Groupthink decision process.** The symptoms of groupthink are indicative of a poor decision making process. Assuming that the critical evaluation of as many alternatives as possible within time and processing constraints is the method most likely to select the best decision, decision making groups that do not meet this criterion are operating at a suboptimal level. Sub-optimal decision processes would apply to situations where the previously listed symptoms of groupthink were apparent. Unrealistic optimism, the failure to heed warnings, and misperceptions of the opponents all indicate a poor information processing and decision making procedure. Similarly, isolation from outside expert opinion, the stating by the leader of a preferred solution at the beginning of discussion, allowing excessive group pressure to be exerted against those with deviant views, and the existence of "mind guards" restricting the input of important information to the group, all suggest a faulty decision process. Janis (1972) reveals very early in his writing that he considers this inferior decision process to be one of the most, if not the most, detrimental effect of groupthink.

**Groupthink decision outcome.** When the decision making process is poor, more often than not the product will be poor also. Janis (1972) comments that decision making groups which exhibit all or most of the groupthink
symptoms will perform ineffectively and will be more likely to fail to meet their objectives. He feels that the more frequently a group displays the symptoms, the worse will be the quality of their decisions. This may occur even when some symptoms are absent, if other symptoms are particularly pronounced.

The display in Figure 3 schematically outlines, in a simplified form, the various components of the groupthink theory of Janis (1972).

Avoiding groupthink. At this point, Janis (1972) examined two cases of international situations where the decision making groups appeared to fit most of the preconditions necessary for producing groupthink. However, rather than fall victim to groupthink they managed to avoid it. The first example involved the Kennedy administration during the 1962 Cuban missile crisis. Some of the steps taken by President Kennedy to avoid bad decision making were as follows: (1) Individuals were not allowed to be only specialty experts but were required to think about and critically discuss all aspects of the issues. Two individuals were asked to take on the special role of considering in depth all the possible flaws in various plans; they basically became devil's advocates. (2) Outside experts were brought in to present fresh views and discussion was not limited by an imposed agenda. (3) The major group was divided into sub-groups to discuss policy independently and then reassembled for general debate. (4) The leader (President Kennedy) deliberately absented himself from some meetings (particularly preliminary ones) to avoid restricting a free ranging discussion by having others fall in line with his views on a topic.

The second groupthink-avoidance case study concerned the development of the Marshall plan for the post-WWII reconstruction of Europe. The major policy development group was headed by Mr. G. Kennan. Some of the processes which were used in this situation to minimize poor decision making were as
Figure 3
Schematic Outline of Components Within Groupthink Theory

<table>
<thead>
<tr>
<th>Preconditions</th>
<th>(high cohesiveness, concurrence seeking, stress, leadership style)</th>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>Groupthink Symptoms</td>
<td>(e.g., false unanimity, self-censorship, mindguards, illusions of invulnerability)</td>
</tr>
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<td></td>
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<tr>
<td>Decision Process</td>
<td>(e.g., decreased information input, decreased number of suggested solutions)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision Outcome</td>
<td>(poorer quality, more often wrong)</td>
</tr>
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follows: (1) Instead of establishing a norm supporting group unity, from the beginning it was attempted to develop a norm centered on the critical questioning of ideas. (2) The group leader did not impose his own views. Rather, he presented them for critical evaluation by the others. The leader attempted to maintain impartiality and generate genuine open debate. (3) There was a deliberate attempt by leaders at all levels, up to and including the President, to avoid placing pressure on subordinates to comply with the leader's initial preferences. (4) Several subgroups were used to initially grapple with the problem; these groups then came together again to combine their ideas and work out their differences. Similarly, several major groups were formed to deal with separate important components of the policy; as before, these efforts were later reviewed and integrated, in this case by an evaluation review committee.

On the basis of these two case studies, Janis (1972) provides a summary of techniques for avoiding groupthink: (1) "The leader of a policy-forming group should assign the role of critical evaluator to each member, encouraging the group to give high priority to airing objections and doubts. This practice needs to be reinforced by the leader's acceptance of criticism of his own judgments in order to discourage the members from soft-pedaling their disagreements" (p. 209). This for Janis is the most important recommendation, one which is necessary before other moves are taken to avoid groupthink; it entails the development of a norm for the critical assessment of ideas. (2) The leader should be impartial rather than stating preferences, expectations or specific solutions that he would like to see accepted. This approach fosters the group's consideration of a wider range of alternatives. (3) Several planning and evaluation groups under different leaders should be used to work on the same problem. (4) In conjunction with the previous suggestion, a policy-making group may be split on occasion into several
subgroups that meet separately and then recombine to work out the differences in their positions. (5) Each group member should consult with trusted experts in his own department or area to gain additional perspective on the issue and report the views back to the group at large. (6) At intervals, outside experts should be invited to present their views to the core group and to critically question the views of the members. (7) A devil's advocate should be appointed as a critical scrutineer of ideas at all meetings where alternatives are being considered. (8) When the decision involves dealings with another organization or nation, specific time should be spent considering the various types of communications and signals from the opposing group. This would be done in the attempt to understand their intentions and in order to consider the various possible risks associated with different intentions. The group should then attempt to meet these risks by developing contingency plans to deal with the outcomes of different types of intentions. Janis (1972) suggests possibly using a Cassandra's advocate, a term describing the Greek mythological prophetess of doom who was not believed. The role of the Cassandra's advocate would be to present a worst-case analysis of the available information concerning the intentions of the opposing side. (9) When a preliminary consensus has been reached, a meeting should be held where members are specifically expected to expose and discuss any remaining personal doubts that they have on the issue before making a final decision.

When considering the fiascoes cited as evidence for groupthink, in contrast to the successful decisions cited as evidence for avoiding groupthink, there may be an implication that we should utilize all possible techniques for avoiding groupthink. This may be considered appropriate since these techniques are good for decision making, while groupthink is bad for decision making. It should be noted however, that over-zealous use of these beneficial techniques raises the potential for bogging the group down in what may be unnecessary
complexity or time consuming efforts. In comparison to the costs of delaying a decision, these efforts may have diminishing returns on increasing the quality of the group's decision making.

In discussing the role of groupthink in decision making, it is important to note that groupthink is not the only affliction that reduces the quality and outcome of the decision making process. In the view of Janis (1972), low cohesive groups lacking mutual acceptance, amiability or esprit de corps may not display the groupthink symptoms, but may display worse decision making and produce even greater fiascoes than moderately or highly cohesive groups. There are two major problems that often beset non-cohesive groups. In some cases the group may create acquiescence in members out of a fear of rejection or recrimination (whereas in groupthink the acquiescence is out of a more positive motivation to maintain unanimity or harmony among friends). In other cases, a different set of motivations may dominate. For example, if the group is composed of members of incompatible views or members working only as representatives of other factions or interests, rather than as members committed to the larger group, they may become entangled in power struggles and win-lose strategies. Friendship and esprit de corps are necessary to lessen competitiveness, develop trust, and tolerate disagreements. Janis (1972) feels that what is needed for optimal decision making are cohesive groups (defined in terms of attraction to the group rather than a lack of internal conflict) where groupthink tendencies are controlled.

Problems in groupthink theory. There are two problems that may exist in groupthink theory. First, did the generation of the groupthink hypothesis involve circular reasoning? Second, under what conditions does a case study provide either disconfirming or supporting evidence for the theory of groupthink?

In his book on groupthink Janis notes that he initially had several
dozen cases where, in his opinion, the outcomes were fiascoes attributable in part to the group processes involved in the decision making. He reduced the list by looking for cases where defective decisions had been made by small cohesive groups. "In other words, the fiascoes that I selected for analysis deserved (sic) to be fiascoes because of the grossly inadequate way the policy-makers carried out their decision making tasks" (Janis, 1972, p. 10). Now, although it would seem that Janis was using case study as a means of hypothesis generation it appears that he had already conceptualized what constituted good group decision making features (see the six major decision making defects Janis, 1972, p. 10). He then selected for case study important fiascoes that lack these features--"Each (case) clearly meets two important criteria... (1) the decision making group was cohesive and that (2) decision making was extremely defective" (p. 11). Following this it appears as though Janis then looked for other consistent group processes, found eight, and called them groupthink symptoms. At the same time he looked for consistent preconditions and found several, among them being group cohesiveness. Then in developing the theory of groupthink Janis states that these preconditions cause the groupthink. In addition, the preconditions cause other group processes that are also likely to be poor--for example, the six defects previously mentioned above ("I assume that these six defects and some related features of inadequate decision making result from groupthink". Janis, 1972, p. 10). Finally, it is felt that all of these poor decision making processes "increase the likelihood of poor outcome" (Janis, 1972, p. 12). To summarize, it appears that the generation of the groupthink hypothesis perhaps proceeded through the following steps. (1) The identification of poor decision making processes. (2) The selection of cases for analysis restricted to cohesive groups where the decision making processes are poor. (3) The identification of consistent group processes among the cases and the
labelling of these processes as groupthink symptoms. (4) The identification of consistent preconditions among the cases, noting that group cohesiveness (among others) is a major precondition. (5) The statement that these preconditions cause the groupthink symptoms, the other poor decision making procedures and the poor decision outcomes. To the present author it would seem that this type of hypothesis generation involves circular reasoning to some extent.

The preconditions necessary for groupthink form an important part of Janis' theory. A major precondition is group cohesiveness, but he had initially restricted his selection of cases for intensive study to those involving small cohesive groups. Having done that, the extent to which the groupthink symptoms might also be found in non-cohesive groups is not clear. In this sense, the importance of group cohesiveness as a necessary precondition for the groupthink symptoms is not firmly established.

When one is faced with assessing the quality of a single decision, then the assessment of the decision process, including perhaps the judgment of experts regarding the choice made in comparison to the alternatives, would seem to be the most reasonable approach. Due to the "intervention" of circumstances between the time that a decision is made and the time that it is implemented, particularly in cases of organizational decisions, it would be hazardous to judge a single decision by its outcome. The intervening circumstances may allow a poor decision to succeed and may cause a wise decision to fail. Contingency planning in decision making helps reduce the possibility of circumstances causing good decisions to go awry but does not eliminate it.

At the same time, if one assumes that there is a random distribution across decisions of intervening circumstances having negative effects upon decision outcome, and if one has a large number of decisions that can be
studied, then good decision making processes should on the average produce better outcomes than poor decision making processes. Thus, an alternative method for generating hypotheses concerning group decision making processes would be to select "fiascoes" or other major decisions made by groups, based on criteria such as their seriousness, importance, or social significance. Then one could look to see what type of group processes distinguished the good decisions (as defined by the outcomes) from the bad decisions. Using this type of "discriminant analysis" approach in studying group processes may yield a firmer basis for making judgments concerning the correctness of the initial assumptions about good decision making features.

Janis himself indirectly comments on the possibility of using an alternative method to generate hypotheses. In discussing the question of "how widespread is groupthink?", Janis (1972) states, "at present we do not know what percentage of all national fiascoes are attributable to groupthink... All that can be said from the historical case studies I have analyzed so far is that groupthink tendencies sometimes play a major role in producing large-scale fiascoes. In order to estimate how large the percentage might be for various types of decision-making groups, we need investigations of a variety of policy decisions made by groups of executives who have grossly miscalculated the unfavourable consequences of their chosen course of action" (pp. 192-193). In a statement of faith, he suggests that probably "clear symptoms of groupthink are present in at least a substantial minority of all miscalculated executive decisions--governmental and nongovernmental, American and foreign" (p. 196). Furthermore, he expects that the analysis of any one group's decisions over a length of time will show that "a sizable percentage of that group's decision errors probably will prove to be attributable to groupthink tendencies, if the group is moderately or highly cohesive" (p.197). Perhaps this type of research should have been done while the groupthink
hypothesis was being formulated.

We can now proceed to the problem concerning the possibility of disconfirming the groupthink hypothesis. Janis (1972) states that not all fiascoes are produced by groupthink; they may be the result of ignorance, erroneous intelligence information, fatigue, etc. Similarly, as noted earlier with respect to practical outcomes, groupthink is felt to increase the likelihood of decision making errors, but at the same time will not always lead to a fiasco. Sometimes, fortuitous events such as the other side's greater stupidity may prevent disaster. In his book, Janis (1972) considered that the poor decision making processes underlying fiascoes such as the Bay of Pigs provided supporting evidence for his groupthink theory. However, Janis (1972, p. 12) claimed that even if an event such as the Bay of Pigs decision had turned out to be successful, it would still support the groupthink hypothesis. In this case, the groupthink hypothesis would be supported whether the Bay of Pigs was a success or a fiasco, simply because the group decision making process was poor. If one accepts the argument raised earlier that across a series of decisions good decision making processes should, on the average, lead to better outcomes than poor decision making processes then it would seem tenuous to claim support for the groupthink theory independent of the decision outcome. The groupthink hypothesis would be more useful if its ultimate validity were measured by an external criterion such as, "if one considered a large number of decisions made under groupthink conditions, there would be an increased probability of the outcome of any one decision being a failure." If one accepts the concept of an external validity criterion such as "these processes will tend to lead to wrong decisions" then clearly if the Bay of Pigs decision had been successful it could not constitute support for the groupthink hypothesis.

In terms of future research, Janis (1972, p. 197; footnote 2, p. 237)
proposes that the appropriate technique for testing the groupthink hypothesis is through the comparative field study of decisions and decision making groups. An additional possibility exists in simulations involving high ranking government executives, even though he feels that these simulations do not create the severe stress and need for social support that is generated by real life crises. Most research on conformity in decision making is based upon groups of strangers who meet once and do not expect to meet together again. In contrast, "to understand the predispositions conducive to groupthink, we need studies of groups that meet together for many weeks and work on decisions to which each member will be committed" (Janis, 1972, p. 191). In 1977, five years later, Janis still advocated the use of field studies to test the principles of groupthink. However, as noted in an earlier quotation, he now saw groupthink as being a possible part of most normal groups in everyday situations, "... we propose to apply the model, as well, to the more commonplace decisions made by executives in routine meetings ..." (Janis and Mann, 1977, p. 75). This should make groupthink a much more easily researched topic than if one could only study groups that had worked together for weeks on a decision.

Case Studies and Experimental Research on Groupthink

Since the time that Janis first published his theory on groupthink in decision making in 1972, there have been two case studies and three experimental studies that have attempted to test his ideas. These studies have provided some support for his theory but they have been limited by a number of serious problems in their design. I will start with the two case studies and then proceed to the experimental studies.

**Groupthink in the Watergate crisis.** The two case studies were concerned with the Nixon elite responsible for the Watergate coverup (Green and
Conolley, 1974, cited in Janis and Mann, 1977; Raven, 1974). The paper by Green and Conolley was presented at a conference but was never published. The paper by Raven was given as the Presidential Address to the Society for the Psychological Study of Social Issues in August of 1974. In the opinion of Janis and Mann (1977, footnote 7, p. 423) the evidence presented in these two studies as supporting groupthink is not entirely consistent, especially with respect to the cohesiveness of Nixon's group. Since the unpublished paper by Green and Conolley covers the same case as Raven's (1974) study, and both were negatively commented upon by Janis and Mann (1977), the following section will refer only to the published article by Raven.

Raven's (1974) study was concerned with explaining the initial decision to commit the Watergate break-in and the later series of decisions involved in covering up the Watergate episode. Raven attempted to demonstrate the existence of the necessary preconditions for groupthink, e.g., group cohesiveness, assertive leadership and isolation. The isolation of the Nixon group does seem to be fairly well established. Nixon, as the leader of the overall group, was certainly assertive in stressing his "attacking" style of dealing with the opposition, but from Raven's account it is not clear exactly how assertive he was concerning his views on specific plans. The extent to which the group was cohesive is also not clear. Raven notes that there were two major antagonistic factions within the general group (Mitchell vs. Haldeman), but he feels that there was still a strong sense of cohesiveness since all the members very strongly wanted to belong to the general Nixon-group. This attribute of attraction to the group is only one measure of group cohesiveness, and must be considered in the context of other measures such as the extent of interpersonal friendship and the degree of internal conflict. The lack of friendships across the two factions and the interpersonal conflict suggests that the overall group was not highly cohesive.
In addition, it is predicted by Janis' theory that a group that meets all the groupthink preconditions strives for concurrence in the decision making; however, it appears from Raven's account that the striving in Nixon's group was usually for one faction to win out at the expense of the other faction, rather than attempting to achieve agreement on a decision. Thus, it appears that the existence of the necessary preconditions is only weakly established. An additional point is that groupthink theory deals with group decision making processes; it is not clear to what extent the initial burglary decision and subsequent cover-up decisions were the product of what we would normally consider to be a group decision making process.

Raven (1974) next looks at the evidence concerning the existence of six groupthink symptoms. There is reasonable evidence to support the existence of an illusion of morality, conformity pressures, the suppression of personal doubts and the existence of self-appointed mindguards. The evidence is much more tenuous concerning the existence of illusions of invulnerability and unanimity. Given the fact that evidence concerning the existence of the necessary preconditions was weak and the fact that it should be possible for the appropriate non-groupthink preconditions to produce some of the same group processes as those produced by groupthink, finding several groupthink symptoms associated with a fiasco cannot be taken as strong proof supporting the theory of groupthink in decision making.

Overall, the evidence is weak that the theory of groupthink explains the behaviour of the Nixon elite during the Watergate crisis. Raven (1974) notes that there are many other explanations for the Watergate behaviour, such as the strong norm to be hard-hitting and merciless in dealing with opponents, or the processes of receiving authorization from superiors, routinization of the work, and dehumanization which can lead to immoral decisions. Groupthink may form part of the explanation, in conjunction with other factors, but the
evidence is not strong that it forms the single explanation or even a major explanation of the behaviour of the Nixon group during Watergate. (A similar criticism has been made by Katz and Kahn (1978, pp. 514-515) concerning the role of groupthink as the sole explanation of decision errors such as the Bay of Pigs invasion of Cuba.)

**Flowers' research on groupthink.** In 1977, Flowers performed the first experimental test of the groupthink hypothesis. Her subjects were undergraduate students in a role playing situation where they were school administrators attempting to deal with the case of an elderly woman teacher who could no longer handle the disciplinary problems in her class. Flowers manipulated two independent variables, leadership style (open versus closed) and group cohesiveness (high versus low). An open style of leadership stressed the importance of reaching a wise decision through discussing all the suggested solutions, whereas the closed leadership style stressed unanimity and the leader openly favoured his own preferred solution. Group cohesiveness was defined on the basis of the individual's attraction to the group, where high cohesiveness was expected to be a property of groups of acquaintances and low cohesiveness was expected to be found among groups of strangers.

One individual out of each group of four subjects was trained to be either an open or closed style leader. All of the subjects were given sheets outlining the school administrator role that they were to play during the session. Also contained on these sheets were six or seven facts about the case that were not given to any other member. Each group was asked to arrive at a solution within approximately 30 minutes. Flowers (1977) felt that this design incorporated those aspects of a decision making situation outlined by Janis (1972) as precursors for groupthink: controversial points of view, a moral dilemma concerning what to do about the teacher, a sense of crisis since an immediate decision was needed, conflict with an outside group (a
militant teachers' union), and the fact that no single member knew all of the relevant information.

The sessions were tape-recorded. The actual time taken to reach a decision was between 15 and 45 minutes, following which the subjects filled in a post-session questionnaire and were debriefed. The questionnaire contained five 8-point bipolar scales that considered: (a) the individual's pre- and post-session agreement with the team decision, (b) the individual's perceived freedom to express personal opinions, (c) the person's willingness to role-play another situation with the same team, and (d) the degree to which the team was attractive to the individual. The subjects were also asked to rank order members with respect to their influence on the decision, and to indicate the number of team members that they had known before the experiment.

Flowers (1977) predicted that groups engaged in groupthink would: (1) suggest a smaller number of solutions to the problem, (2) consult fewer outside sources of information and (3) consider less information before making the decision. Overall, Flowers has attempted to test Janis' groupthink theory by designing a 2 x 2 between groups study where the conditions for groupthink were manipulated to be either present or absent. Unfortunately, while she tested for the quality of the decision making process, she did not test for the presence or absence of the groupthink symptoms nor the quality of the decision outcome.

A manipulation check indicated that the leaders had role-played correctly the open and closed styles of leadership. Similarly, a check on group cohesiveness indicated a significant difference between high and low cohesive groups in terms of the number of members in the group that knew each other previous to the experiment and also in terms of the attractiveness of the group.
The results indicated that the open leadership style teams proposed a significantly greater number of solutions than the closed leadership style groups. In contrast, the number of solutions did not vary significantly between groups differing in cohesiveness, nor were there cohesiveness-leadership style interactions. The overall number of facts considered from the role sheets was significantly related to leadership style but not to group cohesiveness, nor were there any interactions. Open style leadership groups considered significantly more of these outside sources of information before reaching their decision. Last, it was found that open style leadership groups considered significantly more of the role sheet facts prior to arriving at a consensus on the solution than did closed groups. In contrast, the closed groups considered significantly more of the role sheet facts in the discussion period after they had arrived at a consensus but before they had indicated to the experimenter that they were finished. Again, in terms of when the role sheet facts were discussed there was no significant difference between high and low cohesive groups, nor were there interaction effects.

Flowers (1977) concluded that with respect to group cohesiveness and leadership style, the latter had the more important effect upon groupthink. To account for the lack of findings with respect to cohesiveness, she notes that there may be several explanations. First the level of cohesiveness in her groups was considerably lower than the cohesiveness of the groups studied by Janis (1972); second, the closed leadership style involved the leader's advocacy of a preferred solution and this may have overshadowed the effects of group cohesiveness; and third, the theory of Janis (1972) may need to be revised, downplaying the role of cohesiveness. She points out that in the groups that Janis (1972) studied, the leaders had a great deal of social power over the other members (i.e., in terms of ability to reward and punish, and ability to exert legitimate, expert, and possibly even referent power).
She feels that this additional variable of leadership power might be very important to consider in revising Janis' theory and might be a prime factor in accounting for the increased groupthink in highly cohesive groups. Flowers (1977) also notes that the role-played crisis situation was far from the magnitude of the crises studied by Janis (1972). Despite these differences, she felt that groupthink did occur since her results supported some of the predictions made by Janis' (1972) groupthink theory.

In commenting upon this research by Flowers (1977), several questions need to be considered. First of all, did the experiment meet the conditions outlined by Janis (1972) as necessary to produce groupthink? Second, was groupthink produced? And finally, did the open leadership style reduce groupthink?

With respect to the first question, Janis (1972; Janis & Mann, 1977) contends that the prime conditions for groupthink exist when there is a cohesive group whose members strive to achieve concurrence concerning a stressful or difficult decision. The experiment did appear to meet the necessary preconditions in terms of leadership style and cohesiveness. However, it was a role-playing situation, where a time limit was not enforced and the issue was of little personal or social significance. It would have been valuable to check on the subjects' stress level or motivation to do the task. Perhaps most important of all from the perspective of groupthink theory, there was no direct evidence from the experiment that cohesiveness or leadership style led to explicit concurrence seeking on the part of the group members. Concurrence seeking was only proposed to exist as a part of the manipulated leadership style wherein closed leaders indicated their preferred solution and stressed agreement on a solution. While Flowers (1977) should be applauded for taking a necessary first step in attempting to bring Janis' (1972) proposals into the laboratory for testing, the existence of all the
necessary groupthink preconditions was not clearly demonstrated in her study.

Was groupthink produced, and did the open style of leadership reduce groupthink? There are two ways of answering this question. As indicated by Flowers (1977, p. 890) in her predictions, the existence of groupthink would be demonstrated by a significant interaction between cohesiveness and leadership style. However, in her results there were no significant interaction effects on any of the dependent measures. In addition, Janis (1972) outlines eight major symptoms of groupthink. In Flowers' study there was no test made for the existence of any of these symptoms. It appears, therefore, that to the best of our knowledge groupthink was not produced by the experimental conditions. If groupthink did not exist, then we surely cannot know if the open leadership style would have reduced groupthink.

What then is the interpretation to be placed upon Flowers' results? The final outcome of Flowers' (1977) research demonstrated that leadership style, but not her manipulation of group cohesiveness, nor the interaction between these two factors, affected the process of arriving a decision. Contrary to the interpretation placed upon these results by Flowers, it seems to the present author that there has been a failure to demonstrate the existence of groupthink. Instead, it appears as though Flowers (1977) has demonstrated the influence of leadership factors upon the quality of the decision making process.

Courtright's research on groupthink. In addition to the work of Flowers, John Courtright (1978) has also attempted a laboratory investigation of the groupthink phenomenon. Unfortunately, Courtright did not get off to a good start since in his introduction he confused things somewhat by trying to convince the reader that several of the groupthink symptoms (e.g., the assumption of morality, the illusion of invulnerability, and the existence of mindguards) were instead antecedent conditions for groupthink.
Courtright had 96 male and female undergraduates as subjects in four-person experimental groups. Subjects sat around a table facing a videotape camera and were given a 10 minute warm-up discussion time. Following the warm-up period the students were asked to produce a single recommendation on the problem of "what is the best method for recruiting new students to the University of Iowa?"

Courtright was interested in manipulating two variables. One variable was the degree of cohesiveness of the group and the second variable was the extent to which the group felt that there were limits upon the type of acceptable solutions. A leader assertive about his or her point of view is the usual source of such limits in groupthink theory. However, Courtright attempted to impose the limits by manipulating the problem solving directions. There were three different types of limits in his study: (1) a "freed" condition--where the instructions implied ample time and stated that the best solutions are the result of competition among many incompatible ideas; (2) a "limited" condition--where the instructions implied insufficient time and stressed cooperation in deriving a solution from a small number of initial ideas; (3) a "no instructions" condition--a control group that was told of the time available and asked to proceed.

The second independent variable was group cohesiveness, which was manipulated through attitude similarity and propinquity. Following the warmup session, subjects in the low cohesiveness condition were split-up and reformed into new groups, whereas the high cohesiveness groups remained intact. The high cohesiveness groups were told that the results of an earlier questionnaire that the members completed showed that they were very similar, that they should be very compatible and should do well on the task. Low cohesiveness groups were told that their questionnaire results indicated the opposite.
It was predicted that groups in the high cohesiveness, limited condition (groupthink condition) would develop fewer alternative solutions and would generate more statements of agreement and fewer statements of disagreement than would groups in the other conditions. Second, it was predicted that subjects in the groupthink condition would produce decisions of inferior quality.

Courtright (1978) found that on the measures of cohesiveness given to the groups before they attempted to solve the problems, there were significant differences in the expected direction between the high cohesiveness and low cohesiveness groups. However, his measures indicated that these significant differences between the groups in cohesiveness had disappeared by the end of the experimental session.

Courtright used a MANOVA (multivariate analysis of variance) to test his predictions on the three process measures; he found no significant main or interaction effects. However, since the interaction effect approached significance (p < .07), he further analyzed it by conducting a univariate ANOVA on each of the three dependent measures. He found that the major source of variance was associated with statements of disagreement, while the variables concerning the number of solutions proposed and the statements of agreement contributed non-significantly to the interaction effect. A simple effects analysis of the "statements of disagreement" ANOVA interaction term indicated that the only significant simple effect was that high cohesive, limited groups produced significantly less disagreement than did the low cohesive, limited groups.

The quality of the decisions was independently rated by five graduate students each using the same five scales (effectiveness, feasibility, creativity, significance, and competence). A MANOVA was performed and orthogonal contrasts applied to the five scales. Neither the main effects nor the
interaction between the cohesiveness and experimental instructions variables achieved significance. The linear component of the interaction approached significance (p < .12). (It should be noted that the use of orthogonal contrasts is questionable since it is difficult to consider the five scales to be orthogonal questions. Non-orthogonal comparisons would yield a more conservative test of this "quality-of-the-decision" question that, in turn, would reduce the "significance" of the linear component of the interaction term.)

In his discussion of the results, Courtright suggests that he has provided a tentative affirmation of the existence of groupthink and that it can be studied in a laboratory situation. In addition, he suggests that the absence of disagreement among group members may be the most important indication of the groupthink process. This absence of disagreement would indicate a lack of critical analysis of the factors discriminating poor quality solutions from good quality solutions.

There are a number of problems associated with the Courtright study. First, in terms of establishing the existence of the necessary preconditions for groupthink, it would be expected that the group would display a high level of motivation or stress. However, there was no check on stress level or motivational level in the experiment. This may be a crucial issue, since the problem that the students were dealing with was likely to be of low personal importance and interest. In addition, by the end of the experimental session the groups no longer differed in terms of cohesiveness. Since it was predicted that the interaction of cohesiveness with the "limiting" instructions would create groupthink, finding that the effect of one of the independent variable manipulations had disappeared during the experiment could only reduce, if not eliminate, the possibility of generating groupthink.

Second, as mentioned in the discussion of the Flowers' (1977) research, there are two ways to test for the existence of groupthink. The first way of
testing for groupthink is to manipulate the factors outlined by Janis (1972) as preconditions for the production of groupthink. The interaction of these factors should produce the deficient processes and outcomes associated with groupthink. The second way is to test for the existence of a specific set of group processes called groupthink symptoms. In Courtright's (1978) study the interaction effects approached significance but were non-significant, and there was no test made for the existence of the groupthink symptoms.

Third, the overall lack of significant findings (the two MANOVA's were non-significant, only one out of three process measures was significant, and none of the five quality of decision outcome measures were significant) provides, at best, weak support for groupthink theory.

In summation, the positive assessment by Courtright of the results as supporting the theory of groupthink, and his interpretation that the number of disagreements may be the best discriminator between groupthink and non-groupthink groups, is premature.

Tetlock's research on groupthink. A different type of study was undertaken by Tetlock (1979). He applied a content analysis to the public statements of the key decision makers in the groupthink and non-groupthink crises studied by Janis (1972). He predicted that the public statements issued by groupthink decision makers would: (1) be more simplistic and (2) show more positive attitudes towards their own group and more negative attitudes towards outgroups (i.e., domestic and political opponents). A technique for assessing integrative complexity (the extent to which information is differentiated and integrated) was used to test the first hypothesis (see Suedfeld, 1978). Osgood's (1959) evaluative assertion analysis was used to test the second prediction.

The content analysis data were obtained by selecting 12 paragraphs from archival records of statements made by the President of the U.S.A. and the
Secretary of State concerning each of the following five crises: the Mar­shall plan (also analyzed were 12 paragraphs from the Under-Secretary of State, George Marshall); the Cuban missile crisis; the invasion of North Korea; the Bay of Pigs invasion; and the Vietnam war escalation. The Marshall plan and the Cuban missile crisis were selected as examples of crises where groupthink was avoided, while the remaining cases were selected as examples of groupthink in decision making. The case of Prime Minister Chamberlain's decision making and the Pearl Harbour crisis studied by Janis were not used by Tetlock.

The results indicated that, as predicted, the decision makers in the non-groupthink groups made statements that were more integratively complex than did the decision makers under the groupthink conditions. Similarly, as predicted, the groupthink decision makers evaluated their own groups much more positively than did the non-groupthink decision makers. However, the third prediction was not supported. There was no difference between the groupthink and non-groupthink decision makers in their evaluation of domestic and foreign opponents (the out-groups). A discriminant analysis indicated that integrative complexity was the major factor which could be used to dis­tinguish public statements under groupthink crises from public statements under non-groupthink crises. An interesting additional finding concerned the consistency of the decision makers across groupthink and non-groupthink situations. Truman, Acheson and Kennedy showed changes in their statements that indicated shifts in their thinking processes depending upon whether they were in groupthink or non-groupthink situations. President Kennedy appeared to change the most dramatically. In contrast, the statements of Rusk during three different crises showed no significant shifts in cognitive style as a result of being engaged in non-groupthink and groupthink situations. Thus, there is preliminary evidence that some decision makers either react more
strongly to the pressures of the groupthink situation or are able to learn from being a groupthink situation and modify their behaviour to avoid such decision making problems in future crises.

In summary, the evidence found by Tetlock provides reasonable support for the theory of groupthink. However, there are two limitations which should be borne in mind. These are the basic problems associated with correlational studies. First, Tetlock is taking the final result of the public statements as indicative of a specific type of group process called groupthink. However, other factors such as personality traits, or situational variables like impression management are also likely to have contributed to the nature of the public statement. Since these variables are not controlled for, it is impossible to make statements causally linking the groupthink process to the public statement. (Tetlock has chosen one potential third variable explanation, propaganda strategies, and dealt with it as the alternative and competing explanation; in fact, there may be numerous other third variable explanations possible.) Second, with a correlative study causality is not demonstrated to be unidirectional. It is theoretically possible that this is an interactive system where groupthink leads to public statements showing characteristics of poor decision making and early public statements help commit the leader to preliminary positions and decisions that are poor; thus, the process of public commitment, as well as groupthink, may lead to poor decision making. Figure 4 provides an outline of the situation that may have existed.

In conclusion, in the context of the research presently available, the work of Tetlock provides the strongest supporting evidence for the groupthink theory. At the same time though, given the difficulties noted above, the support is of a limited nature and experimental work needs to be done to provide a stronger test of theory.
Figure 4

Outline of Potential Influences on the Public Statements used in Tetlock's (1979) Research

A. Character traits
   (eg., conceptual complexity)

B. Situational $\rightarrow$ Groupthink $\rightarrow$ Private decision $\leftarrow$ Public
   determinants or the lack of group processes
   of group think in the group

C. Situational factors
   (eg., impression management)
To summarize the results of all the studies bearing on the groupthink hypothesis, with the exception of Tetlock's (1979) reanalysis of the original groupthink cases, there is little evidence to support the existence of groupthink as proposed by Janis (1972; Janis and Mann, 1977).

Proposal for the Present Study

There has been no experimental study that has used decision makers from a subject population perhaps more in keeping with Janis' (1972) cases (for example, personnel from government or corporate organizations); nor has there been a study that has tested for the existence of the groupthink symptoms that are postulated by groupthink theory. The present study will therefore attempt to correct or avoid the problems described in the earlier research and at the same time look for the existence of groupthink symptoms within a sample of government and corporate decision makers. See Figure 5 for an outline of the design of the study.

An attempt will be made to manipulate the antecedent conditions of cohesiveness, and stress or motivation, as well as leadership style. Specifically, it is predicted that the antecedent conditions present groups will be more cohesive, more motivated and under greater stress than the antecedent conditions absent groups. It is also predicted that group leaders in the assertiveness conditions will place more emphasis upon their own views and state these views earlier in the discussion than will group leaders in the non-assertiveness conditions.

It is hypothesized that the interaction between leadership style and the cohesiveness/stress antecedent conditions will produce groupthink. Groupthink in turn is predicted to result in the existence of groupthink symptoms, a decrease in the quality of the decision making processes, and a decrease in the quality of the actual decisions reached. Specifically, it is predicted
Figure 5
Design for Testing the Groupthink Hypothesis

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Antecedent Conditions</th>
<th>(Conditions Present)</th>
<th>(Conditions Absent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Cohesiveness/High Stress/High Motivation</td>
<td>High Time Pressure</td>
<td>Low Cohesiveness/Low Stress/Low Motivation/Low Time Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Leadership Style</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>non-assertive leadership</td>
<td>assertive leadership</td>
<td>non-assertive leadership</td>
<td>assertive leadership</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Groupthink Symptoms</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Decision Process</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Decision Outcome</th>
</tr>
</thead>
</table>
that in the MANOVA tests of the groupthink symptoms, the group process variables, and the decision outcome measures, the presence of groupthink will be demonstrated by the presence of significant interaction terms. First, it is predicted that there will be an interaction between leadership style and the antecedent conditions such that when the antecedent conditions are present, an assertive style of leadership will produce groupthink symptoms, whereas a non-assertive style of leadership will produce fewer or no groupthink symptoms. When the antecedent conditions are absent, it is predicted that there will be no differences in the production of groupthink symptoms under the two leadership styles (see Figure 6). In terms of the group processes, it is predicted that when the antecedent conditions are present groups under assertive leaders will be rated as performing poorer on the group process measures than groups under non-assertive leaders. However, when the antecedent conditions are absent it is predicted that there will be no differences on these measures between groups under assertive or non-assertive leaders. This interaction effect is outlined in Figure 7. Finally, in terms of the decision outcome data, it is predicted that an interaction will exist between leadership style and the antecedent conditions. When the antecedent conditions are present, groups under assertive leaders will produce decisions that will be rated by experts as inferior to the decisions produced by groups under non-assertive leaders. In contrast, when the antecedent conditions are absent, there should be no differences in the ratings of decision quality under the assertive or non-assertive leaders (see Figure 8).

Method

Subjects

The subjects participating in the study were staff members of the
Figure 6

Dependent Variables: Groupthink Symptoms

Hypothesized Interaction

High Degree of Symptoms Present

Low Degree of Symptoms Present

Antecedent Conditions Present

Antecedent Conditions Absent

Non-Assertive Leadership Style

Assertive Leadership Style
Figure 7
Dependent Variables: Quality of the Decision Processes

Hypothesized Interaction

Processes High in Quality

Processes Low in Quality

Antecedent Conditions Present

Antecedent Conditions Absent

Non-Assertive Leadership Style

Assertive Leadership Style
Figure 8

Dependent Variables: Quality of Decision Outcome

Hypothesized Interaction

Outcomes High in Quality

Outcomes Low in Quality

Antecedent Conditions
Present

Antecedent Conditions
Absent

Non-Assertive Leadership Style

Assertive Leadership Style
following organizations (the number of participants is indicated in brackets): British Columbia (B.C.) Attorney General's Department: Corrections, Staff Development (11), B.C. Police Academy (8); B.C. Department of Health, Mental Health Branch: Port Coquitlam, Surrey and Whalley Mental Health Teams (12), Riverview Mental Hospital (67); B.C. Department of Human Resources: Woodlands (20); B.C. Telephone Company (20); Department of National Defense: Armed Forces Base, Chilliwack (52); MacMillan Bloedel Company (13). To minimize the difficulties associated with obtaining large groups and to make the group size comparable with previous research in this area (cf., Courtright, 1978; Flowers, 1977) each group in the study consisted of four individuals.¹ There were 48 four-person groups for a total of 192 subjects. In addition to these 48 research groups, there was one group that was not included and the first two staff groups were used as pilots. The non-included group was eliminated from the condition that had one extra group and was selected by taking the group where the leadership manipulation appeared to be least effective. Before venturing into the community to work with the staff groups, the experimenter pilot tested the questionnaires and procedures on 43 four-person groups of University of British Columbia undergraduate students.

In the 48 groups in the study there were 103 males and 89 females, with 28 groups led by males and 20 groups led by females. The staff were generally in their mid-twenties or older. In terms of organizational hierarchies, the staff occupied positions which ranged from "front line" workers to senior management. An attempt was made to recruit as many management staff as possible and many groups were composed either partially or totally or management staff. If management level personnel were part of a group, one of them was asked to take on the leadership function.

¹One group had only three members and one group had five members.
Procedure

Pilot studies. A series of pilot studies was conducted to assess the effectiveness of the manipulations of the independent variables as well as the effectiveness of the questionnaires. When it appeared that there would be no major difficulties in carrying out the experimental procedures, arrangements were made to conduct the study with the aforementioned organizations.

Main study: Acquisition of subjects. Gaining access to employees in government and business organizations was a difficult public relations task that extended over the full nine months of data collection. In most cases, after a series of contacts with various senior staff, an arrangement would be made for the experimenter to work through a "liaison" person within the organization. The liaison person would either recruit or assist in recruiting volunteers for the study. The groups were assigned to the conditions in a stratified random procedure. That is, within each participating organization an attempt was made to have approximately equal numbers of groups fall within each of the conditions. This was done to prevent potential artifactual results which might occur if one organization was randomly placed into only one or two conditions.

Selection of groups for antecedent conditions. The groups were selected to meet the criteria for the two independent variables: antecedent conditions present or absent, and leadership style assertive or non-assertive. The antecedent conditions present groups were selected to be cohesive and were subjected to time and motivational pressures during the experimental sessions. To choose a cohesive group the liaison person was asked to recommend groups that had worked together before in a department or on a committee. The antecedent conditions absent groups were selected to be very low in cohesiveness and an attempt was made to downplay time and motivational pressures during the experimental sessions. The low cohesiveness groups were
to be composed of individuals who had not worked with each other before, and preferably did not even know each other.

Selection of group leaders. The liaison person usually assisted in selecting the group group leader, since in most cases he or she would know all or most of the group members. In cohesive groups, an individual would be selected as the group leader if she normally filled that role in the group (i.e., as a supervisor), or if she were the most senior in rank, or, if neither of these criteria fit, the liaison person would be asked to select the one individual out of the four that would be likely to unofficially take on the leader role by being the most dominant person in the group. In non-cohesive groups, the same basic strategy was followed—choosing the most senior in rank, the most dominant, verbal, or enterprising individual to be the group leader. However, in some cases since the individuals were of nearly equal ranks and none of them had worked together before, selecting a leader who might naturally have taken on that role in the group was a difficult judgment to make.

Once the group leader was chosen, arrangements were made for him or her to meet with the experimenter prior to the experimental session. Usually, this "pre-meeting" with the leader occurred immediately before the experimental session. The half-hour pre-meeting was used as a training session to instruct the leader in the assertive or non-assertive role that he or she was asked to undertake during the group session (see Appendix A, Pre-experimental session, group leadership training procedures). This time was also used to collect a measure of his or her typical leadership style, through the use of Fiedler's (1966, 1967, 1971) least preferred co-worker test (see Appendix B, Leadership training questionnaire). When the training procedures and the leadership questionnaire had been completed, the leader was given a copy of the two problems to read and think about before the
experimental session. The two problems were concerned with capital punish­
ment and immigration. Approximately one page of background information was
provided on each of these issues and the reader was requested to develop what
he or she thought would be the best possible solution to each problem. The
leader usually had about ten minutes to study the problems before the rest of
the group arrived. This was an essential aspect of the training session
since it was found in the pilot studies that it was extremely difficult for
many people in the leader role to be strongly assertive about their point of
view at the start of the session unless they had had some time to think about
the problems and prepare their position.

Procedures during the experimental sessions. The experimental sessions
were conducted in a room with a table, around which the four subjects sat.
If the subjects belonged to a non-cohesive group, they were introduced to
each other. The general purpose of the study and the way in which the session
would proceed was explained to the group (see Appendix C, General Information
about the study). Then the antecedent conditions present groups (the cohe­
sive groups) were told that they would have only 30 minutes within which to
produce solutions to the two problems. They were to work under the direction
of the group leader, who would be asked at the end of the session to fully
describe the nature of the decisions that they had reached. To attempt to
increase their motivation, they were told that it was important to reach the
best decisions possible. It was said that the tape of the session would be
rated for the quality of the solutions proposed and that some tapes would be
anonymously shown as examples or cases in decision making to student classes
or professional seminars (see Appendix D, Instructions to the antecedent con­
ditions present groups).

In contrast, the antecedent conditions absent groups were told that they
could have as long as they liked to arrive at their decisions. No mention of
time was made to these groups by the experimenter while they were engaged in the research session. In fact, some groups spent up to two hours in discussion of the problems. No mention was made of rating the quality of the solutions that the group proposed, nor of using the tapes as examples of group decision making. An attempt was made to put the group at ease through some small talk or joking. This was done to lessen the seriousness of the occasion, in contrast to the other groups where motivation was stressed through attempting to make their efforts seem important (see Appendix E, Instructions to the antecedent conditions absent groups).

All experimental sessions were tape-recorded. The experimenter sat at the side of the room with a small black switch-box. It was explained to each group that previous experience had shown that when listening to the tapes it was very difficult to tell the difference between voices. Therefore, the experimenter would use the switch-box, that was wired into the tape-recorder, to put a tone on the tape for each person. Thus, each time the same person spoke, a sequence of one, two, three or four "beeps" would be overlaid on the tape by the experimenter. By doing this, it was possible to listen to the tapes later and identify how often each person spoke and what he said. (This was a necessary procedure in order to be able to later make some of the group process ratings.) The experimenter did not participate in the discussions, and avoided eye contact with the group during the session.

Once the instructions were given to each group, the members were asked to sign a consent form for participating in the research (see Appendix F, Consent form). Following that, the group was told that they would be given three minutes to read the background material on the immigration and capital punishment problems (see Appendix G, Capital punishment and immigration problems). At the end of the three minutes, the experimenter instructed them to start the discussion and started the timing of the half-hour for the time-
limited groups. At the end of 15 minutes, the time-limited groups were interrupted and told that they had only 15 minutes left. Near the end of the 30 minutes the group was interrupted again and told that they had two to three minutes left in which to complete their proposals (see Appendix H, Instructions to begin the session and instructions to time limited groups during the session). At the end of 30 minutes they were told that the session was finished. Subjects in the antecedent conditions absent groups continued their discussions without interruption from the experimenter until they informed the experimenter that they were finished.

**Procedures following the experimental sessions.** At the end of the discussion period the experimenter asked the group leader to outline the nature of the two decisions reached by the group. The leader's response was tape-recorded. When the leader finished speaking, a post-experimental questionnaire was given to each group member. The leader received the same questionnaire as the other members, with the exception of two questions dealing with leadership style (numbers 7 & 8), that were worded in second person singular rather than third person singular. In addition, the leader's questionnaire contained Fiedler's (1967) group atmosphere scale, which provided the information necessary to make observations based upon Fiedler's theory of leadership (see Fiedler and Chemers, 1974). The group leader's questionnaire is contained in Appendix I and the group members' questionnaire is contained in Appendix J.

The post-experimental questionnaire was designed to perform a manipulation check on the independent variables, i.e., to determine whether the appropriate preconditions for groupthink were met in the study. In addition the questionnaire contained measures designed to indicate the presence of five of the eight groupthink symptoms postulated by Janis (1972). The five symptoms tested were the illusion of unanimity, the degree of self-censorship,
the degree of conformity pressure, the illusion of invulnerability, and the degree of morality perceived in the decisions. Given the nature of the experimental sessions and the type of problems that the groups were dealing with, it was felt that it would not make sense to test for the remaining three groupthink symptoms. The missing symptoms consisted of rationalizing outside warnings, holding stereotyped views of the enemy (there was no well defined enemy), and developing mindguards in the group (mindguarding requires attempted outside input). The relationship between the manipulation checks, groupthink symptoms and the various questions on the questionnaire is explained in more detail in the section of Appendix J titled, "Notes on the post-experimental questionnaire".

When the subjects had completed the post-experimental questionnaire they were debriefed (see Appendix K, Debriefing information). At that point, for groups who were interested, an arrangement was made to meet again in about one week's time to have the experimenter provide feedback to the group on the session. In the feedback discussion the experimenter would outline the characteristics of the group, such as its level of cohesiveness, and mention what the average feelings of the group members were concerning the session—for example, their feelings of conformity pressure. The experimenter would then note a few of the characteristics of the decision making process that had occurred during the session, such as the number of alternative solutions considered by the group. An example of the feedback provided to a group is contained in Appendix L.

Procedure for Statistical Analysis

**Manipulation check.** Based upon questions 1 - 12 in the post-experimental questionnaire, a MANOVA was used to assess the successfulness of the manipulations of the independent variables. When the overall MANOVA F-test was
significant, individual ANOVA tests were run on each question. This helped to determine which questions were responsible for the significant differences found in the MANOVA.

**Dependent variables.** Based upon questions 13 - 20 in the post-experimental questionnaire, a MANOVA was used to determine if there were any groupthink symptoms appearing as the result of the main or interaction effects of the independent variables. When the MANOVA F-test for a main or interaction effect was significant, individual ANOVA tests were run on each question to determine which questions were causing the MANOVA effects. A similar procedure was undertaken with the group process ratings based on the tape-recorded sessions and the quality-of-the-decision-outcome ratings made on the transcripts of the group's decisions. MANOVA's were the initial test for overall significance and if such significance was found then ANOVA's were run on the individual questions.

The aforementioned group process ratings were made by two graduate students (not including the experimenter) following their independent review of the audiotape of each session. The raters were also blind to the experimental condition of the research groups. Each group was rated on the basis of the following eight quality-of-the-decision-process variables, taken largely from the suggestions of Janis and Mann (1977, p. 11): (1) the extent of the discussion of the group's objectives; (2) the number of alternative solutions generated; (3) the extent of the consideration of the positive and negative aspects of the alternatives; (4) the extent to which general information related to the problem was discussed; (5) the degree of participation of all the group members; (6) the extent to which alternatives and information were reviewed before a final decision was made; (7) the extent to which the group leader stressed his or her viewpoint; (8) the extent to which the group leader proposed his or her solutions first. (See Appendix M,
Rating scales for assessing the quality of the decision making process.

The two group process raters were trained to use the rating scales prior to assessing the research groups. In addition, after each series of five or ten groups was rated the experimenter would hold a session to discuss any consistent differences in the ratings which appeared between the two raters. If the two raters' assessments differed by two or more categories (on the seven point scales), the differences were discussed until a closer agreement was achieved. Rating differences of only one category were averaged. Two assessments of inter-rater reliability were made. The first reliability assessment consisted of tabulating the percentage of responses of the two raters that were 100% consistent, then calculating the percentage of responses that were only one category different on the seven point scale, or two categories different, etc. The second assessment of reliability was a Pearson correlation of the ratings across the two raters. The MANOVA and ANOVA analyses were based upon the ratings that had been adjusted after the raters had discussed major differences.

The quality-of-the-decision-outcome ratings were made by four independent experts. Two experts rated the immigration solutions proposed by each group and two different experts rated the capital punishment solutions. Transcripts of the solutions were rated on the following seven criteria, based largely upon Leathers' (1972) productivity rating scales (see Appendix N, Scales for expert ratings of the quality of the decision outcome): (1) solution effectiveness; (2) feasibility of the solution; (3) creativity of the solution; (4) basis in significant information; (5) solution comprehensiveness; (6) risk associated with implementing the solution; (7) overall quality of the solution.

The two experts on immigration were staff members provided by the Federal Department of Immigration. One expert was the manager for
recruitment and selection for the B.C./Yukon region, while the other expert was an Immigration counsellor. The two experts on capital punishment were Professors of Law within the U.B.C. faculty who taught in the area of criminal law. One of the experts was a member of the B.C. Bar Association who has worked for the Law Reform Commission of Canada and has published works in the area of criminal law. The second expert has a doctorate in criminology, has served as the Chairman of the B.C. Police Commission, has worked for the Le Dain Royal Commission and the Law Reform Commission of Canada and is presently a Senior Policy Advisor to the B.C. Attorney General's Department.

Each of the two sets of experts was trained in using the rating scales before assessing the transcripts of the decisions. Due to the considerable imposition upon their time, an extensive pre-training process was not possible. During the time that the experts were making their ratings, it was attempted to have the experimenter review the material following each series of 10 or 15 groups. Discussion of any major differences in ratings would then be initiated by the experimenter. This turned out to be feasible for the immigration experts but impossible to carry out with the capital punishment experts. A single rating for each of the seven scales was obtained on the capital punishment problem and on the immigration problem, for each group, by averaging the ratings made by the experts. Two assessments of inter-rater reliability were made. One assessment was the percentage of responses with 100% correspondence, differing by one category, differing by two categories, etc. The second assessment was the calculation of a Pearson correlation across the ratings of the two experts.

Post hoc multiple regression and canonical correlation analyses. Two step-wise multiple regression analyses were performed on the quality-of-the decision data. For the prediction criterion one set of analyses used the
averaged ratings of overall decision quality that were provided by the two immigration experts, while the second set of analyses used the averaged ratings of overall decision quality from the two experts on capital punishment. The reason for making the separation between the two problems was that the correlation between the ratings of two experts within one problem was moderate, but when the averaged ratings of the two experts within one problem were correlated to the averaged ratings of the two experts within the second problem, the correlation was very low (see Tables 7 and 8).

The following fourteen variables were used as the predictors: (1) assignment to antecedent conditions present or absent; (2) leadership style, assertive or non-assertive; (3) interaction between leadership style and antecedent conditions; (4) least-preferred co-worker (L.P.C.) score; (5) group atmosphere score (G.A.S.); (6) interaction between L.P.C. score and G.A. score (#'s 4, 5, and 6 stem from Fiedler's (1967) research); (7) the "average-degree-of-friendship" rating for each group (as a measure of cohesiveness); (8) the average degree of concurrence seeking for each group; (9) the leadership style, which was taken as the average across questions seven and eight on the post-experimental questionnaire; (10) the average degree of motivation in the group; (11) the average degree of perceived time pressure in the group (the above predictors, #'s 7 - 11, were obtained from the post-experimental questionnaire); (12) the sex of the group leader; (13) the type of organization that the subjects came from, mental health or (14) military (which included the subjects from the Attorney General's Department). The coding was designed so that if the subjects came from neither the mental health organizations nor the military then they came from the third category, business organizations.

The step-wise multiple regression analysis was expected to provide information on which of the predictors made significant and independent
contributions to the prediction of the criterion. Since there was some question concerning predictors that operated both within the capital punishment problem and within the immigration problem, a canonical correlation analysis was performed. This analysis used the criterion measures of capital punishment decision quality and immigration decision quality as one set of variables. The second set of variables consisted of the fourteen predictor items. It was expected that the canonical constructions would provide information about the consistency of predictors across the two problems.

Results

In discussing the results we will first consider the analyses concerning the successfulness of the independent variable manipulations. The production of concurrence seeking will then be discussed, followed by the analyses of the groupthink symptoms. The group process data and the related inter-rater reliabilities will next be considered. Then, the quality-of-the-decision-outcome analyses plus the inter-rater reliabilities of the expert judges will be reviewed. Last, the post hoc multiple regression predictions of decision quality will be discussed.

Manipulation Checks on the Independent Variables

Manipulation of the antecedent conditions. It was predicted that the antecedent conditions present groups would be significantly more cohesive, more motivated, and under greater stress than the antecedent conditions absent groups. The MANOVA of the antecedent conditions questions (questions 1 - 5, and 9 - 12 on the post-experimental questionnaire) showed a significant main effect for antecedent conditions, ($F_{9,36} = 9.49, p < .0001$). The main effect for leadership style and the interaction effects were both
non-significant.

The ANOVA's indicated that the following questions had significant main effects for the antecedent conditions: (1) the degree of friendship in the group, ($F_{1,44} = 55.96, p < .001$); (2) the number of group members previously worked with, ($F_{1,44} = 78.82, p < .0001$); (3) the interaction of the number of members previously worked with by the degree of interest in participating with those members, ($F_{1,39} = 17.11, p < .0005$); (4) the level of perceived time pressure ($F_{1,44} = 8.37, p < .01$). The group means for each of these questions is shown in Table 1. The results indicate that there was a significantly greater degree of friendship, more familiarity with each other from previous non-experimental groups, and a greater degree of perceived time pressure among the antecedent conditions present groups than among the antecedent conditions absent groups.

At the same time though, the following questions relevant to the antecedent conditions manipulations had no significant main or interaction effects on the ANOVA's: (1) the degree of past interest in participating in groups that current members were a part of; (2) the degree of interest in participating with the current group members; (3) the interpersonal attractiveness of the current group members as work-mates; (4) the level of group motivation; (5) the level of perceived importance of the problems, and (6) the level of overall stress.

The antecedent conditions manipulations were effective, but with limitations. The antecedent conditions present groups were significantly more cohesive on three of the six cohesiveness measures. In addition, in retrospect it does not seem reasonable to have thought that the assignment of a subject to the antecedent conditions groups would affect his or her interest in having participated with some of the members in previous groups. This interest in past participation with members was one of the three non-
### Table 1

<table>
<thead>
<tr>
<th>Antecedent Conditions</th>
<th>Antecedent Conditions</th>
<th>F-Ratio $^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Degree of Friendship</td>
<td>3.28</td>
<td>4.91</td>
</tr>
<tr>
<td>Members Worked with Previously $^c$</td>
<td>1.58</td>
<td>3.30</td>
</tr>
<tr>
<td>Previous Members by Interest</td>
<td>3.24</td>
<td>7.04</td>
</tr>
<tr>
<td>Perceived Time Pressure $^c$</td>
<td>2.86</td>
<td>3.74</td>
</tr>
</tbody>
</table>

$^a$ The group means are within a range of potential values from 1 to 7. The lower the score the greater the degree of the characteristic being measured.

$^b$ d.f. = 1, 44; except for "previous members by interest" where d.f. = 1, 39.

$^c$ Scoring reversed from that found on the question in Appendices I and J.

* $p < .01$

** $p < .0005$

*** $p < .0001$
significant measures of differences in group cohesiveness.

The overall level of motivation across all of the groups was rated as being between "strongly motivated" and "more than some motivation" (M = 2.83, question #9, post-experimental questionnaire). Thus, while there was no significant difference in motivation between the antecedent conditions present (M = 2.87) and absent (M = 2.79) groups there was a moderately high degree of motivation in all groups. From the experimenter's observations it would seem that the failure to produce significant differences in motivation between groups was due to the fact that his attempts to increase motivation had no marked effect with subjects that already displayed a relatively high level of commitment. It was expected that the problems would be seen as high in importance and there was no prediction of differences in these ratings between groups. The results showed that the problems were rated on the average as being between "somewhat important" and "important" (M = 4.57, question #10, post-experimental questionnaire). However, it was found that even though there was a significant difference in perceived time pressure, with overall motivation and perceived problem importance being moderate, these effects were not translated into significant differences between the groups with respect to their feelings about the overall level of stress.

In summary, concerning the manipulations of the antecedent conditions, the groupthink preconditions of cohesiveness and perceived time stress were significantly stronger in the antecedent conditions present groups than they were in the antecedent conditions absent groups. In addition, all groups demonstrated a moderate level of involvement in the task as indicated through their ratings of motivation and perceived problem importance. The major negative outcome was the lack of significant differences between the groups in their overall feelings of stress.

**Manipulation of leadership style.** It was predicted that group leaders
requested to perform assertively would place significantly more emphasis upon their own views and state these views significantly earlier in the discussion than would group leaders requested to perform non-assertively. The MANOVA of the leadership style questions (questions 7 & 8 on the post-experimental questionnaire) showed a significant main effect for leadership style ($F_{2,43} = 64.11, p < .0001$). The main effect for antecedent conditions and the interaction effects were both non-significant. The ANOVA's indicated that the questions concerning the leader's emphasis upon his own point of view and the timing of the presentation of his views both had significant main effects for leadership style (emphasis on view: $F_{1,44} = 44.14, p < .0001$; timing of presentation: $F_{1,44} = 64.84, p < .0001$). A consideration of the means for both of those questions indicates that assertive leaders stressed their views more strongly than did non-assertive leaders ($M$'s = 2.47, 4.39 respectively) and the assertive leaders presented their views earlier in the discussion than did the non-assertive leaders ($M$'s = 3.07, 5.39 respectively).

These results concerning the effectiveness of the leadership style manipulation are borne out in the analysis of the data provided by the two individuals independently rating the audio-tapes of the sessions. As part of their ratings of the quality of the decision making process, the two raters assessed the leadership style exhibited in each group (see Appendix M, questions 7 & 8). The findings show that the overall MANOVA for the leadership questions had a significant main effect for leadership style ($F_{8,37} = 22.13, p < .0001$). The ANOVA's of the two leadership questions yielded the same results as outlined above. There were significant main effects for leadership style concerning the leader's emphasis on his view ($F_{1,44} = 72.52, p < .0001$) and the timing of the leader's presentation of his view ($F_{1,44} = 143.52, p < .0001$). Leaders under the assertive condition put more stress upon their own point of view in comparison to non-assertive leaders.
(M's = 3.17, 5.63 respectively) and presented their views earlier than did non-assertive leaders (M's = 2.69, 6.15 respectively).

In summary, the manipulation of leadership style was effective.

The Production of Concurrence Seeking

The ANOVA of the question concerning group concurrence seeking (question 6, post-experimental questionnaire) indicated that there were no significant main effects for leadership style or antecedent conditions nor a significant interaction effect. The mean rating for concurrence seeking across all groups was 4.38, while the mean rating for the antecedent conditions present, leadership style assertive, cell was virtually the same at 4.26. On the post-experimental questionnaire these ratings indicate a moderate degree of concurrence seeking across all groups. The prediction of groupthink theory that significantly more concurrence seeking would take place as a result of the interaction of an assertive leadership style with the existence of antecedent conditions such as cohesiveness and stress was not borne out in this study.

Analysis of the Groupthink Symptoms

It was predicted that there would be a significant interaction between leadership style and the antecedent conditions such that when the antecedent conditions were present, an assertive style of leadership would produce groupthink symptoms, whereas a non-assertive style of leadership would produce fewer or no groupthink symptoms. When the antecedent conditions were absent, it was predicted that there would be no significant differences in the production of groupthink symptoms between the two leadership styles. Contrary to the groupthink theory prediction of a significant interaction effect, the MANOVA of the groupthink symptoms questions (questions 13-20 in the post-experimental questionnaire) revealed a non-significant interaction term.
The main effects for the antecedent conditions were also found to be non-significant. However, there was a significant main effect for leadership style ($F_{8,37} = 2.47, p < .05$).

The ANOVA's of the groupthink symptoms questions indicated that the leadership style main effect was related to the areas of conformity pressure and the perceived riskiness of the decision. There were leadership style main effects found for the following questions: (1) the degree of conformity pressure perceived to be placed on others in the group ($F_{1,44} = 11.03, p < .005$); (2) the degree of conformity pressure felt by the subject ($F_{1,44} = 5.17, p < .05$); and (3) the degree of risk seen in the decisions ($F_{1,44} = 4.11, p < .05$). A consideration of the cell means displayed in Table 2 shows that group members led by assertive leaders felt more conformity pressure from the group both upon themselves and upon other members than was felt by group members under non-assertive leaders. Group members led by assertive leaders also perceived the decisions that were made to be more risky than did group members led by non-assertive leaders. In addition, the ANOVA results and the cell means indicated that the groups led by assertive leaders tended to be less accurate in their perception of the amount of agreement among group members over the proposed decisions than were the groups led by non-assertive leaders (this did not reach significance, $F_{1,44} = 2.74, p = .10$).

There were no significant leadership style ANOVA main effects for the groupthink symptom questions dealing with the illusion of agreement, self-censorship, the illusion of morality, nor the degree of optimism by the members over the proposed solutions (under groupthink theory high optimism and risk taking are indicators of an illusion of invulnerability).

Analysis of the Group Process Data

It was predicted that there would be an interaction between leadership
Table 2

Group Means for Groupthink Symptom Questions Reaching Significance

<table>
<thead>
<tr>
<th></th>
<th>Assertive</th>
<th>Non-Assertive</th>
<th>F-Ratio&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leadership Style</td>
<td>Leadership Style</td>
<td></td>
</tr>
<tr>
<td>Conformity Pressure on Others</td>
<td>2.50</td>
<td>1.90</td>
<td>11.03**</td>
</tr>
<tr>
<td>Conformity Pressure on Subject&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.20</td>
<td>0.82</td>
<td>5.17*</td>
</tr>
<tr>
<td>Riskiness of the Decision</td>
<td>2.76</td>
<td>2.35</td>
<td>4.11*</td>
</tr>
</tbody>
</table>

<sup>a</sup> d.f. = 1,44

<sup>b</sup> Scoring reversed from that found on the question in Appendices I and J.

* p < .05

** p < .005
style and the antecedent conditions of cohesiveness and stress. When the antecedent conditions were present it was hypothesized that groups under assertive leaders would be rated as performing poorer on the group process measures than groups under non-assertive leaders. However, when the antecedent conditions were absent it was hypothesized that there would be no significant difference between groups under assertive or non-assertive leaders.

Assessments of inter-rater reliability. The information contained in Table 3 shows that .90% of the initial group process ratings were within one category of each other on a seven point scale. The Pearson correlations shown in Table 4 have been adjusted by the Spearman-Brown formula for combining judgments from two raters (see Guilford, 1965, p. 466). The correlations are statistically significant and indicate a mean inter-rater correlation of 0.76. Following the assessment of inter-rater reliability, an arithmetic average was calculated to arrive at a single rating for each group on each question in cases where the ratings differed by one category. It was decided that in cases where the two independent ratings differed by more than one category, rather than taking the average it would be more appropriate to have the two raters discuss and adjust their ratings to within one category of each other. Once they were within one category of each other the average of the two scores was taken.

MANOVA and ANOVA analyses. The MANOVA of the group process data demonstrated a significant main effect for the antecedent conditions ($F_{6,39} = 2.65; p < .05$). There was no significant main effect for leadership style, and in

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1 These analyses did not contain the two ratings concerned with leadership style, to avoid confounding the dependent measures with the manipulations of the independent variables.
Table 3

Group Process Data: Percentage of Agreement, Inter-Rater Reliability Check

<table>
<thead>
<tr>
<th></th>
<th>Complete Agreement</th>
<th>One Category Difference</th>
<th>Two Categories Difference</th>
<th>Three Categories Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion of Objectives</td>
<td>33%</td>
<td>46%</td>
<td>17%</td>
<td>4%</td>
</tr>
<tr>
<td>Number of Solutions Proposed</td>
<td>58%</td>
<td>33%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Consideration of Consequences</td>
<td>38%</td>
<td>54%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>General Information Used</td>
<td>27%</td>
<td>50%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Member Participation</td>
<td>46%</td>
<td>48%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Review of Information</td>
<td>44%</td>
<td>48%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Leadership: Assertiveness</td>
<td>31%</td>
<td>67%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Leadership: Timing of View</td>
<td>52%</td>
<td>42%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Average</td>
<td>41%</td>
<td>49%</td>
<td>9%</td>
<td>1%</td>
</tr>
</tbody>
</table>

\( ^a \text{N} = 48 \)

\( ^b \text{N} = 384 \)
Table 4
Group Process Data: Pearson Correlations, Inter-Rater Reliability Check

<table>
<thead>
<tr>
<th>Scale Description</th>
<th>Pearson Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion of Objectives</td>
<td>.54*</td>
</tr>
<tr>
<td>Number of Solutions Proposed</td>
<td>.44*</td>
</tr>
<tr>
<td>Consideration of Consequences</td>
<td>.73**</td>
</tr>
<tr>
<td>General Information Used</td>
<td>.75**</td>
</tr>
<tr>
<td>Member Participation</td>
<td>.57*</td>
</tr>
<tr>
<td>Review of Information</td>
<td>.77**</td>
</tr>
<tr>
<td>Leadership Style: Assertiveness</td>
<td>.91**</td>
</tr>
<tr>
<td>Leadership Style: Timing of View</td>
<td>.94**</td>
</tr>
<tr>
<td>Mean</td>
<td>.76</td>
</tr>
</tbody>
</table>

*a* Reliability coefficients adjusted by the Spearman-Brown formula.

*b* N = 48

*c* Calculated through the use of Fisher $z$ transformations.

* $p < .005$

** $p < .001$
contrast to the prediction made by groupthink theory, there was no significant interaction between leadership style and antecedent conditions.

The ANOVA's of the six dependent variable group process measures indicated that there were significant main effects for antecedent conditions on two of the six measures. The two questions showing these significant main effects concerned the degree to which the members considered the consequences of the decision ($F_{1,44} = 12.61, p < .001$) and the amount of general information about the topic that was brought into the discussion ($F_{1,44} = 11.43, p < .005$). A consideration of the cell means on these two questions (see Table 5) shows that the antecedent conditions absent groups were more effective in terms of bringing in more information related to the problems and made a stronger consideration of the consequences of the various alternatives proposed than did the antecedent conditions present groups.

It should be noted that there was also a tendency for the antecedent conditions absent groups to produce more solutions than the antecedent conditions present groups, although this difference did not reach significance ($F_{1,44} = 2.59, p > .10$). Similarly, on two of the three remaining group processes, those of the consideration of the group's objectives and the degree of reviewing during the discussion, the antecedent conditions absent groups received more positive ratings than did the antecedent conditions present groups, although the differences between them were not significant.

It is of interest that the results stemming from the ratings of the two independent reviewers were virtually identical with the results from the MANOVA and ANOVA's of the ratings made by the experimenter. During the nine months that the experimental data were being collected, the experimenter provided feedback about the sessions to the participating groups. In conjunction with preparing these feedback sessions the experimenter made ratings of the group processes on nearly all of the groups. The MANOVA of these
Table 5

Group Means for the Decision Process Ratings by the Two Independent Audio-Tape Reviewers<sup>a</sup>

<table>
<thead>
<tr>
<th></th>
<th>Antecedent Conditions</th>
<th>Antecedent Conditions</th>
<th>F-Ratio&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td></td>
</tr>
<tr>
<td>Scales for Assessing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion of Objectives</td>
<td>4.54</td>
<td>4.92</td>
<td>1.64</td>
</tr>
<tr>
<td>Number of Solutions Proposed&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.85</td>
<td>4.08</td>
<td>2.59</td>
</tr>
<tr>
<td>Consideration of Consequences</td>
<td>3.85</td>
<td>4.67</td>
<td>12.61**</td>
</tr>
<tr>
<td>General Information Used</td>
<td>3.50</td>
<td>4.54</td>
<td>11.43*</td>
</tr>
<tr>
<td>Making Process Participation&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.03</td>
<td>3.35</td>
<td>1.84</td>
</tr>
<tr>
<td>Review of Information</td>
<td>3.85</td>
<td>4.21</td>
<td>1.56</td>
</tr>
</tbody>
</table>

<sup>a</sup> The group means are within a range of potential values from 1 to 7. The lower the score the greater the degree of the characteristic being measured.

<sup>b</sup> d.f. = 1,44

<sup>c</sup> Scoring reversed from that found on the question in Appendices I and J.

* p < .005

** p < .001
ratings yielded a significant main effect for antecedent conditions ($F_{6,32} = 3.02, p < .05$) and non-significant effects for leadership style and the interaction term.

The ANOVA's of the experimenter's ratings indicated that there were significant main effects for the antecedent conditions on the following questions: (1) the degree to which the members considered the consequences of the decision ($F_{1,37} = 12.65, p < .005$); (2) the amount of general information about the topic brought into the discussion ($F_{1,37} = 7.35, p < .01$); (3) the number of solutions proposed ($F_{1,37} = 8.65, p < .01$). A review of the group means in Table 6 shows that the antecedent conditions absent groups brought in more information, made a stronger consideration of the consequences associated with the alternatives and produced more alternative solutions than did the antecedent conditions present groups. Similarly, the antecedent conditions absent groups had ratings that were more positive on the three remaining group process measures than did the antecedent conditions present groups, although the differences were not significant.

Thus, the overall results show a very consistent pattern across both the independent raters and the experimenter's ratings, and across significant and non-significant outcomes. In terms of the group process measures, the antecedent conditions absent groups appears to be more effective than the antecedent conditions present groups.

**Analysis of the Decision Outcome Data**

It was predicted that there would be an interaction between leadership style and the antecedent conditions of cohesiveness and stress. This interaction would be such that when the antecedent conditions were present, groups under assertive leaders would produce decisions that would be rated by experts as inferior in quality to the decisions produced by groups under non-
Table 6
Group Means for the Decision Process Ratings by the Experimenter$^a$

<table>
<thead>
<tr>
<th>Scales for</th>
<th>Antecedent Conditions</th>
<th>Antecedent Conditions</th>
<th>F-Ratio$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion of Objectives</td>
<td>Absent 5.05</td>
<td>Present 5.50</td>
<td>1.06</td>
</tr>
<tr>
<td>Number of Solutions Proposed$^c$</td>
<td>Absent 3.52</td>
<td>Present 5.20</td>
<td>8.65*</td>
</tr>
<tr>
<td>Consideration of Consequences</td>
<td>Absent 2.91</td>
<td>Present 3.80</td>
<td>12.65**</td>
</tr>
<tr>
<td>General Information Used</td>
<td>Absent 3.14</td>
<td>Present 4.15</td>
<td>7.35*</td>
</tr>
<tr>
<td>Member Participation</td>
<td>Absent 2.81</td>
<td>Present 3.00</td>
<td>0.55</td>
</tr>
<tr>
<td>Review of Information</td>
<td>Absent 3.38</td>
<td>Present 3.45</td>
<td>0.04</td>
</tr>
</tbody>
</table>

$^a$ The group means are within a range of potential values from 1 to 7. The lower the score the greater the degree of the characteristic being measured.

$^b$ d.f. = 1,37

$^c$ Scoring reversed from that found on the question in Appendices I and J.

* $p < .01$

** $p < .005$
assertive leaders. In contrast, when the antecedent conditions were absent, it was predicted that there would be no significant differences in the ratings of the quality of the decisions produced by groups under assertive or non-assertive leaders.

**Capital punishment: Assessments of inter-rater reliability.**\(^2\) The information contained in Table 7 shows that a mean of 71% of the decision outcome ratings by the two capital punishment experts were within one category of each other on a seven point scale. The Pearson correlations shown in Table 8 however, indicate a wide range of correlations with an average correlation of 0.66. All of the correlations are statistically significant.

**Capital punishment: MANOVA and ANOVA analyses.** The MANOVA of the ratings of the first capital punishment expert indicated that the leadership style, antecedent conditions, and the interaction factors were non-significant. The MANOVA of the second expert's ratings yielded a significant main effect for leadership style \((F_{7,37} = 2.52, \ p < .05)\). The antecedent conditions and interaction terms were non-significant. The ANOVA's did not yield significant results for leadership on any of the seven measures. A review of the cell means on the significant MANOVA results indicated that overall, the groups under the non-assertive leaders produced decisions superior in quality to the decisions achieved by groups under the assertive leaders. \((M's = 0.04, -0.65\) respectively on a scale from -3 to +3). The MANOVA of the combined data from the two capital punishment experts yielded no significant results.

**Immigration: Assessments of inter-rater reliability.** The information

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\(^2\) The reliability coefficients for the Immigration, Capital Punishment, and Combined correlations shown in Table 8 are adjusted by the Spearman-Brown formula for combining judgments from two raters (see Guilford, 1965, p.466).
Table 7
Decision Outcome Data: Percentages of Agreement, Inter-Rater Reliability Check

<table>
<thead>
<tr>
<th>Scales for Expert Ratings of the Quality of the Decision</th>
<th>Effectiveness</th>
<th>Feasibility</th>
<th>Creativity</th>
<th>Significance</th>
<th>Comprehensive</th>
<th>Riskiness</th>
<th>Overall Quality</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete (Cap Pun)</td>
<td>15%</td>
<td>25%</td>
<td>25%</td>
<td>33%</td>
<td>29%</td>
<td>25%</td>
<td>40%</td>
<td>27%</td>
</tr>
<tr>
<td>Agreement (Immigrat'n)</td>
<td>26%</td>
<td>21%</td>
<td>30%</td>
<td>15%</td>
<td>26%</td>
<td>36%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>Combined</td>
<td>9%</td>
<td>13%</td>
<td>7%</td>
<td>15%</td>
<td>22%</td>
<td>4%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>One (Cap Pun)</td>
<td>58%</td>
<td>35%</td>
<td>56%</td>
<td>42%</td>
<td>31%</td>
<td>48%</td>
<td>38%</td>
<td>44%</td>
</tr>
<tr>
<td>Category (Immigrat'n)</td>
<td>38%</td>
<td>40%</td>
<td>34%</td>
<td>28%</td>
<td>32%</td>
<td>40%</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>39%</td>
<td>39%</td>
<td>28%</td>
<td>28%</td>
<td>33%</td>
<td>26%</td>
<td>37%</td>
<td>33%</td>
</tr>
<tr>
<td>Two (Cap Pun)</td>
<td>6%</td>
<td>19%</td>
<td>17%</td>
<td>17%</td>
<td>25%</td>
<td>19%</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>Categories (Immigrat'n)</td>
<td>13%</td>
<td>9%</td>
<td>4%</td>
<td>4%</td>
<td>17%</td>
<td>2%</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>22%</td>
<td>22%</td>
<td>30%</td>
<td>37%</td>
<td>30%</td>
<td>33%</td>
<td>17%</td>
<td>27%</td>
</tr>
<tr>
<td>Three (Cap Pun)</td>
<td>19%</td>
<td>19%</td>
<td>2%</td>
<td>8%</td>
<td>10%</td>
<td>8%</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>Categories (Immigrat'n)</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
<td>26%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>15%</td>
<td>22%</td>
<td>15%</td>
<td>13%</td>
<td>11%</td>
<td>30%</td>
<td>22%</td>
<td>18%</td>
</tr>
<tr>
<td>Four (Cap Pun)</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
<td>4%</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Categories (Immigrat'n)</td>
<td>13%</td>
<td>11%</td>
<td>17%</td>
<td>15%</td>
<td>9%</td>
<td>4%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>11%</td>
<td>4%</td>
<td>11%</td>
<td>4%</td>
<td>2%</td>
<td>4%</td>
<td>15%</td>
<td>7%</td>
</tr>
<tr>
<td>Five (Cap Pun)</td>
<td>4%</td>
<td>15%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>9%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>Categories (Immigrat'n)</td>
<td>2%</td>
<td>9%</td>
<td>2%</td>
<td></td>
<td></td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Six (Cap Pun)</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Categories (Immigrat'n)</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Difference Combined</td>
<td>2%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
</tbody>
</table>

a Capital Punishment: N = 48
b Total N = 336
c Immigration: N = 47
d Total N = 329
e Both Capital Punishment and Immigration Combined: N = 46
f Total N = 322
Table 8
Decision Outcome Data: Pearson Correlations, Inter-Rater Reliability Check

<table>
<thead>
<tr>
<th></th>
<th>Pearson Correlation Capital Punishment Experts b</th>
<th>Pearson Correlation Immigration Experts c</th>
<th>Pearson Correlation Between Capital Punishment &amp; Immigration Experts d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>.67***</td>
<td>.70***</td>
<td>.00</td>
</tr>
<tr>
<td>Scales for Feasibility</td>
<td>.29*</td>
<td>.51***</td>
<td>.11</td>
</tr>
<tr>
<td>Expert Ratings</td>
<td>.82***</td>
<td>.70***</td>
<td>-.18</td>
</tr>
<tr>
<td>of the Significance</td>
<td>.75***</td>
<td>.52***</td>
<td>.18</td>
</tr>
<tr>
<td>Quality of the Decision</td>
<td>.61***</td>
<td>.68***</td>
<td>.43***</td>
</tr>
<tr>
<td>Riskiness</td>
<td>.41**</td>
<td>.77***</td>
<td>.21</td>
</tr>
<tr>
<td>Outcome</td>
<td>.82***</td>
<td>.69***</td>
<td>.15</td>
</tr>
<tr>
<td>Overall Quality</td>
<td>.66</td>
<td>.66</td>
<td>.18</td>
</tr>
<tr>
<td>Mean</td>
<td>.66</td>
<td>.66</td>
<td>.18</td>
</tr>
</tbody>
</table>

a Reliability coefficients adjusted by the Spearman-Brown formula.
b N = 48
c N = 47
d N = 46
e Calculated through the use of Fisher z transformations.
* p < .05
** p < .005
*** p < .001
shown in Table 7 indicates that 62% of the decision outcome ratings by the two immigration experts were within one category of each other on a seven point scale. Unfortunately, there were a substantial number of responses that were separated by as much as four and five categories. The Pearson correlations between the two raters, shown in Table 8, are all significant, with an average correlation of 0.66.

Immigration: MANOVA and ANOVA analyses. The MANOVA's of the ratings of the two Immigration experts did not yield any significant results.

Capital punishment and immigration: Assessments of the reliability of ratings across the two problems. The information contained in Table 7 shows that an average of 44% of the ratings across the two problems were within one category of each other and 71% of the ratings were within two categories of each other on a seven point scale. However, a second measure of reliability, the Pearson correlation statistic, indicates virtually no significant correlations between the ratings made of groups on the two different problems (see Table 8).

Capital punishment and immigration: MANOVA and ANOVA's on the combined data. The MANOVA results showed no significant main or interaction effects. (It should be noted that additional analyses were performed on the data that may be of interest to the reader—see Appendix 0.)

In summary, the analysis of the decision outcome data shows expert ratings that correlate moderately within each of the two problems but have a low correlation across the two problems. The MANOVA results from the one capital punishment expert provide tentative support for the leadership main effect results found when testing the data on the groupthink symptoms. The MANOVA results from the remaining experts indicate a lack of significant findings.
Multiple Regression Prediction of Quality of Decision Outcome

Since these analyses were performed on a post hoc basis, there were no \textit{a priori} predictions.

Prediction based upon the capital punishment data. The step-wise regression analysis indicated that the following five variables made significant contributions to the prediction of the quality of the decision: (1) motivational level, (2) leadership style (i.e., assertive vs. non-assertive), (3) the interaction of L.P.C. with G.A.S., (4) the degree of perceived time pressure, and (5) the sex of the group leader (see Table 9). Increased motivation, non-assertive leaders, increased L.P.C./G.A.S. scores, decreased time pressure and male group leaders were all positively correlated with increased ratings in the quality of the decisions (see Table 10).

The information contained in Table 9 shows that these factors only account for 23% of the variance associated with predicting the quality of the decision. When considering the contributions that the variables make to increasing the amount of variance accounted for ($R^2$), it appears that motivational level is the only non-trivial predictor of decision quality for the capital punishment problem.

Prediction based upon the immigration data. The step-wise regression analysis indicated that the following six variables made significant contributions to the prediction of the quality of the decision: (1) not belonging to a military organization, (2) the level of concurrence seeking, (3) the interaction of the antecedent conditions with leadership style, (4) the degree of perceived time pressure, (5) L.P.C. score, and (6) belonging to a mental health organization (see Table 11). Not being in the military, increases in concurrence seeking, decreases in the groupthink condition (antecedent conditions present/leadership style assertive), increases in time pressure, increases in L.P.C. scores, and belonging to a mental health...
Table 9
Step-Wise Multiple Regression Prediction of Decision Outcome for Capital Punishment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple</th>
<th>Increase in R²</th>
<th>Anova F Ratio&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>R²</td>
<td>R²</td>
</tr>
<tr>
<td>Motivational Level</td>
<td>0.3482</td>
<td>0.1212</td>
<td>0.1212</td>
</tr>
<tr>
<td>Leadership Style</td>
<td>0.3971</td>
<td>0.1577</td>
<td>0.0364</td>
</tr>
<tr>
<td>Interaction L.P.C./G.A.S.</td>
<td>0.4394</td>
<td>0.1931</td>
<td>0.0354</td>
</tr>
<tr>
<td>Time Pressure</td>
<td>0.4660</td>
<td>0.2172</td>
<td>0.0240</td>
</tr>
<tr>
<td>Leader's Sex</td>
<td>0.4803</td>
<td>0.2307</td>
<td>0.0135</td>
</tr>
</tbody>
</table>

<sup>a</sup> All F ratios significant at .05 level

<sup>b</sup> d.f. = 1,45

<sup>c</sup> d.f. = 2,44

<sup>d</sup> d.f. = 3,43

<sup>e</sup> d.f. = 4,42

<sup>f</sup> d.f. = 5,41
Table 10
Correlations Between Predictor Variables and Criterion Variables

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Overall Quality of Immigration Decision</th>
<th>Overall Quality of Capital Punishment Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antecedent Conditions</td>
<td>-0.092</td>
<td>-0.012</td>
</tr>
<tr>
<td>Leaderstyle (assigned)</td>
<td>-0.133</td>
<td>-0.077</td>
</tr>
<tr>
<td>Interaction Antec./Leader</td>
<td>-0.278</td>
<td>-0.036</td>
</tr>
<tr>
<td>L.P.C.</td>
<td>0.224</td>
<td>0.039</td>
</tr>
<tr>
<td>C.A.S.</td>
<td>0.175</td>
<td>0.165</td>
</tr>
<tr>
<td>Interaction L.P.C./C.A.S.</td>
<td>0.222</td>
<td>0.207</td>
</tr>
<tr>
<td>Cohesiveness</td>
<td>0.047</td>
<td>-0.032</td>
</tr>
<tr>
<td>Concurrence Seeking</td>
<td>0.259</td>
<td>0.078</td>
</tr>
<tr>
<td>Leader's Sex</td>
<td>-0.194</td>
<td>0.120</td>
</tr>
<tr>
<td>Mental Health Organiz.</td>
<td>0.370</td>
<td>0.025</td>
</tr>
<tr>
<td>Military Organization</td>
<td>-0.374</td>
<td>-0.115</td>
</tr>
<tr>
<td>Leaderstyle (as rated)</td>
<td>0.173</td>
<td>0.150</td>
</tr>
<tr>
<td>Motivational Level</td>
<td>-0.264</td>
<td>-0.348</td>
</tr>
<tr>
<td>Time Pressure</td>
<td>0.328</td>
<td>-0.061</td>
</tr>
</tbody>
</table>
### Table 11
Step-Wise Multiple Regression Prediction of Decision Outcome for Immigration

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple</th>
<th>Increase in</th>
<th>Anova $F$ Ratio$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R$</td>
<td>$R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Military Organization</td>
<td>0.3737</td>
<td>0.1396</td>
<td>0.1396</td>
</tr>
<tr>
<td>Concurrence Seeking</td>
<td>0.4599</td>
<td>0.2115</td>
<td>0.0719</td>
</tr>
<tr>
<td>Time Pressure</td>
<td>0.5120</td>
<td>0.2621</td>
<td>0.0506</td>
</tr>
<tr>
<td>Interaction Antecedent</td>
<td>0.5775</td>
<td>0.3335</td>
<td>0.0714</td>
</tr>
<tr>
<td>Conds./Leadership Style</td>
<td>0.6117</td>
<td>0.3741</td>
<td>0.0406</td>
</tr>
<tr>
<td>L.P.C.</td>
<td>0.6295</td>
<td>0.3962</td>
<td>0.0221</td>
</tr>
</tbody>
</table>

$^a$ all $F$ ratios significant at .01 level

$^b$ d.f. $= 1,45$

$^c$ d.f. $= 2,44$

$^d$ d.f. $= 3,43$

$^e$ d.f. $= 4,42$

$^f$ d.f. $= 5,41$

$^g$ d.f. $= 6,40$
organization were all positively correlated with increased ratings in the quality of the decisions (see Table 10). The information contained in Table 11 shows that these factors account for 40% of the variance in predicting the quality of the decision. However, it appears that not belonging to a military organization is the only variable that accounts for a non-trivial amount of variance ($R^2$) in the prediction of decision quality. Of interest is the fact that the negative correlation between the presence of the group-think conditions and decision quality supports the predictions of groupthink theory; at the same time, the positive correlation between concurrence seeking and decision quality is contrary to the predictions of groupthink theory. (Both of these factors of concurrence seeking and the presence of groupthink conditions contribute only trivial amounts to the variance associated with predicting decision quality—see Table 11.)

**Prediction across both problems: Canonical correlation analysis.** A canonical correlation analysis was performed using the fourteen predictor items (see Table 10) as one set of variables in the analysis. The second set of variables in the analysis was the capital punishment and immigration ratings on the overall quality of the decisions. The results indicated that neither of the two canonical correlations achieved significance. It was of interest to note that not belonging to a military organization had the largest regression weight in the canonical construction where the predictor variables correlated most highly with the immigration variable. This supports the results found under the step-wise multiple regression analysis. Similarly of interest was the finding that the factor of motivation had the largest consistent multiple regression weights across both canonical constructions. This also supports the findings of the step-wise multiple regression analysis.

In summary, the multiple regression and canonical correlation analyses
indicate that two different variables yield the best predictions of decision quality for the two different problems. On the capital punishment problem increases in motivational level were associated with increased ratings in decision quality. On the immigration problem not belonging to a military organization was associated with increased ratings in decision quality. The canonical correlation analysis suggested that of the two dominant predictor variables, motivational level was likely to provide the strongest help in predicting decision quality across both problems.

Discussion

Concurrence Seeking and Groupthink Symptoms

The overall results do not provide support for the theory of groupthink as proposed by Janis (1972; Janis and Mann, 1977). The analyses indicated that in contrast to the predictions of groupthink theory, the combination of an assertive leadership style with cohesiveness and perceived time stress did not result in significantly higher than normal levels of concurrence seeking among the members of these groups. Similarly, it was found that in contrast to groupthink predictions, there was no significant interaction between leadership style and the antecedent conditions resulting in the production of groupthink symptoms.

However, the analyses did demonstrate that leadership style by itself had a significant effect upon several of the group processes. In comparison to groups led by non-assertive leaders, groups under assertive leaders felt a significantly greater degree of conformity pressure and viewed the decisions that were reached as being significantly more risky. Conformity pressure is one of the eight groupthink symptoms outlined by Janis (1972), and risk taking is combined with high optimism to also yield a groupthink
symptom concerning the illusion of invulnerability. While the results indicate that leadership style had a significant effect upon the groupthink symptom of conformity pressure, there is a reservation concerning the effect of leadership style upon the illusion of invulnerability. Members under assertive leaders perceived the decisions to be more risky than did members under non-assertive leaders, but ratings by experts external to the group did not yield the same significant difference between the two leadership styles. In addition, the second half of the illusion of invulnerability is constituted by a high degree of optimism. Members under assertive leaders were not significantly more optimistic concerning the decisions that they reached than were members under non-assertive leaders. Therefore, while one can consider leadership style to have had a significant effect upon the riskiness of the decisions as perceived by the members, one cannot consider an illusion of invulnerability to have existed as a result of leadership style in these groups.

In summary, groups under groupthink conditions were not found to display more concurrence seeking and were not found to exhibit more groupthink symptoms than groups under non-groupthink conditions. At the same time, leadership style was found to have a significant effect in causing groups under assertive leaders, in comparison to non-assertive leaders, to feel greater conformity pressure and to view the decisions reached as being more risky.

These results do not support the predictions of groupthink theory, but they do indicate some potential problem areas within discussion groups where the leader is strongly assertive about his or her point of view and strongly expresses that view at the beginning of the decision making session.

Quality of the Decision Making Process

In addition to the group processes measured by the groupthink symptoms,
this study also tested six additional measures of the quality of the decision making process. Again, in contrast to the predictions made by groupthink theory, there was no significant interaction between leadership style and the antecedent conditions of cohesiveness and time stress. That is, there was no significant difference in the quality of the decision processes found under the groupthink and non-groupthink conditions. However, there was a significant effect on two of the six measures when high-cohesive, high-time-stress groups (antecedent conditions present) were compared to low-cohesive, low-time-stress groups (antecedent conditions absent). These results suggested that groups under conditions of high cohesiveness and time stress were less effective in terms of the amount of information brought into the discussion and less effective in their consideration of potential negative and positive consequences associated with alternative solutions. These results were consistent across the ratings and analyses of three different independent observers. In addition, there was a very strong indication that the cohesive, time stressed groups produced fewer solutions on the average than did the non-cohesive, non-time stressed groups. On these measures of group process the overall picture is consistent in showing the non-cohesive, non-time stressed groups to be more effective than the cohesive, time stressed groups. Since most research on cohesiveness indicates that cohesive groups are, in general, more effective than non-cohesive groups (e.g., Berkowitz, 1954; Fisher, 1974; Katz & Kahn, 1978) it is highly likely that this somewhat surprising finding is a result of the time manipulation rather than the cohesiveness manipulation in the antecedent conditions. The multiple regression analyses support the interpretation that the decreased effectiveness of the groups was caused by the time limitation rather than the existence of cohesiveness. Thus, while cohesive groups may normally function more effectively than non-cohesive groups, even the effectiveness of cohesive groups may be
seriously undermined by strong time pressures. In fact, these results indicate that if the time pressures upon cohesive groups are strong enough those groups may be less effective than non-cohesive groups not operating under such time restraints.

The effects of time limitations on decision making may operate through intervening variables such as stress or arousal level. However, in the present study such an interpretation is not consistent with the earlier results indicating that the significant differences in perceived time pressure found between groups did not manifest themselves as significant differences in overall levels of stress. It is more likely that the strong time pressures diminished the group's effectiveness, at least in the present case, by simply putting physical restrictions upon the amount of information that could be processed by the group. For example, time pressures may limit the feasibility and ease of bringing outside relevant information into the discussion, or of generating and evaluating a large number of alternative potential solutions.

It is valuable to consider the results concerning the groupthink symptoms and the six additional group processes within the context of broader theories on group dynamics. Research and theory stemming from Bales (1950) in the early fifties through to more current literature on groups and leader functioning (e.g., Bales, 1970; Blake and Mouton, 1969; Fiedler, 1967; Katz and Kahn, 1978) are consistent in identifying at least two main aspects of group functioning: task related features and social or inter-personal relations features. Task related aspects of group functioning are concerned with such activities as setting objectives, defining goals and engaging in goal-oriented behaviour. Inter-personal relations within groups are usually broadly defined in terms of how the group members work together, or what the group atmosphere is like; for example, individuals offering encouragement or expressing feelings of concern over what they feel are risky decisions being
made by the group. These offers of encouragement and feelings of concern influence what could be called the affective or socio-emotional aspects of the group's functioning, in contrast to the task oriented features of the group's functioning. Within this context, it appears as though the group-think symptoms that play a dominant role in the theory of Janis (1972; Janis and Mann, 1977) are basically concerned with the nature of the group's affective atmosphere. Feelings of optimism, moral correctness, unanimity and conformity pressure are descriptions of the psychological mood of the group. The six additional group processes analyzed in this study largely fall within the task-oriented measures of group processes. Measures of how many solutions were produced, how much information was considered and to what extent the consequences of various alternatives were considered, are indicators of how well the group was functioning in its task of producing the best possible solution to the problem.

The results of the present experiment indicate that leadership style had a significant effect on the affective measures of the group processes whereas the antecedent conditions, in particular time pressure, had a significant effect on the task oriented measures of the group processes. Conformity pressure and perceived riskiness of the decision were influenced by leadership style, while the amount of information discussed, the extensiveness of reviewing the decision consequences and the number of solutions proposed were influenced by the cohesiveness and time constraints existing within the groups. It is interesting that leadership style and the antecedent conditions had effects upon different aspects of the group's functioning. The initial effects of strong time restrictions may show up first in measures of the group's task related effectiveness. It may be only under conditions of higher motivation or stress than existed in this study where strong time restrictions produce a second effect, that is, where they influence the
group's affective functioning. With respect to leadership, it may be the case that in this situation the assertive leaders were seen as being somewhat obnoxious or "pushy" members of the group, thus exerting a negative influence on the measures of the group atmosphere. However, member motivation or involvement may not have been strong enough, or as Flowers (1977) pointed out concerning her study, the power of the group leader may not have been strong enough to compel the members to "toe the line" with the leader's views, and thus also demonstrate the negative influence of leadership style upon the measures of task effectiveness.

In comparison to the present study, Flowers' (1977) research demonstrated the effects of leadership style upon task functioning (e.g., the number of solutions proposed, and the number of "role sheet" facts considered) but showed no leadership or cohesiveness effect upon the affective functioning of the group (e.g., conformity pressure, measured by Flowers as the "perceived freedom to express opinions"). There may be several reasons for the differences between Flowers' results and the results of this study. Flowers found a "bottoming effect" on her measure of conformity pressure: no one seemed to feel any pressure at all. Perhaps the assertive leaders in the present study were more insistent in their views and thus exerted more conformity pressure upon the members. If this is the case, it is difficult to explain why the assertiveness by leaders in this study did not affect the task oriented dimensions of the group processes. As mentioned above, it may simply be due to the lack of a strong enough involvement on the part of the group members or the lack of enough power in the role of the group leader.

The original cases studied by Janis (1972) were analyzed predominantly with respect to the effect of leadership style, cohesiveness and stress in producing dysfunctions in the affective aspects of the group processes
(i.e., in producing the groupthink symptoms). It would be interesting if the cases were reanalyzed more specifically in terms of the effect of the groupthink preconditions upon the task related aspects of the group's functioning.

**Quality of the Decision Outcome**

The results stemming from the analyses of the quality of the decisions made by the groups clearly indicated one thing, that it is difficult to obtain agreement between experts in their judgments on decision quality. This is not a surprising finding given the experiences of previous researchers with the ratings of experts (cf. Carr, Green, and Hinckle, 1976; Courtright, 1978). The experiences of the present experimenter also clearly indicated that the majority of the group leaders in the experiment were seriously lacking in some leadership skills. For example, the ability of the majority of the group leaders was so poor in adequately conveying to the experimenter the decisions reached by the group, particularly with respect to conveying the total extent of what was decided, that the quality of the decision reached by a group was often highly confounded by the skill of the leader in being able to properly state the group's position. This, in turn, increased the difficulty of finding significant differences between groups in the quality of the decisions produced.

In spite of these limitations, the analysis of the ratings of one of the capital punishment experts demonstrated a main effect for leadership style, with groups led by assertive leaders producing decisions that were inferior in overall quality to the decisions produced by groups under non-assertive leaders. This finding is similar to the analyses of the groupthink symptoms, where a main effect for leadership style was also found. In both cases the non-assertive leadership style functioned better than the assertive leadership style. As mentioned previously, these results are also consistent with
Flowers' (1977) research in that she also found a main effect for leadership style, with assertive leaders faring poorer. The consistency of results within and across studies suggests that leadership style may have been the predominant factor operating in Janis' (1972) cases of groupthink in action. As noted in the introduction to this study and as pointed out by Flowers (1977), there may be reason to question the central role assigned to group cohesiveness by Janis (1972). It will be valuable to see if future experimental research on groupthink continues to find leadership to be a major factor and continues to question the role of cohesiveness in the theory. Under those circumstances groupthink theory may simply become a special case of one of the more general theories on leadership.

The final set of results concerns the post hoc analysis of significant predictors of decision quality. The results across the multiple regression and canonical correlation analyses were not consistent in demonstrating one variable or set of variables to be the major predictors of decision quality. Motivational level appeared to be the best predictor for the capital punishment problem and the type of organization belonged to (or not belonged to) appeared to be the best predictor for the immigration problem. Motivational level may be the best common predictor but the evidence is very weak for such a statement. The lack of cross-problem variables for the prediction of decision quality may stem from the fact that the inter-rater correlations of decision quality were moderate within problems but very low between problems. In this study it seems that both the judgments of decision quality and the predictors of that quality were specific to the type of problem encountered by a group. In other words, a group faced with the two problems of immigration and capital punishment may do quite well on one problem and quite poorly on the second problem. In addition, if we tried to predict decision quality for a specific group, we may be best off by matching the type of
predictor variable to the type of problem. Such findings, if consistent, may raise serious problems in establishing the type of group conditions most conducive to high quality decision making across different problems.

It is interesting that at least with some social problems, being in an organization other than the military increases the possibility of obtaining higher quality solutions. This may be a comment upon the potential disadvantages of having the military in a position where they make decisions about such social problems as immigration.

There are several implications if motivation and the organization belonged to are major predictors of decision quality. First, research on decision making, and groupthink in particular, should explicitly take these variables into consideration (cf. Courtright, 1978; Flowers, 1977). Second, research by Gouran, Brown and Henry (1978) suggests that in a decision making discussion, task oriented contributions by group members influenced the perception of the quality of the discussion more than inter-personal relations contributions. Thus, it may be only the task oriented aspects of motivation and the organization belonged to that will be perceived to affect the quality of the decisions reached.

The multiple regression and canonical correlation analyses are also valuable in outlining the kinds of factors that do not seem to be important explanations of decision quality. For example, in this study it was more valuable to speak of motivational level than groupthink when attempting to explain the decision making. The use of such analyses in future studies on decision making may also help to indicate where it is and is not valuable to use explanatory concepts such as groupthink.

A number of reservations concerning this research and the interpretations of the results need to be considered. First, while there may be some question concerning the way in which Janis (1972) selected cohesiveness as a
major factor in groupthink, it is also clear that there may be some question concerning the effectiveness of the manipulations of group cohesiveness within the Courtright (1978) study and the present study. Second, there are limitations within both Courtright's study and this study due to the moderate reliabilities across the ratings of experts. These reliabilities may indicate enough error variance existing in the data collected that the effects of any factor such as groupthink would have to be quite powerful in order to be observed.

The third reservation concerns the theoretical problems associated with judging the quality of a decision. As indicated earlier, with respect to unstructured and complex problems the judgment of decision or solution quality may be best decided with reference to the quality of the decision making process. This is particularly true when considering a single decision rather than a series of decisions made by the same group. At the same time though, there has been some development in the assessment of decision quality based upon the decision itself. The work of Fiedler (1967) indicated that solutions for structured problems, that have correct or optimal outcomes, were judged on the basis of "goodness of fit" to the required solution. Solutions or decisions concerning unstructured problems where there was no "correct" answer were rated by experts as to their quality. Leathers (1972) has carried this process a step further by breaking the general rating of decision quality into a series of components, such as rating the creativity and comprehensiveness of the decisions. At this stage we have moved beyond rating decision quality by considering decision process to a consideration of the content of the decision. This decision content is open to ratings on quality that should be independent of the nature of the decision; for example, the ratings should be independent of whether the decision made on capital punishment is for or against the death penalty. More research is required to link
ratings of the quality of the decision process to ratings on the quality of the decision content. In addition, it may also prove very valuable to use a large sample of decisions, and assess the relationship that exists between the ratings of the quality of decision content and some measure of the successfulness of the decision outcome.

In the present study we have measured decision quality by considering expert ratings on six components of decision quality for each of the decisions that were made by the groups. However, there may be questions concerning the basis upon which the experts made these ratings. For example, with respect to the immigration experts, were the judgments of what constituted creativity in the solutions, themselves a product of some group dynamic within the organization? This question and the potential rating bias could be answered by correlating the ratings of experts on immigration within one organization to the ratings of experts within a different organization.

Within the context of questioning decisions that may be the product of group dynamics, it could be asked whether the decisions associated with the carrying out of present research were the result of groupthink within the supervisory group. However, this would not seem to be the case. While there was a cohesiveness within the group, there was no assertive stressing by one individual that the research should be carried out in one particular way, nor was there a lack of input from experts external to the committee.

A fourth reservation concerning the study is the fact that the multiple regression analyses were done post hoc and were performed on a very small sample size for that type of analysis. The results may be quite unstable and need to be verified as \textit{a priori} predictions on new samples of groups engaged in decision making.

Last, there must be serious reservations about all three experimental studies (Courtright, 1978; Flowers, 1977; and the present research) with
respect to the external validity of the experimental situations. One major difference between these studies and the cases analyzed by Janis (1972) concerns the nature of the consequences involved for the group members in accepting any given solution as their preferred choice. The solutions being proposed by subjects within the various experiments had very little impact in terms of personal consequences for the participants. In addition, as Flowers (1972) noted, the leaders in the original groupthink cases wielded immensely more power over their group members than did the leaders under the experimental conditions.

The overall effect of these reservations concerning the experimental studies is that they may well represent inadequate simulations of the original groupthink conditions. In fact, given the lack of demonstration of the existence of groupthink within these three experimental studies it may be somewhat fruitless continuing to study groupthink within the laboratory. A more realistic testing of groupthink theory may have to wait until it can be conducted using normal groups functioning within their typical working environments. By doing so we may determine whether groupthink is involved in the functioning of groups under everyday conditions. A negative answer to that question would still mean that we would need to determine whether or not groupthink acted as a special factor operating only under more crisis-like conditions involving highly cohesive groups, highly assertive leaders, high stress (and perhaps, conditions high in personal consequences for the group members). At present, what we know is that there is little evidence that groupthink operates within groups functioning under experimental laboratory conditions.

In conclusion, I would like to make two general remarks concerning groupthink theory and the way in which it has been studied. The theory of groupthink has been a provocative entry into the field of understanding major
political events. It has stimulated a great deal of interest; that in turn has led to research on the theory. It may be unfortunate that the theory was soon subjected to two problems that seem commonly generated by researchers in psychology.

First, psychology is strongly dominated by an experimental, laboratory oriented approach to research. At no time is this code of behavior more vigorously enforced than when the neophyte in the field attempts to demonstrate his or her research proficiency in order to complete a Ph.D. and gain acceptance into the profession. It may not be entirely coincidental that the three tests of the theory that were basically negative in outcome were highly experimental in orientation and done as doctoral dissertations (Courtright, 1978; Flowers, 1977; and the present study), whereas the strongest support for the theory came from a non-experimental study not done under the requirements of a doctoral dissertation (Tetlock, 1979). The point is that groupthink theory is psychological in nature; this resulted in it being tested through the experimental/laboratory approaches to research traditional to this discipline. Such a fate may not have been the most appropriate way to judge the veracity of the theory. Given the nature of the events studied by Janis (1972) and the contrast between groups under international crisis conditions and groups in an experiment, it was perhaps misleading to rush Janis' theory into the laboratory for study. Thorngate (1980), in reviewing a recent experimentally oriented text on the social psychology of decision making, strongly suggests that this area is stagnating because of our lack of research in more appropriate "real life" settings.

Second, and more minor, is the problem that in our haste to experimentally test theories we sometimes leap into testing the implications of the theory before testing the theory itself. For example, both Flowers (1977)
and Courtright (1978) concentrated on implications such as "groups suffering from groupthink will display fewer statements of disagreement" or "will discuss less available information before the decision than will non-groupthink groups". At the same time both Flowers and Courtright missed testing two major components of the theory. One component stated that high levels of concurrence seeking would be the result of specific preconditions and would lead to groupthink. The second component stated that groupthink is defined primarily through the existence of the groupthink symptoms.

It seems to the present author that the theory of groupthink deserves a better hearing through research more closely tuned to Janis'(1972) level of analysis and more closely tuned to the specifics of the predictions made by groupthink theory.
References


Flowers, M. L. A laboratory test of some implications of Janis's groupthink hypothesis. *Journal of Personality and Social Psychology*, 1977, 35, 888-


Appendix A

Pre-Experimental Session,

Group Leadership Training Procedures
Group Leadership Training Procedures

Instructions to Leaders:

This is meant to be a very brief instruction session before you get together with your group. Basically, we're interested in the way in which your group operates under an (assertive; non-assertive) style of leadership. Now, we know that each of you has a personal style of leading groups which may lean towards being either assertive or non-assertive concerning your ideas, and that it probably varies somewhat according to the situation that you're in. However, for this present study, we would like you to be strictly (assertive; non-assertive) in your style. We are interested in the contrast between groups under non-assertive leaders who deliberately do not stress their own ideas and leaders who stress agreement with their solutions.

Ok, let's talk about some specific characteristics that are associated with operating in a (assertive; non-assertive) style.

A. The non-assertive style.

1. The principal interest is in receiving input from all members so that the most information possible is available before making a decision.

2. The mode of operation is like that of a discussion group leader mixed with a conciliator. At first there is the attempt to solicit all the relevant information without coming to a premature decision. Then once it appears that most of the opinion is available the next step becomes one of reconciling the various views to come up with one solution that appears most likely to be correct.

3. A major tactic is to be able to develop in the group an atmosphere of trust within which there can be a critical assessment of ideas, without the fear of having feelings hurt.

4. There are two prime difficulties that non-assertive leaders often
run into and must be avoided to set up the group atmosphere that you want.

a. Group leaders often come on strong with their own ideas at the very start of a group discussion. In most groups where the leader has a position of power due to status, higher qualifications than the others, or the ability to strongly influence the careers of the other members, the members will react to the leader's initial views by becoming more conservative or hesitant in voicing their own views. They often will avoid raising questions which may conflict with that of the authority figure—you, the leader. I would like you to avoid stating your own point of view until it is clear that all the other members have stated theirs. I would like your primary interest to be in the other points of view. Try also to avoid putting your opinion into black and white terms; stating things as being categorically right or wrong leaves little room for compromise without losing face, even if you decide later that you want to change your view somewhat. This brings us to the second major difficulty to be overcome in getting the group into an atmosphere of critically assessing ideas.

b. To show that all ideas are open for critical assessment it must be clear that the group leader does not react adversely when his own ideas are examined or flaws pointed out in them. This is very important because at this stage the leader can make or break the desired group atmosphere. In actual fact, you become the model for the rest of the group.

To summarize: The primary thing that we are interested in is that you do not state your view until the others have done so and that you take the role of being deliberately non-assertive concerning your views on the problems.

(Present the two problems and the Leadership Training Questionnaire.)
B. The assertive style.

1. The principal interest is to consider the problems, form some ideas about what should be done and effectively sell your ideas to the group.

2. The primary approach is through stressing your own opinion. Work out your positions and push for them as the group leader.

3. One of the main techniques used in operating in this style is to establish control over the direction in which the group is heading. Oftentimes, leaders, wishing to be assertive but proceeding ineffectively, end up "competing" with one or two other group members for the actual leadership of the group. A group attempting to go in several different directions at the same time will not be an effective group. One valuable and useful way for establishing the group direction and your leadership early on is to outline your specific ideas about the solution to the problem. Very often the leader will start the meeting off by summarizing the situation and the problem. Then once having presented his views on the problems he directs the meeting by asking for questions and other ideas.

4. A second problem that is often met when meetings are not directed effectively is that there tends to be a great deal of time consuming redundancy in ideas and discussion. Often the same arguments and same issues will be rehashed in fifty different ways. One advantage of problem solving with an assertive leader is that they tend to minimize this redundancy by asking people to be specific, by indicating when discussions have stopped being productive and started being dogmatic statements of positions.

5. The last aspect of the problem solving session is actually coming up with a solution. Again, this is where an assertive leader must display considerable skill. Oftentimes, it is virtually impossible to reconcile all viewpoints in a group and in order to decide upon some solution it is necessary for the leader to select what appears to be the best proposal. At
this point you are basically acting in a situation similar to that of a President of Prime Minister, when they receive input concerning a problem which may be quite diverse depending upon the group of advisors. At the end, it is up to the group leader (or President) to select what appears to the best solution in the face of divergent opinions.

6. In general, I would like you to stress your ideas and the need for agreement. This does not mean being totally inflexible, because all leaders typically adjust their positions on the basis of new information but it does mean being a leader who is assertive about his point of view.

To summarize: For each of the two problems start off by presenting your point of view and then remain assertive about your view during the session.

(Present the two problems and the Leadership Training Questionnaire.)
Appendix B

Leadership Training Questionnaire

(Fiedler's Least Preferred Co-Worker Test -- Fiedler, 1967, p. 268)
Leadership Training Questionnaire

Instructions:

I would like you to think back to everyone that you have ever worked with. Pick out the one individual with whom you could work least well. He or she may be someone you knew in the past or s/he may be someone that you work with now. He or she does not have to be the person that you like least well, but should be the person with whom you had the most difficulty in getting a job done. On the set of scales below, please describe this person as s/he appears to you. Circle the appropriate number for each scale.

Pleasant : 8 7 6 5 4 3 2 1 Unpleasant

Friendly : 8 7 6 5 4 3 2 1 Unfriendly

Rejecting : 1 2 3 4 5 6 7 8 Accepting

Helpful : 8 7 6 5 4 3 2 1 Frustrating

Unenthusiastic : 1 2 3 4 5 6 7 8 Enthusiastic

Tense : 1 2 3 4 5 6 7 8 Relaxed

Distant : 1 2 3 4 5 6 7 8 Close

Cold : 1 2 3 4 5 6 7 8 Warm

Cooperative : 8 7 6 5 4 3 2 1 Uncooperative

Supportive : 8 7 6 5 4 3 2 1 Hostile

Boring : 1 2 3 4 5 6 7 8 Interesting
<table>
<thead>
<tr>
<th>Trait</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarrelsome</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Self-assured</td>
<td>8 7 6 5 4 3 2 1</td>
</tr>
<tr>
<td>Efficient</td>
<td>8 7 6 5 4 3 2 1</td>
</tr>
<tr>
<td>Gloomy</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Open</td>
<td>8 7 6 5 4 3 2 1</td>
</tr>
</tbody>
</table>

Harmonious
Hesitant
Inefficient
Cheerful
Guarded
Appendix C

General Information About the Study

Given to the Subject Groups
General Information About the Study
(for the subject groups)

This is basically a study concerned with group problem solving or group decision making. We've all been in groups or committees attempting to deal with issues or solve problems. However, I have found that when looking at how certain groups operate under specific types of leaders, dealing with specific types of problems, we know very little about the group processes or outcomes that occur. That is the purpose of the present research. We will be using a particular type of people to form the groups (civil servants, businessmen, military personnel). The groups will operate under leaders who have specific styles of leadership. Finally, the groups will be asked to solve a particular type of policy problem. Through all this, we will be interested in how the group deals with the problem, the solution that they produce and the members' reaction to the process.

The way we proceed is by meeting with the group leaders to discuss the various leadership styles sometime just prior to the actual group session. Then, the whole group gets together under the direction of the leader and we present the group with two policy problems to solve. At the end of the session you will be given a questionnaire to fill out so that we may get your feedback about the entire process. Because of the fact that I cannot remember the proceedings of entire sessions, the sessions will be tape-recorded. The group sessions usually take about one hour to complete.
Appendix D

Instructions to the Antecedent Conditions Present Groups
Instructions to the Antecedent Conditions Present Groups

Explain the taperecorder and my presence. You all know that we're here to study group decision making. Today the problems that you'll be asked to deal with concern your views on Canadian immigration and capital punishment. You will have a total time of only 30 minutes to produce solutions to these two problems. I'll let you know when half the time is gone. Most people find they have to work fast to get through in this time. Actually, it's good you're a (mixed) (all male) (all women) group they seem to work faster. Now, what I would like you to do is to work under the leadership of ______ during this session. When your 30 minutes is up, I'll let you know. I'll ask the group leader to make a statement outlining as specifically as possible the proposed solutions to the problems and the reasons for selecting those solutions. (To the leader) There's some spare paper there, I usually ask the leader just to jot down some points as you go along, not sentences, but just things to jog your memory so that at the end when I ask you what decisions you've reached you can tell me. What you tell me as your statement at the end of the session will be taken as the description of the decisions reached by the group and the reasons behind the decisions. Following that, I'll get you all to fill out a questionnaire and the session will be finished. Then we can talk about the research and I'll answer any of the questions that may have come to your mind.

Emphasis! We would like you to do your best on these problems. It is important that you reach the best solutions possible. We will be looking at these discussions in terms of the quality of the solutions you propose. We will also be showing these tapes anonymously to classes of students and to some professional seminars for managers as examples or cases in group decision making. So do the best that you can.
It is the University policy concerning research that people be fully informed about the study so that they know that there's no deception involved and everything is above board. These are the consent forms that we ask each person to fill in.
Appendix E

Instructions to the Antecedent Conditions Absent Groups
Instructions to the Antecedent Conditions Absent Groups

Start off by making introductions.

Low Decision S.: Explain the taperecorder and my presence. You all know that we're here to study group decision making. Today the problems that you'll be asked to deal with concern your views on Canadian immigration and capital punishment. You can have pretty well as long as you like to work on the problems, until you feel comfortable with the solutions. There is no set time limit, but there is usually no problem in finishing the discussions and coming up with solutions within about an hour. Now, what I would like you to do is to work under the leadership of _______ during this session. When you are finished, you can let me know. I'll ask the group leader to make a statement outlining as specifically as possible the proposed solutions to the problems and the reasons for selecting those solutions. There's some spare paper there, I usually ask the leader just to jot down some points as you go along, not sentences, but just things to jog you memory so that at the end when I ask you what decisions you've reached you can tell me. What you tell me as your statement at the end of the session will be taken as the description of the decisions reached by the group and the reasons behind the decisions. Following that I'll get you all to fill out a questionnaire and the session will be finished. Then I can answer questions and tell you why I'm doing this anyway! (A light comment to make them feel at ease.)

It is the University policy concerning research that people be fully informed about the study so that people know that there's no deception involved in the study, everything I've stated is above board, and we haven't hot wired the chairs or something. These are the consent forms that we ask each person to fill in.
OK, go ahead.
Appendix F

Consent Form
CONSENT FORM

The ethics review committee of the University of British Columbia requests that all individuals participating in research associated with the University sign a consent form. By signing this form you indicate that the nature of the study has been explained to you; that you are participating voluntarily and are free to withdraw without penalty from the study at any time; that there are no risks associated with this study; and that all information will be maintained with strictest confidentiality.

Date: 

Signature: 
Appendix G

Capital Punishment and Immigration Problems
Capital Punishment

The last hanging in Canada was in 1962. From 1963 to 1976, the Federal cabinet has commuted all death sentences to life imprisonment. At the present time there is no "death sentence" for any crime committed in Canada. The present law, which was passed in 1976, calls for a mandatory 25 year imprisonment sentence for 1st degree murder, and 10-25 years for 2nd degree murder. In both cases, after serving a minimum of 15 years, eligibility for parole may be considered by a judicial review panel initially, and then by the National Parole Board. Over the past 15-20 years, the general approach taken by the government has been to reduce the number of crimes for which the death sentence could be applied and increase the minimum length of time that must be served before being eligible for parole. The government has taken the position that they find the death penalty both morally unacceptable and ineffective as a deterrent. Many people have supported this view, including many churches who view capital punishment as being contrary to the spirit and teachings of Christianity.

In contrast to this position, public opinion polls have shown that in recent years the majority of Canadians have favoured the retention of the death penalty. This support, according to the Gallup Polls, hit a low point of 42% in 1966 and since that time has increased to its present standing of approximately 60% of Canadians being in favour of capital punishment for some crimes. People who want it returned often dispute the evidence concerning whether or not capital punishment is an effective deterrent. They often comment that even if it did not deter others, it would certainly stop that individual from ever killing again. Some view the death penalty as a form of punishment or retribution, in biblical terms "an eye for an eye". Others contend that it is required to protect the police and prison guards by
decreasing the risk they face in doing their jobs.

In your view, what would be the best law or laws that Canada could have regarding capital punishment?

**Immigration**

In 1976 a new immigration act became law. It allowed Canada to set total admission limits on immigration and disallowed discrimination on the basis of race, ethnic origin, color, religion, or sex. There are three classes of immigrants: (1) Immediate family members—who are not assessed under the point system. (2) Refugees—who are assessed on the basis of assistance available to them and their ability to adapt to Canadian life, they are not given a rating under the point system. People who would not normally be admitted as refugees may gain admittance under relaxed selection criteria in times of crisis. (3) Other immigrants—who are assessed under the point system.

The point system is based on the factors of education, vocational preparation, experience, occupational demand, previously arranged employment, location in Canada, age, language ability, personal suitability, and relatives. In general, immigrants must be awarded a minimum of 50 out of a 100 available points to be able to immigrate. Employment related factors account for almost half of the possible rating points.

During the period of time from 1946-1973, approximately 3.3 million people immigrated from Europe, Australia, New Zealand, and the U.S.A. In comparison, approximately 1/2 million people immigrated from Africa, North, Central and South America (excluding the U.S.A.) and Asia (approximately 1/2 came from Asia). During the six year period from 1968-1973, approximately 600,000 people immigrated from Europe, etc., and approximately 295,000 people
immigrated from Africa, etc., (approximately 1/2 of these came from Asia). The trend appears to be that in recent years an increasing proportion of the Canadian immigration is coming from Africa, North, Central and South America (excluding the U.S.A.) and Asia.

The level of Canadian immigration has always been determined by the result of many opposing forces. On the one hand, pressures to increase immigration have resulted from factors like the demands of third world countries and the special refugee problems that continually arise. Similarly, Canada has felt moral pressure because of its position as one of the wealthy, developed nations. Canada has many times turned to foreign immigration to provide the people needed for our continued industrial growth and development, a matter of particular concern when our natural population growth is approaching zero. Foreign immigration also provides Canada with a rich diversity of new views and cultures.

On the other hand, immigration has been cited by some as resulting in increased unemployment, increased strains on the housing market, unwarranted demands on the school system, additional costs for social services, and as the underlying cause behind the increasing number of racial incidents.

At the present time, to achieve the best balance between the opposing points of view, what would you consider to be the best immigration policies that Canada could have with respect to foreign countries?
Appendix H

Instructions to Begin the Session

and

Instructions to Time Limited Groups During the Session
Instructions to Begin the Session

OK, here are the problems.

You will have three minutes to read the problems and then I will tell you to go ahead. The session will start and you will have (30 minutes to produce your solutions; as long as you feel necessary to be comfortable in the solutions that you produce).

(TURN ON THE TAPEREORDER)

Instructions to Time Limited Groups During the Session (Antecedent conditions present)

Excuse me, let me interrupt for a minute. You have reached half-time, you have only 15 minutes left to come up with proposals for the two problems! Go ahead!

Excuse me, let me interrupt this last time. You have only 2-3 minutes left to finalize your proposals for the two problems! Go ahead!

(Handout questionnaires properly!)
Appendix I

Post-Experimental Questionnaire for the Group Leader
Post-Experimental Questionnaire

Sex: M FM (Circle one)

1. We would appreciate the following information concerning the people that you worked with today in this session. Please consider each member of the group in turn (it does not matter which person you call member 1, 2, etc.). Look at the "friendship/acquaintanceship" scale below and choose the scale item that most closely defines your degree of friendship with that member. Then, place the number for this scale item in the rating blank for that member. All information contained on this questionnaire will remain strictly confidential.

Degree of Friendship/Acquaintanceship

1 2 3 4 5 6
among my best friends a good friend a moderately good friend a slight friend an acquaintance never met before today

Example Rating: Member 5. 6

Your ratings of the other group members:

Member 1. ___
Member 2. ___
Member 3. ___

Based on your experiences within the group during this past session, we would appreciate your feedback on the following questions. At the end of the questionnaire we would also appreciate any comments that you might have concerning this research. In questions where there are rating scales, please circle the appropriate number above your answer.

2. How many of the members of today's group had you previously worked with
in a group-meeting situation or a committee, in the attempt to discuss or deal with problems concerning your organization(s)? Number: ____

3. If you had previously worked with some of the other members in a group-situation or a committee, how would you rate your degree of interest in participating with that previous group?

1 2 3 4 5 6 7
very interested somewhat interested somewhat uninterested very uninterested no previous
very uninterested

4. How would you rate your degree of interest in participating with the present group members today?

1 2 3 4 5 6
very interested somewhat interested somewhat uninterested very uninterested

5. Overall, how would you rate the group members that you were with today?

1 2 3 4 5 6
very unenjoyable somewhat unenjoyable somewhat enjoyable & very
unenjoyable & uninteresting
to work with

6. To what extent was the attempt to reach group agreement on the solutions a consideration in your own efforts to help the group solve the problems?

1 2 3 4 5 6
the least an unimportant consideration I had an important consideration I had
in solving the problems in solving the problems
7. To what extent did you stress your own point of view concerning the best solutions?

1 2 3 4 5 6
very strongly more than some little very little
strongly asserted some assertion assertion assertion assertion
asserted own view of own view of own of own of own view
own view

8. After outlining the problems, to what extent did you propose your own solutions before the other group members had much opportunity to discuss the problems?

1 2 3 4 5 6
to a very to a to more than to some to a small to a very
large degree large some degree degree degree small degree
degree

9. What was your level of motivation to have the group produce solutions to the problems?

1 2 3 4 5 6
very strongly strongly more than some weakly very weakly
motivated motivated some motivation motivated motivated
motivation

10. How would you rate the importance to you of the problems that your group was attempting to solve?

1 2 3 4 5 6
very unimportant somewhat important important very
somewhat unimportant important important

11. Did you feel pressure because of the time period allowed for solving the problems?

1 2 3 4 5 6
very little little some more than much very much
pressure pressure pressure some pressure pressure pressure

12. How would you rate your own overall level of stress during this problem solving session?

1 2 3 4 5 6
very relaxed somewhat somewhat stressful very
relaxed relaxed stressful stressful stressful
13. At the end of the session, to what extent did you feel the other group members were in agreement concerning the proposed solutions to the problems?

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<tr>
<td>everyone</td>
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<td>more agreement</td>
<td>more</td>
<td>largely</td>
<td>everyone</td>
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<tr>
<td>agreed</td>
<td>agreed; than disagree-</td>
<td>more</td>
<td>disagreement</td>
<td>disagreed; disagreed;</td>
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<tr>
<td>completely; few or</td>
<td>more</td>
<td>than</td>
<td>many</td>
<td>very much</td>
<td></td>
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<tr>
<td>no doubts</td>
<td>weak</td>
<td>doubts</td>
<td>strong</td>
<td>or very</td>
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<td>doubts</td>
<td>than</td>
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14. At the end of the session, to what extent did you agree with the proposed solutions to the problems?

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<td>disagreed;</td>
<td>agreed;</td>
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<tr>
<td>very many</td>
<td>many or</td>
<td>agreed;</td>
<td>agreed;</td>
<td>some few or</td>
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<tr>
<td>or very strong</td>
<td>strong</td>
<td>more than</td>
<td>doubts</td>
<td>weak</td>
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<tr>
<td>doubts</td>
<td>some doubts</td>
<td>doubts</td>
<td></td>
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15. After the session was finished, to what extent did you have questions or doubts about the proposed solutions that you either didn't talk about or didn't feel comfortable in stressing as much as you would have liked during the session?

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<tbody>
<tr>
<td>very many</td>
<td>many doubts</td>
<td>more than</td>
<td>some doubts; few doubts</td>
<td>very few</td>
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<td>doubts or</td>
<td>or questions</td>
<td>some doubts</td>
<td>or questions</td>
<td>or questions</td>
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<td>or questions</td>
<td>not raised</td>
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<td>not raised</td>
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<td>not raised</td>
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<td>raised or</td>
<td>not raised</td>
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<tr>
<td>or not</td>
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<td>stressed</td>
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16. Did you feel that the group exerted pressure upon some members when they raised opposing ideas?

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<tbody>
<tr>
<td>very little</td>
<td>little</td>
<td>some</td>
<td>more than</td>
<td>much</td>
<td>very much</td>
<td></td>
</tr>
<tr>
<td>pressure</td>
<td>pressure</td>
<td>pressure</td>
<td>some pressure</td>
<td>pressure</td>
<td>pressure</td>
<td></td>
</tr>
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17. Did you feel that the group exerted pressure upon you when you raised opposing ideas?

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<tbody>
<tr>
<td></td>
<td>very much</td>
<td>much</td>
<td>more than</td>
<td>some</td>
<td>little</td>
<td>very little</td>
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<tr>
<td></td>
<td>pressure</td>
<td>pressure</td>
<td>some</td>
<td>pressure</td>
<td>pressure</td>
<td>pressure</td>
</tr>
</tbody>
</table>

18. To what extent do you see the solutions reached by the group as being the most ethically or morally correct ones possible?

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<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to a very large</td>
<td>to a large</td>
<td>to more than some</td>
<td>to some</td>
<td>to a small</td>
<td>to a very large degree</td>
</tr>
<tr>
<td></td>
<td>degree</td>
<td>degree</td>
<td>degree</td>
<td>degree</td>
<td>degree</td>
<td>degree</td>
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</tbody>
</table>

19. How optimistic are you about having produced the best possible solutions to the problems, within the time that you had available?

<table>
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<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>very optimistic</td>
<td>somewhat optimistic</td>
<td>somewhat pessimistic</td>
<td>pessimistic</td>
<td>very optimistic</td>
<td>pessimistic</td>
</tr>
</tbody>
</table>

20. We are interested in the risk associated with the proposed solutions to these problems. If you were in a situation where you were to use these solutions as a basis for making some personal decision, how risky do you think it would be?

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<tbody>
<tr>
<td></td>
<td>very little</td>
<td>a little</td>
<td>somewhat</td>
<td>more than</td>
<td>much</td>
<td>very risky</td>
</tr>
<tr>
<td></td>
<td>risk</td>
<td>risk</td>
<td>risky</td>
<td>somewhat</td>
<td>risk</td>
<td>risky</td>
</tr>
</tbody>
</table>

As the group leader, we are interested in how you would describe the group with which you were working today. For each question please circle the number which describes your feelings about the group.

1. Pleasant

<table>
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<tr>
<th></th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
</table>

2. Friendly

|   | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

3. Bad

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
4. Worthless

\[ \begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

Valuable

5. Distant

\[ \begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

Close

6. Cold

\[ \begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

Warm

7. Quarrelsome

\[ \begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

Harmonious

8. Self-assured

\[ \begin{array}{ccccccc}
8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 \\
\end{array} \]

Hesitant

9. Efficient

\[ \begin{array}{ccccccc}
8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 \\
\end{array} \]

Inefficient

10. Gloomy

\[ \begin{array}{ccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

Cheerful

Comments:
Appendix J

Post-Experimental Questionnaire for the Group Members

and Notes on the Post-Experimental Questionnaire
Post-Experimental Questionnaire

Sex:  F  FM  (Circle one)

1. We would appreciate the following information concerning the people that you worked with today in this session. Please consider each member of the group in turn (it does not matter which person you call member 1, 2, etc.). Look at the "friendship/acquaintanceship" scale below and choose the scale item that most closely defines your degree of friendship with that member. Then, place the number for this scale item in the rating blank for that member. All information contained on this questionnaire will remain strictly confidential.

Degree of Friendship/Acquaintanceship

1 2 3 4 5 6
among my best a good a moderately a slight an acquain- never met
friends friend good friend friend tance before before

Example Rating: Member 5.  6

Your ratings of the other group members:

Member 1. ___
Member 2. ___
Member 3. ___

Based on your experiences within the group during this past session, we would appreciate your feedback on the following questions. At the end of the questionnaire we would also appreciate any comments that you might have concerning this research. In questions where there are rating scales, please circle the appropriate number above your answer.
2. How many of the members of today's group had you previously worked with in a group-meeting situation or a committee, in the attempt to discuss or deal with problems concerning your organization(s)?

Number: ____

3. If you had previously worked with some of the other members in a group-situation or a committee, how would you rate your degree of interest in participating with that previous group?

1 2 3 4 5 6 7
very interested somewhat interested somewhat uninterested very uninterested no previous group or committee contact with any members

4. How would you rate your degree of interest in participating with the present group members today?

1 2 3 4 5 6
very interested somewhat interested somewhat uninterested very uninterested

5. Overall, how would you rate the group members that you were with today?

1 2 3 4 5 6
very unenjoyable somewhat unenjoyable somewhat enjoyable & uninter- esting to work with unenjoyable & unenjoyable enjoyable interesting & interesting to work with

6. To what extent was the attempt to reach group agreement on the solutions a consideration in your own efforts to help the group solve the problems?

1 2 3 4 5 6
the least an unimportant somewhat important consideration I had in solving the problems a somewhat important consideration I had in solving the problems the prime consideration I had in solving the problems
7. To what extent did the group leader stress their own point of view concerning the best solutions?

1. very strongly
2. strongly asserted
3. some assertion
4. little assertion
5. very little assertion
6. own view

8. After outlining the problems, to what extent did the leader propose his or her own solutions before the other group members had much opportunity to discuss the problems?

1. to a very large degree
2. to a large degree
3. to more than some degree
4. to some degree
5. to a small degree
6. to a very small degree

9. What was your level of motivation to have the group produce solutions to the problems?

1. very strongly motivated
2. strongly motivated
3. more than some motivation
4. some motivation
5. weakly motivated
6. very weakly motivated

10. How would you rate the importance to you of the problems that your group was attempting to solve?

1. very unimportant
2. unimportant
3. somewhat unimportant
4. somewhat important
5. important
6. very important

11. Did you feel pressure because of the time period allowed for solving the problems?

1. very little pressure
2. little pressure
3. some pressure
4. more than some pressure
5. much pressure
6. very much pressure

12. How would you rate your own overall level of stress during this problem solving session?

1. very relaxed
2. somewhat relaxed
3. somewhat stressful
4. stressful
5. very stressful
6. very stressful
13. At the end of the session, to what extent did you feel the other group members were in agreement concerning the proposed solutions to the problems?

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<tbody>
<tr>
<td>everyone largely more agreement more disagree- largely everyone agreed</td>
<td>agreed; than disagree- agreement disagreed; disagreed; completely; few or more agreement than agree- many or very many no doubts weak doubts</td>
<td>more than disagree-</td>
<td>more</td>
<td>weak doubts</td>
<td>completely; than agree-</td>
</tr>
<tr>
<td>everyone largely more agreement more disagree- largely everyone agreed</td>
<td>agreed; than disagree- agreement disagreed; disagreed; completely; few or more agreement than agree- many or very many no doubts weak doubts</td>
<td>more than disagree-</td>
<td>more</td>
<td>weak doubts</td>
<td>completely; than agree-</td>
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</table>

14. At the end of the session, to what extent did you agree with the proposed solutions to the problems?

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<td>disagreed largely disagreed agreed more largely completely; disagreed; more than disagree- many or very many very many</td>
<td>disagreed; more than disagree-</td>
<td>many or</td>
<td>agreed; some weak doubts</td>
<td>agreed;</td>
<td>strongly or very doubts</td>
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<tr>
<td>disagreed largely disagreed agreed more largely completely; disagreed; more than disagree- many or very many very many</td>
<td>disagreed; more than disagree-</td>
<td>many or</td>
<td>agreed; some weak doubts</td>
<td>agreed;</td>
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15. After the session was finished, to what extent did you have questions or doubts about the proposed solutions that you either didn't talk about or didn't feel comfortable in stressing as much as you would have liked during the session?

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<tr>
<td>very many doubts or questions not raised or not stressed very few doubts or questions not raised or not stressed</td>
<td>many doubts or questions not raised or not stressed</td>
<td>more than some doubts or questions not raised or not stressed</td>
<td>some doubts or questions not raised or not stressed</td>
<td>few doubts or questions not raised or not stressed</td>
<td>very few doubts or questions not raised or not stressed</td>
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<tr>
<td>very many doubts or questions not raised or not stressed very few doubts or questions not raised or not stressed</td>
<td>many doubts or questions not raised or not stressed</td>
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16. Did you feel that the group exerted pressure upon some members when they raised opposing ideas?

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<th>5</th>
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<tbody>
<tr>
<td>very little pressure some pressure some pressure very much pressure</td>
<td>little pressure</td>
<td>some pressure</td>
<td>more than much pressure</td>
<td>much pressure</td>
<td>very much pressure</td>
</tr>
<tr>
<td>very little pressure some pressure some pressure very much pressure</td>
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<tbody>
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<td>very much pressure</td>
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18. To what extent do you see the solutions reached by the group as being the most ethically or morally correct ones possible?

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<tr>
<td>to a very large degree</td>
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<td>to some degree</td>
<td>to a small degree</td>
<td>to a very small degree</td>
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19. How optimistic are you about having produced the best possible solutions to the problems, within the time that you had available?

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<td>optimistic</td>
<td>pessimistic</td>
</tr>
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20. We are interested in the risk associated with the proposed solutions to these problems. If you were in a situation where you were to use these solutions as a basis for making some personal decision, how risky do you think it would be?

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<tr>
<td>very little risk</td>
<td>a little risk</td>
<td>somewhat risky</td>
<td>more than somewhat risk</td>
<td>much risk</td>
<td>very risky</td>
</tr>
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</table>

Comments:
Notes on the Post-Experimental Questionnaire

The following questions were designed to assess the groupthink preconditions:

Questions 1 - 5 -- assess the level of group cohesiveness

1. the degree of friendship ratings were adapted from "The delination and measurement of some key variables in the study of friendship", P.H. Wright, Representative Research in Social Psychology, 1974, 5, 93-96.

   2. prior contact in a cohesive group
   3. attraction to previous group
   4. attraction to present group
   5. interpersonal attraction among members

Question 6 -- assesses the degree of concurrence seeking by group members

   (based on the theory of Janis, 1972)

Questions 7 & 8 -- assess leadership style

   7. leader stress upon own point of view
   8. leader timing of proposing own solutions.

   (The same leadership style variables are also rated by two independent raters under the section for the assessment of the quality of the decision making process.)

Question 9 -- assesses the level of motivation for producing solutions to the problems

   (based on the theory of Janis, 1972)

Questions 10 - 12 -- assess the level of stress

   10. personal importance of problem
   11. stress due to time limitation
   12. overall rating of personal stress

   based upon the work of Robinson, J. A. & Snyder, R.C. Decision making in international politics. In
International behaviour: A social psychological analysis.

The following questions were designed to assess the groupthink symptoms:
(Questions 13 - 20 are based upon the theory of Janis, 1972.)

Questions 13 & 14 -- assess the illusion of unanimity

13. perception of agreement with final solution among other members.
14. personal level of agreement with final solution (ratings on the questionnaire scored in reverse).

\[
\text{Illusion of unanimity} = \frac{\sum_{i=1}^{4} \left( x_i (#13) - \overline{x} \text{ not i (#14)} \right)}{4}
\]

Question 15 -- assesses the degree of self-censorship

Questions 16 & 17 -- assess the level of conformity pressure

16. perceived pressure upon other deviant group members
17. perceived pressure upon oneself

Question 18 -- assesses the perception of the moral level of the decision making.

Questions 19 & 20 and Quality of the Decision Outcome, Rating #6 -- assess the illusion of invulnerability

19. level of optimism concerning the proposed solutions
20. estimated level of risk concerning the proposed solution, as seen by individuals inside the group

Quality of the Decision Outcome, Rating #6. estimated level of risk concerning the proposed solution, as seen by individuals outside the group.
Group Leader Questionnaire

Questions 1 - 10 -- assess the group atmosphere. They are summed, averaged, and then used to describe leader-member relations as one aspect of the "situational favourableness" dimension of Fiedler's contingency theory. Based upon the theory of Fiedler, 1967; Fiedler and Chemers, 1974. (Median group atmosphere score = 64.9 real life groups; 67.0 laboratory groups; --Posthuma, 1970, cited in Fiedler and Chemers, 1974.)
Appendix K

Debriefing Information
Debriefing Information

The first thing that I'd like to mention is that in doing this study we did not attempt to deceive you. We were interested in exactly the things that I stated we were interested in when I first explained this study to you. We have had groups of students, businessmen and civil servants involved in these sessions. Some of the groups have worked together before and these we label the cohesive groups. Other groups have not worked together before, these we label the less cohesive groups. Then, we have some of the groups operating under leaders who are assertive about their point of view and some operating under leaders who are deliberately not assertive about their point of view. We are interested in comparing how these different groups operate. Do they go through the same decision making processes? If they are different processes, what are the differences? Do they produce the same quality of group decision making outcome? If not, how different are they?

The questions we're asking stem from several books on decision making and leadership by Janis and Fiedler. Janis reviewed case studies of international crises and proposed that cohesive, somewhat isolated groups, under assertive leaders may engage in what he calls groupthink. That is, they become more interested in "not rocking the boat" or maintaining group solidarity and tend to become less interested in finding the best possible solution. He stated that groups under these conditions will put pressure on dissident members to tone down their criticisms, individual members may stifle their own doubts about the proposed solution, and the groups may tend to be over optimistic and overly risky about the decisions they make. The result of all this is that the decision making process will be poorer and the decisions reached will also tend to be poorer. Since the basis for his ideas came from case studies, it is hoped that the present research will be
able to test out his ideas in real life and see the extent to which his theory is correct.

So, what you've participated in today will help contribute to our knowledge in this area. Thank you very much for helping. Do you have any questions?

(I would like the nature of the problems and the explanation of the study to remain confidential so that we can study each group under the same conditions.)

(Arrange a feedback session, if desired.)
Appendix L

Example of the Feedback Given to a Group
Feedback

Bill R's Group

This is a copy of the information that I prepared concerning the group research that you recently participated in. I hope that you find it interesting, if you have any questions as we're going through the material just ask me.

No other copies of this information have been made and as mentioned during the research session all information will remain confidential.

First, before I continue on, I would like to thank you all for your time and help in doing this research, I appreciate it very much.

Now, the report will be in three stages. First I'll outline some of the characteristics of the group, such as its level of cohesiveness. Then I'll mention what the average feelings of the group members were concerning the experience, such as feelings of conformity pressure, etc. Last, on the basis of my review of the tape of the session, I will note a few characteristics of the group decision making process, such as the number of alternative solutions considered by the group.

(The questionnaire that you have is the same as the one that you completed and it will help you to identify the average responses of the group as I mention them.)

I Group Characteristics

A. Group Cohesiveness

The measures of group cohesiveness indicated that, as planned, it was a group with a non-cohesive background. The average degree of relationship between members was rated as being that of an acquaintance (Q1--5.1). On the average, the members had not worked with each other before in a problem
solving or decision making situation. However, members were very interested in participating together in the research (Q4--1.25) and rated the others as being moderately enjoyable and interesting to work with (Q5--4.25). This indicated that the initial steps for cohesiveness in a group were developing to some extent.

In summary, the degree of friendship, prior contact, attraction to the previous and present groups with these members, and the degree of interpersonal attraction all indicate the operations of a basically non-cohesive group.

B. Leadership Style

The group leader was perceived by the others in the group as very strongly stressing his own point of view (Q7--1.33) and as proposing his ideas to a large degree before the others had much opportunity to discuss the problems (Q8--2.0). My impression was that I wouldn't have rated Bill quite as strongly, however, as you know, this assertive style of leadership was the approach that I had asked Bill to take during the session. From your ratings and the tape I would say that he took on that role quite successfully.

As a second way of describing leadership style, I asked Bill to complete a leadership style questionnaire during the time that we met before the session. This questionnaire was based on Fiedler's Contingency Theory of Leadership. He suggests that group performance is dependent upon the interaction between leadership style and the group situation. The leadership style may be either task oriented or interpersonal relations oriented. Both of these approaches are effective under different conditions. The group situation is analyzed in terms of three components: (1) leader-member relations, (2) task structure and (3) leader power. In terms of Fiedler's theory, based upon Bill's responses, he tends to operate in an interpersonal relations oriented fashion. Different theories may describe the style that
a person typically uses, in different fashions, since the measurements and ideas proposed by any one theory have not yet gained acceptance by everyone.

The group situation from the questionnaire ratings was one of favourable leader-member relations, involving an unstructured task, and involving a situation where the leader had little power. According to Fiedler's theory, in this kind of group situation a leader operating in an interpersonal relations oriented fashion will tend to be more effective than will a task oriented leader. Part of the purpose of the present research is to test this aspect of Fiedler's theory to see if in fact this is correct.

C. Other Group Characteristics

The group was strongly motivated to produce solutions to the problems (Q9—2.0), and the attempt to reach a group consensus on the solutions was felt by the members to be a very important consideration in solving the problems (Q6—5.5). The problems were thought to be very important (Q10—5.5) and some time pressure was felt in trying to respond to them (Q11—2.75). However, the overall level of stress was not high, with the group members feeling, on the average, somewhat relaxed (Q12—3.25). The range of answers indicated some stress was felt by some of the members. However, in this situation it is usual for even high levels of motivation, problem importance and time pressure not to be translated into strong feelings of stress. Normally they would, but here the situation was artificial enough that these factors do not seem to operate in the same fashion.

II. The Experiences of the Group

A. Accuracy of Perception and Illusion of Agreement or Disagreement

The accuracy of the group member's perceptions of the amount of agreement or disagreement that existed in the group over the proposed solutions was rated on a scale ranging from 0 to 5; the normal range of scores is from
0 to 1. This is done by taking each member's perceptions of what the group feelings were (Q13) and comparing that to what the other members actually were feeling (Q14). When this was done, the group scored 0.42 on the five point scale. This indicated that there was some but relatively little inaccuracy concerning the amount of agreement or disagreement in the group, particularly for a non-cohesive group.

Next it was analyzed to see what type of illusion (or bias) there might be (even though the score was small). Here I use a scale of -5 to +5, where (-) means an illusion of agreement and (+) means an illusion of disagreement; the normal range of scores is from -1 to +1. On this scale the group scored -.25. This means that the group members felt that there was a bit more agreement on the solutions than there actually was.

These scores are moderate to small and overall, the members appeared to have a relatively good idea of where everyone else stood with respect to the proposed solutions to the problems.

B. Degree of Self-Censorship

It appears that on the average there were quite a few doubts or questions about the proposed solutions which the members did not feel free to raise or stress as much as they would have liked to have done during the session (Q15—3.5). There was a wide range of responses, some felt this more strongly than others. One could interpret this and the previous information concerning the accuracy of the group's perceptions as indicating that communications within the group were relatively accurate even though they weren't completely open.

C. Conformity Pressure

This area also provided some interesting results. When the group members were asked to rate to what extent they thought that the others were feeling pressure to conform in their ideas, they stated that they felt the
group exerted some conformity pressure (Q16--2.75). However, when the mem-
bers were asked to rate the extent to which they personally felt conformity
pressure it was rated as being a bit lower, closer to feeling little pressure
(Q17--4.75). Thus it seems as though the members were perceiving a bit more
conformity pressure existing in the group than the members themselves were
actually feeling. My own observation was that while this may be true, there
was a fair amount of tension in the group not reflected in these scores. I
think that this tension and the newness of the group was probably more the
cause of the self-censorship that existed than time pressures or conformity
pressures.

D. Perceived Morality of the Solutions

The group members perceived the solutions that were developed as being
to a moderately large degree the most ethically or morally correct ones
possible (Q18--3.0). This is about an average degree of perceived morality
and seems to be consistent with other similar groups.

E. Feelings (Illusion) of Security in the Solutions

The feelings (illusion) of security are measured by considering the
level of optimism about the solutions and the perceived risk associated with
the solutions. The group members were somewhat pessimistic that they had
produced the best possible solutions to the problems, within the time they
had available (Q19--4.25). They felt that there would be much risk asso-
ciated with using these decisions as a basis for making a personal decision
in an appropriate situation (Q20--4.5). On the whole it appears as though
the group felt pretty pessimistic about the solutions that they proposed.
It is difficult to estimate the extent to which these feelings may be
justified or not until I receive the ratings of the panel of experts con-
cerning the extent to which they feel that there may be risk associated with
the proposed solutions.
III. Characteristics of the Group Decision Making Process

I'll start off by talking about some of the processes basic to the decision making task. One item that I look at is to what extent did the group consider the objectives of the session? In both problems although the group did not formally mention that they were reviewing the objectives they in fact did so informally in terms of the extensive discussion and interpretation of what the nature of the problem really was. For example, in the capital punishment case the group spent considerable time discussing whether the pro-capital punishment views of 60% of the population reflected a belief in deterrence effects or were simply a sign of the present social conditions, i.e., our poor economic times. It is not often that a group spends so much time not just dealing with the problems but clarifying and reinterpreting the problems. This clarification of the goals and problems is a valuable exercise since the members of a group may sometimes see the "real" problem as being somewhat different than what is stated as being the problem. At times in group discussions conflicts may arise in the decision making process simply because it becomes increasingly clear that everyone is not trying to reach the same objectives.

In general, the basic approach taken to both problems was the same. There was an early agreement among the group members concerning the general outline of the best solution for each of the problems. However, then the group proceeded to review an extensive amount of information related to the problems and to consider in some detail the opposite points of view. This was an approach which led to a very good review of the pros and cons on each of the two issues. Now, let me tell you why I said "however". What typically happens in a group reaching a quick consensus on the general solution to a problem is that they do not spend too much time considering the possible negative aspects of the overall package. Instead they usually consider
the positive aspects of the decision or spend time making modifications
that are not major but look like they would be useful. In contrast, the
most extensive discussions of the pros and cons associated with alternatives
usually occur when there is a split in the group with two strongly opposing
points of view.

What was fascinating with this group was the reaching of a quick
consensus, yet the extensive discussion and review of solutions and pros and
cons. This has only happened with one other group and is an approach that
is not usually found in groups unless they have received prior instructions
to brainstorm or group members have had specific training in problem
solving. For example, deliberately taking on a devil's advocate role is
something rarely done in a group and it is certainly a technique which is
taught in training sessions as a method of creating a better review of the
issues within a group.

I noted as I was listening to the tape that there was a well rounded
participation in the discussions with a large input by all of the members.
A balanced discussion of this nature is generally more effective and less
frustrating to those involved than the situations where the conversation is
dominated by one or two members.

The final item analyzed was the extent to which the group gave a last
review to the possibilities before making a final decision. In the present
group you were quite effective in reviewing the arguments and issues while
making your final summation, before moving on to the next problem or the
next aspect of the problem (as was the case with the immigration problem
where you dealt with it in three parts). This process of making a last
review of the alternatives is usually found to be a valuable practice in
decision making situations since it helps to avoid jumping to hasty decisions
or simply choosing the last alternative considered. It brings back the
major points discussed earlier and helps to ensure that everything is given a final weighting before the decision is made.

Overall, it was one of the best discussions that I've sat in on; you functioned well together and came across as a sophisticated problem solving group. It was very interesting to watch and I appreciate your time because it certainly helps in increasing my understanding of groups.
Appendix M

Rating Scales for Assessing the Quality of the Decision Making Process
RATINGS OF TAPEREcorded GROUP SESSIONS

Instructions: You are to listen to the taperecording of the group session and make the following ratings. You may reverse the tape to go back and listen to parts of the tape more than once, if desired. The group sessions last either 30 minutes or approximately one hour. Use Section B as the work sheets to obtain the average ratings on each question; the eight questions listed under Section A, the "Average Group Rating", should be used to help you make the ratings under Section B.

Section A: Average Group Ratings

1. Indicate the extent to which the objectives of the group were discussed or considered, (discussion, interpretation, reinterpretation, or clarification of the problems and/or goals).

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<thead>
<tr>
<th>Rating</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>very much discussion</td>
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<td>2</td>
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<td>more than some discussion</td>
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<td>5</td>
<td>a little discussion</td>
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<td>6</td>
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2. Indicate the number of possible solutions that were considered by the group.

1 - 2; 3 - 4; 5 - 6; 7 - 8; 9 - 10; >10.

3. Indicate the extent to which the positive and negative consequences of each alternative were considered.

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4. Indicate the amount of general information related to the problem which was discussed by the group.

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5. Indicate the extent to which all the group members provided information or participated in the discussion.

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<td>some involvement by all members</td>
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<td>involvement by all members</td>
<td>involvement by most members (3-4)</td>
<td>involvement by one member, the rest</td>
<td>involvement by only a few members (1-2)</td>
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6. Indicate the extent to which the alternatives and previous information were reviewed during the discussion and at the end before the final decision was made.

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7. To what extent did the group leader stress his or her own point of view concerning the best solutions?

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8. To what extent did the leader propose his or her own solutions before the other group members had much opportunity to discuss the problems?

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</thead>
<tbody>
<tr>
<td>Two Problem Average:</td>
<td>Objectives</td>
<td>Solutions</td>
<td>Pros &amp; Cons</td>
<td>Gen.Info.</td>
<td>Participation</td>
<td>Review</td>
<td>Assertion</td>
<td>Timing</td>
</tr>
</tbody>
</table>
Appendix N

Scales for Expert Ratings of the Quality of the Decision Outcome
Leathers Productivity Rating Instrument

Group #: Rater: 

Please rate the solutions produced by each group on the following scales: circle your response.

1. Effectiveness. The degree to which the ideas, which are part of the major decision or solution, help the group achieve the objective of developing a realistic solution in terms of it's effectiveness.

<table>
<thead>
<tr>
<th>Effective</th>
<th>Ineffective</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2 1 0 1 2 3</td>
<td></td>
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</tbody>
</table>

2. Feasibility. The degree to which the major decision or solution reflects a picture of social reality which is consistent with relevant public attitudes.

<table>
<thead>
<tr>
<th>Feasible</th>
<th>Unfeasible</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2 1 0 1 2 3</td>
<td></td>
</tr>
</tbody>
</table>

3. Creativity. The degree to which the major decision or solution reflects markedly original ideas not previously applied to the problem under discussion.

<table>
<thead>
<tr>
<th>Creative</th>
<th>Uncreative</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2 1 0 1 2 3</td>
<td></td>
</tr>
</tbody>
</table>

4. Significance. The degree to which the major decision or solution appears to be based on relevant and significant information as opposed to non-relevant and insignificant information.

<table>
<thead>
<tr>
<th>Significant</th>
<th>Insignificant</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2 1 0 1 2 3</td>
<td></td>
</tr>
</tbody>
</table>
5. Comprehensiveness. The degree to which the group's major decision or solution reflects a response to all the dimensions of the problem under consideration.

<table>
<thead>
<tr>
<th></th>
<th>Comprehensive</th>
<th>Noncomprehensive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
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</table>

6. Riskiness. The degree to which there would be risk associated with using the major decision or solution proposed.

<table>
<thead>
<tr>
<th></th>
<th>Risky</th>
<th>Non-Risky</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
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</tbody>
</table>

7. Overall Quality. The overall degree of quality associated with the major decision or solution proposed.

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Non-Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix 0

Additional Analyses of the Quality of the Decision Outcome Ratings
Additional Analyses of the Quality of the Decision Outcome Ratings

Within normal statistical considerations it is inappropriate to continue analyses once the overall MANOVA is found to be non-significant. However, due to the consistency of results in the ANOVA and simple main effects analyses it was considered worthwhile to report them in appendix form.

Immigration: MANOVA and ANOVA Analyses

The MANOVA's of the ratings of the two Immigration experts did not yield significant results. However, of interest because of its consistency with later results, the ratings of the first expert demonstrated a significant interaction effect on the ANOVA of the feasibility measure ($F_{1,42} = 4.96, p < .05$). When the antecedent conditions of cohesiveness and time stress were present, the groups under assertive leaders produced decisions that were rated by the experts as being poorer than the decisions produced by the groups under non-assertive leaders. This situation was reversed when the antecedent conditions were absent; the decisions made by groups under assertive leaders were rated as better than the decisions made by groups under non-assertive leaders.

The MANOVA of the second expert's ratings shows an interaction effect between antecedent conditions and leadership style that approaches significance ($F_{7,36} = 1.93, p = .09$). The ANOVA's show that there is a significant interaction effect on the measure of comprehensiveness ($F_{1,42} = 9.88, p < .005$). The comprehensiveness interaction effect was identical to that found for the feasibility measure by the first expert. That is, when the antecedent conditions were present, decisions by groups under assertive leaders were rated poorer than decisions by groups under non-assertive leaders. In contrast, when the antecedent conditions were absent, the decisions made by groups under non-assertive leaders were rated poorer than
those made by groups under assertive leaders.

The MANOVA of the combined data from the two immigration experts did not demonstrate significant main or interaction effects. However, as was found with the analyses of the data from the individual experts, the ANOVA's indicated significant interaction effects for the measure of feasibility ($F_{1,44} = 4.33, p < .05$) and the measure of comprehensiveness ($F_{1,44} = 6.02, p < .05$). The nature of the interactions were identical to those previously discussed concerning the data from the individual experts.

Capital Punishment and Immigration: MANOVA and ANOVA's on the Combined Data

The MANOVA results indicated no significant effects. However, the ANOVA's demonstrated significant interaction effects on the feasibility measure ($F_{1,42} = 4.40, p < .05$) and on the comprehensiveness measure ($F_{1,42} = 4.02, p < .05$). This outcome is somewhat remarkable given the low reliabilities of the ratings across the two problems (see Tables 7 and 8), and supports the findings shown in the analyses of the immigration data. Since these results demonstrated consistency across the immigration data and the two-problem combined data, it was decided to perform a simple main effects analysis on the significant interaction terms of the feasibility and comprehensiveness measures. The information is taken from the combined data across the immigration and capital punishment problems. Figures 9 and 10 illustrate the interaction effects on the comprehensiveness and feasibility measures respectively. The simple effects analysis on the comprehensiveness measure yielded a main effect that approached significance for the assertive versus the non-assertive groups at the point where the antecedent conditions were present ($F_{1,42} = 2.78, p = .10$). Similarly, the simple main effects analysis on the feasibility measure yielded two main effects that approached
Figure 9
Interaction Effects: Comprehensiveness Measure

Outcomes
High in Quality

Outcomes
Low in Quality

Antecedent Conditions
Present
Non-Assertive Leadership Style

(-.2)  
(-.9)

Antecedent Conditions
Absent
Assertive Leadership Style

(-.1)  
(-.7)
Figure 10

Interaction Effects: Feasibility Measure

Outcomes
High in Quality

Outcomes
Low in Quality

Non-Assertive Leadership Style

Assertive Leadership Style

Antecedent Conditions
Present

Antecedent Conditions
Absent

(.6) • .

(0) • .

(0.1) • .

(.2) • .
significance. One simple effect was antecedent conditions present versus absent on the assertiveness variable \( (F_{1,42} = 3.89, p < .10) \). The second simple effect was the same as that found for the comprehensiveness measure, specifically, an effect for the assertive versus non-assertive groups at the point where the antecedent conditions were present \( (F_{1,42} = 2.99, p < .10) \). Groupthink theory predicts that when the antecedent conditions of cohesiveness and stress are present, groups led by non-assertive leaders will perform better than groups led by assertive leaders. The above simple effects analyses of both the feasibility and comprehensiveness measures are not statistically significant. However, the trends displayed are consistent and are in conformity with the predictions of groupthink theory.

In summary, the consistent but statistically non-significant pattern of interaction effects and simple main effects provides tentative support for the predictions of groupthink theory on two of the seven quality of decision outcome measures. It should be noted that these results are also consistent with the research of Courtright (1978) where a significant interaction effect was found for one of the group process measures (the "statements of disagreement"). These consistencies provide an argument for considering the continued testing of groupthink theory.