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POLITICAL DECISION MAKING IN SMALL GROUPS:  
AN EXPERIMENTAL STUDY OF SEARCH BEHAVIOR  
AND CHOICE SHIFTS

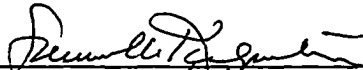

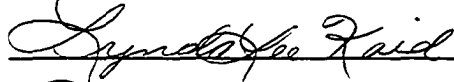
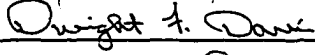

A DISSERTATION  
SUBMITTED TO THE GRADUATE FACULTY  
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degree of  
DOCTOR OF PHILOSOPHY

BY  
ROBY D. ROBERTSON  
Norman, Oklahoma

1977

POLITICAL DECISION MAKING IN SMALL GROUPS:  
AN EXPERIMENTAL STUDY OF SEARCH BEHAVIOR  
AND CHOICE SHIFTS

APPROVED BY

  
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DISSERTATION COMMITTEE

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POLITICAL DECISION MAKING IN SMALL GROUPS:  
AN EXPERIMENTAL STUDY OF SEARCH BEHAVIOR  
AND CHOICE SHIFTS

CHAPTER I

DECISION-MAKING MODELS  
IN THE SOCIAL SCIENCES

Introduction

Decision making has attracted a considerable amount of research in a wide variety of scholarly and applied fields since the end of World War II. The decisional process has been the center of research in disciplines as diverse as operations research and human relations. Because of this diversity, decision-making research has been subsumed under a wide variety of models, many of which have little relation to each other.

The decisional framework has not been ignored in political science. Research using decision making in its title has been widely treated in most political science subfields. Numerous bibliographical works in political science have made extensive use of the concept of "decision" (Wasserman and Silander, 1958; Gore and Silander, 1959;

Wasserman and Silander, 1964; Robinson and Majak, 1967; Robinson, 1968). Such reviews, although valid efforts, analyze decision making primarily from a prescriptive or normative focus. Making such normative judgments on the "correct" way of deciding often results in nothing more adequate than ideological arguments. In fact, it is questionable whether prescriptive statements should be made when there is insufficient empirical understanding of the decision-making process. One of the prime goals of this investigation is to contribute to an empirical theory of decision making, and not simply to prescribe the future decisional mechanisms.

Although traced in greater detail elsewhere (Kirkpatrick, 1975b: 40-44), the definitional history of decision making in political science has reflected a variety of theoretical emphases. From a philosophical position, decisions have been conceived as "judgments(s) regarding what one ought to do in a certain situation after having deliberated on some alternate course of action" (Ofstad, 1961: 16). Historical and case studies have noted that decisions are "a cut between past and future, an introduction of an essentially new strand into the emerging pattern of history" (Shackle, 1961: 3). Institutionalists link political decisions to preserving and/or improving decision structures (Diesing, 1962), and to strengthening power relationships (Leoni, 1957).

All of the previous attempts at definition treat decisions as outcomes; each ignores the processual nature of

decision making. That is, most political science research on decision making has centered on the product of various decisions. Although outcomes are obviously important, the necessity of understanding how decisions are made (process) is paramount.

At the base of all decisions is the individual's choice, and thus the process the individual goes through in arriving at a final decision is the fundamental unit of all decisional process research. The prime interest of this study, however, is more broadly focused. The chief interest is in decision making at the small group level.

Small groups pervade all elements of the political process. Small group decision-making units play a substantial role in public policy as a considerable quantity of such decisions are created, legislated, implemented, and even adjudicated through small groups of elected and/or appointive officials. Small groups are both formal (e.g. Supreme Court, Constitutional sub-committees) and ad hoc (Presidential "kitchencabinets"); yet the small group decisional process has gained little attention in political science research. Although research on particular small groups has been a prime focus of scholarly investigation, analysis of the commonalities of such political groups has been ignored. In fact, most political science research on decision making in small groups has emphasized the final political outcome of the decision process in question. For



instance, congressional studies often depend on the key vote on a specific measure and then infer the prior decisional process that might have occurred (Clausen, 1973; Kingdon, 1973; Ripley, 1969). When the actual small group process is then analyzed, it often becomes heavily dependent on ideosyncratic behavior described in detail after the decisions are finalized (Robinson, 1963; Manley, 1970; Wildavsky, 1974; Fenno, 1973). The crucial question remains whether studies depending on final choice or vote behavior can actually increase our knowledge of the process utilized in arriving at that final choice.

Thus, as political science moved from its theoretical discussion of decision making into behavioral research, the complexity of decision making was essentially ignored. As Heinz Eulau (1968: 208) noted:

With few exceptions, decision-making models in all their complexity have not been applied in political behavior research. Nevertheless, the possibility of breaking down the decision-making process into component parts that can be examined without necessary reference to the total process promises empirically testable research propositions.

Yet, eight years later, Eulau still finds it necessary to question the use of the decision-making concept by those who are essentially studying roll calls (outcomes) in the House of Representatives (Eulau, 1976).

This study attempts to examine decision making from a more analytical perspective than traditionally utilized. Central to this perspective are the three relatively

unexamined themes previously mentioned. First, analysis must center on the empirical, not the normative, referents of decisions. Second, the processual nature of decisions must be examined. Third, examination of decisions made in a small group context are needed because of the growing dependence on such environments for major policy decisions. This analysis, then, will center on the empirical study of small group decisions via a processual analysis of those decisions.

This investigation will first examine the general class of alternative models available for examining political decision making. The remainder of Chapter I examines five general decision-making models: rational economic, psychological utilitarian, cybernetic, cognitive processual, and group dynamic approaches.

Chapter II outlines the specific framework used in this study emphasizing the applicability of the social psychological paradigm through individual cognitive and group dynamic approaches. The model derived in Chapter II relies heavily on information and alternative search processes that explain individual shifts in a group decisional environment. The two principal elements of the decision model, search behavior and choice shift, are examined in the wake of the types of explanatory and intervening variables that have been theoretically linked to these processes in both the social psychology and communication literatures. Finally, a framework is constructed that joins the two processes of

search and choice shift into an operational design that is subject to empirical testing.

In Chapter III the research design for analysis of the decision-making process will be specified with an additional discussion of the particular design approach utilized -- experimentation. Both the logic and fallacies of experimental design are delineated with a particular emphasis on the needs of processual analysis. In addition, the relevant theoretical literature is examined and the specific hypotheses derived from the model for experimental test in the analysis are listed.

The remaining chapters examine the actual experimental results. Chapter IV outlines the research findings that explain the amount and complexity of information used in the search process by the experimental groups in making choices and recommendations. Chapter V examines the shifts that occur from individual predispositions to a final group choice and the particular models that explain those shifts. Finally, in Chapter VI the interaction of search procedures and choice shifts is examined in order to link the two divergent processes theoretically and empirically. The last section of the chapter outlines the needs of future study for decision making in "real world" political groups and the interface of experimental and applied political decisional analysis.

### Alternative Models

Given the above constraints, studies of decision making have been examined under a wide array of theoretical models. These frameworks differ in their scope, analysis, and especially their assumptions about the nature of decision making. In order to facilitate understanding of the specific model to be utilized in this study, a brief overview of the various theoretical constructs applied to decisional analysis is first outlined. Although referred to by a wide variety of terms reflecting the various disciplinary traditions, these constructs can be subsumed under the general categories of rational economic models, psychological utilitarian models, cybernetic approaches, cognitive processual models, and group dynamic approaches. Each construct will be briefly critiqued both for the advantages and constraints inherent in each. It should be noted, however, that no single model can be construed as the "correct" method for analyzing decisions--only that certain models more adequately address the specifics of this investigation.

#### Rational Economic Models

Economic and rational choice models have rapidly become among the most attractive frameworks for examining decision making. Such models are carefully constructed mathematically, and are theoretically sophisticated (deductive) models of the process of decision making. Excellent reviews of the applicability of this class of models (Riker

and Ordeshook, 1973; Curry and Wade, 1975; Downs, 1957; Thorson, 1976), as well as the weaknesses of such models, (Kirkpatrick, 1975b; Conrad, 1970; Steinbruner, 1974) can be found in political science.

The rubrics addressing this general class of models are varied, e.g., mathematical and statistical decision theory, collective decision theory, axiomatic theory, game theory, positive theory, exchange theory; yet all are based on common assumptions. The values of a decision maker are aggregated in some manner such that a set of preferences are established regarding alternative states on those values. The crux of the model is based on taking specific values and assigning units to each alternative outcome in the decision. Specifically, the utility concept is introduced to imply a measure of ultimate value (Steinbruner, 1974: 28; Luce and Raiffa, 1957). The major postulate of rational models emphasizes that the final decision will maximize the ultimate values (utility). However, since ultimate values can seldom be quantified, or even defined, the model usually takes a step backward to subjective utility such that relative values are established. Further, after a complete search for alternatives and their related utilities, the decision maker then establishes a preference ordering based on the subject's particular relative values on each alternative.

Yet, in order to do the formal, deductive calculus that is the elegance of the model, several critical, and

potentially crippling, assumptions must often be met. First, it must be assumed that all available alternatives are outlined. Second, all possible outcomes of each alternative are established, including unintended effects. Third, some probability is established for each alternative's success or failure (Conrad, 1970). Each of these emphasizes the need for the model to meet the assumption of "sensitivity to pertinent information" (Steinbruner, 1974: 35). Rational choice models require at least some assumption based on perfect, or near-perfect, information or knowledge. (Kirkpatrick, 1975b: 46). In fact, a common categorization in rational models links decisions under certainty, risk, and uncertainty. Certainty implies known consequences for all alternatives, while risk concedes alternatives have consequences with known probabilities of success/failure. Only the uncertainty condition acknowledges the undefinable or unknown probabilities for outcomes. Yet, even in the latter condition, "the preferences of the chooser are generally assumed to be certain." (Thorson, 1976) Further, these assumptions emphasize that preferences are established by the individual based on careful assessment of the subject's self-interest (Kirkpatrick, 1975b).

Are such assumptions too limiting on decision-making? One game theorist even questions whether various social and psychological processes should be ignored, or assumed to be irrelevant in decisional analysis (Shubik, 1964: 58).

Do individuals misperceive the value in certain outcomes? . . . Are there gaps in an individual's knowledge of outcomes? Are there gaps in an individual's knowledge of the alternatives available to him? Does an individual's value for an outcome depend on the value of the outcome to others than himself?

A further debilitating problem in the model's usefulness for decision-making analysis centers on its normative base. The rational choice economist, for example, often argues that this is the system whereby the market system ought to operate, not that it actually does. Yet, as Steinbruner (1974: 26) notes,

. . . the empirical validity and the normative validity of the paradigm are inextricably bound.  
 . . . If no concrete instances of rational decision making could be observed, one would quickly discard the theory as a utopian ideal.

It is not the formal or deductive nature of the model that is the principal barrier to its use in explaining decision making; rather it is finding situations that are appropriate for such analysis: individual preference ordering (based on relative values), fairly complete information on both the available alternatives as well as on their consequences, and the final choice based on the above situation. While few political or policy decisions fall under this rubric, and few actual empirical studies have been conducted in a natural decisional context (Kirkpatrick, 1975b), there continues to be an exhaustive literature compiled on voting, power, regulation of public policy, and bargaining based on this model (for review see Riker and Ordshook, 1973; Niemi and Wiesberg, 1975).

One final element of rational choice models makes their applicability for most small group decision making inadequate. When the model examines collective decision making, it assumes that such social choices are simply aggregates of individual choices (for a review, see Thorsen, 1976; Weisberg, 1975; Plott, 1976). This feature, like those regarding complete information and established preferences, should be tested rather than assumed. If group decisions are more than an aggregate of self-interests, and are related to social and psychological processes unique to collective decision making, then the assumption regarding social choice is inadequate.

When dependent on this individual self-interest assumption, rational choice models are limited in the kinds of designs and methods that can be employed. Specifically, most rational choice analyses center on giving the subjects in the study monetary rewards for maximizing their outcomes (see, for example, Plott, 1976). Although more likely to initiate the desired self-interest motive among the subjects, such designs still cannot account for the kind of group interactions that occur independent of the desired effect. Economic self-interest is only a single case of the myriad of rival hypotheses for individual preferences, both in economic as well as political environments.

This critique does not imply that rational choice theories are incorrect; rather, as one proponent asks



(Thorson, 1976: 86), "in what contexts or decision environments do what kinds (if any) of rationality assumptions make sense?"

He further adds,

To the extent . . . that one's concern is with the interaction between decision environment and appropriate rationality assumptions, decision environment variables must be explicitly included in the experimental design.

The rational choice model's use in political science centers on the specifics of choice behavior independent of the overall decision-making process. In the limited number of decisional environments where the model's assumptions are not too restrictive, the model can be an excellent empirical test of reality. For example, Becker and McClintock (1967) note the model's usefulness in sensory discrimination and signal detection designs. In understanding small group decision-making processes, however, the model simplifies reality to the point where behavior lacks meaning outside the rational process itself. That is, the model becomes a tautology; behavior conforms to rational processes (individual self-interest, preference orderings) because the nature of the study reinforces only behavior that conforms to rational preferences (maximizing the individual's payoff).

#### Psychological Utilitarian Models

Building on the rational choice tradition, psychologists have focused on a more limited version of the rational model, specifically linked to expected utility. Instead of values and preferences based on monetary earnings alone,

other variables are included in defining the dimensionality of utility. Several authors referred to as utility-revisionists have noted that economic self-interest is linked with the emotional investment of the individual decision maker (Siegel, 1964; Homans, 1961; Davidson, Suppes and Siegel, 1957).

Despite such revisions, the framework, assumptions, and disciplinary research methods are still inextricably aligned with the original rational-economic paradigm. As Kirkpatrick (1975b: 48) notes, the model ". . . is concerned with some fallible components of human ability, it often only implies the operation of psychological factors and perceptual distortion."

Although reviewed elsewhere in greater depth (Kirkpatrick, 1975b; Kirkpatrick et al., 1975), the findings of the utility-revisionists have indicated a substantial amount of deviation from the rational framework, especially with regard to the subject's abilities to process information which may drastically delay or alter the final choice of the decision maker (Edwards, 1956; Coombs and Komouta (1958; Peterson, Schneider, and Miller, 1965).

Recent research in the social choice, or collective-decision context, has attempted to explicate various decisional processes based on group decision making. Fiorina and Plott (forthcoming) examine decisions of experimental committees in the hope of finding some optimal process

solution in each group decision. Although an admirable effort in bridging the theory/data gap in such models, their efforts still center on monetary rewards based on certainty in the subject's preference-orderings for moving a point on a blackboard to an optimal pay-off solution. Nevertheless, the treatments in their study do experimentally manipulate the "induced preference configuration" (Fiorina and Plott, forthcoming: 7).

While not dismissing the necessity of formal, deductive treatments of decision processes, psychological-utilitarian models' attempts at mathematizing decision-making processes seem premature. As in the case of rational choice theory, the underlying assumptions of the model should be tested against evidence of psychological and sociological pressures on the individual that may not only negate possible rational processes, but may also imply principles that explain decision-making behavior in a totally different paradigm. As noted in a previous analysis of such attempts (Kirkpatrick et al., 1975), most psychological-utility models have failed to escape the rational mode.

#### Cybernetic Model

The cybernetic model is a crucial re-evaluation of the rational economic paradigm with several major changes in the underlying assumptions. Unlike the rational model's roots in the economic discipline, however, no single social

science base can be surmised. Both psychology and management have constructed major theses around the model, although for quite divergent and unrelated purposes (a point developed later in this discussion).

In its simplest and purest form, the cybernetic model is built around a simple mechanical device, the thermostat. In heating systems this device activates the furnace when the temperature drops below a specified temperature level, and deactivates the system when the furnace has adequately heated the desired area. This system is built around a tight, short-cycle information feedback based on the actual temperature and the desired level of the temperature (for a more complete discussion, see Beer, 1959).

The decision mechanism in a cybernetic process, then, is based on "information feedback and the elimination of uncertainty" (Steinbruner, 1974: 51). The complexity of the paradigm is based on the level of intricacy developed within any particular study using cybernetic assumptions. Specifically the cybernetic paradigm hypothesizes a decision mechanism that attempts to maintain stability, or homeostasis, in the system. The system may in fact be an entire organization (Katz and Kahn, 1966) or the human brain (Ashby, 1952).

One of the most complete discussions of the cybernetic approach has been advanced by Herbert Simon (Simon, 1958; Simon, 1968; March and Simon, 1958). Although most

of Simon's concepts are returned to at a later point, several cybernetic issues should be noted. First, Simon agrees with the rational-economic theorists that information, or knowledge, is an important underlying concept for decision making. The rational-choice theorist accepts the assumption that complete information is necessary to establish the final ordering of the decision alternatives; Simon notes that information is primarily used to reduce uncertainty. Thus, Simon centers on information-processing based on a more simple stimulus-response model (Simon, 1957: 108). The decision maker's sensitivity to any particular information item, then, is based on a need for information which utilizes a feedback channel as part of the decision-making process. If the individual sees the information as confusing, irrelevant, and thus not fitting the specific needs within his feedback mechanism, he rejects that information. Even if the information does affect the final outcome, the individual may still fail to process the information.

Similarly, cybernetic theorists stress that learning is not based on rational, all-inclusive processes, but instead on instrumental processes. The decision maker seeks knowledge on a need-to-know basis, seeking information when the equilibrium of the system has been disrupted (Steinbruner, 1974: 79). Finally, Simon's cybernetic approach is most cited for its concern for the satisficing decision (Simon, 1957). Instead of a rational decision that weighs

all of the alternatives, the satisficing decision requires only some minimal criteria for acceptance.

It can be argued that Simon's satisficing or cybernetic model is little more than a slight adjustment in the original rational choice assumption. Indeed, Simon has referred to the paradigm as a "limited rationality" model of decision making (Simon, 1957). Ashby's (1952) cybernetic model, however, goes a step further. The decision maker makes no overt calculations based on the probability of the outcome's success. The emphasis centers more on past experience and a small number of "critical variables" (Steinbruner, 1974: 63). Ashby's decision maker is motivated by stability and maintenance of his decisional field.

Although a useful model under many circumstances, Ashby's "value-free" decision-making process appears to be an over-reaction to the rational model. This criticism can be leveled at the entire cybernetic paradigm. Most social psychology critics would agree that equilibrium is an important element of all attitudes, beliefs, and final decisions; Heider's balance theory is a case in point (Heider, 1958). Yet, balance in an individual or group decision-making environment has never been argued as the sole reason for the final decision. As will be noted later, many decisions are made that seem to violate this equilibrium condition.

Simon's limited-rationality model seems more accommodating to values and established preferences. Unlike the

model of Ashby, however, the specific utilization and operationalization of the Simon paradigm remains unclear (Kirkpatrick et al., 1975). Rational modelers, for example, have critiqued Simon's decision-making model as only an expected utility model based on imperfect information (Riker and Ordeshook, 1973: 22). The rational choice theorists claim that "if the cost is large enough . . . , it is rational to satisfice" (Riker and Ordeshook, 1973: 23).

Another critique is linked to the model's process/outcome difficulties. The processual aspects of individual and/or group decisions seem obscured by a simple, or small, set of critical variables. For example, cybernetic decision theorists would agree that the environment is an intervening variable in any cybernetic decision rule; yet many of the tests of the model have required that the system's environment be carefully controlled. At the most mundane and routine levels of decision making, this assumption is acceptable; however, when decisions are analyzed at more complex levels, i.e., in the collective group context, such simplifications appear more strained.

Nevertheless, the key elements of cybernetic decision making, simplified or satisficing decision rules and instrumental learning, are well suited for inclusion in a more complex decisional model. Also, the cybernetic paradigm is not just another term for incremental decisions. It is, as Crecine (1969) has noted, an excellent model for explaining

incremental change, but the adjustments that occur to restore equilibrium may require drastic and radical changes in the system (Ashby, 1952: Chapter 7). However, Wildavsky's (1975) "strategies" of the process (not the outcome) of slight adjustments in what agency heads require for their next fiscal year's budget do fit a cybernetic paradigm.

Finally, an apparent tautology exists in the paradigm. Since the model requires assumptions that a limited set of crucial variables are operationalized and that decision makers must arrive at their decision based on limited rationality, then every decision will conform to the cybernetic paradigm. For all three of the previous paradigms--rational choice, psychological utility, and cybernetics--each implies similar circular arguments because of the limiting assumptions ingrained in each model. Too many questions remain unanswered: how do individuals and groups search for alternatives; how do they evaluate the differences in those alternatives; how do the individual's predispositions or preferences affect the final decision; are differences resolved in groups by rational coalition behavior, or do group processes themselves alter decisions? All of these issues are "assumed away" in the previous models by accepting rational or limited rationality premises. A paradigm is needed which treats such questions as hypotheses rather than assumptions. The following section will address such a model.



### Cognitive Process

The final set of models are specific types of social psychological paradigms applicable to decision making. Two basic categories of research are outlined; they include individual cognitive processes, and group dynamics and communication. More diverse treatments of social psychological paradigms are found elsewhere (Kirkpatrick et al., 1975; Kirkpatrick et al., 1976a, 1976b; Kirkpatrick, 1975b).

Rational choice and cybernetic models each have difficulty in examining highly complex decisional issues. Beyond these, the "incremental" approach suggests that slight adjustments occur while knowledge accumulates (Lindbloom, 1965). Others suggest, however, that in spite of the seemingly overwhelming complexity of an issue, decisions are made (Allison, 1971). The latter behavior, given greater uncertainty, cannot be predicted from a rational or cybernetic perspective.

Cognitive theory, however, deals with the complexity of a situation based on regularities in the cognitive operation of the mind. It is not the individual attitude that is of interest to the cognitive theorist, but the structure of beliefs and the way that information is processed based on those beliefs. Political science, specifically electoral behavior analysis, has examined this concept at great length (Converse, 1964; for review see Kirkpatrick and Pettit, 1972).

Similar to competing paradigms, cognitive models attempt to examine reduction of uncertainty. Unlike the other models, however, the theory does not require the application of probabilities or even limited utility calculations to any alternative. The cognitive apparatus attempts to establish order (and thereby reduce uncertainty) by placing alternatives into general categories. In complex situations, cognitive theory allows the use of similar decision rules to those of the cybernetic paradigm; but instead of a few "critical variables," the cognitive model applies the more general belief system to those decision rules.

To examine the cognitive model in less abstract terms, four specific areas of research shall be examined. Each of these areas in turn is related to its current decision-making applications in political science and related disciplines. It should be noted, however, that an interfacing of cognitive theory and its current decision-making applications is constrained by the paucity of actual tests of cognitive theory in decision making. The four theoretical areas emphasize information processing and intra-individual conflict, primarily from the organizational "Carnegie School" framework (for elaboration see Kirkpatrick, 1975b; Kirkpatrick et al., 1975), as well as the decision maker's cognitive maps and management of inconsistency, based primarily on foreign policy literature.

### Information Processing

As discussed previously, Herbert Simon's critique of the rational choice perspective led to a more limited view of man's inherent rationality. Simon's model emphasized decision making with selective exposure to incoming information, and further limited through channeling of new knowledge through existing belief systems (Simon, 1957: 81-83; Simon, 1958).

It was not until Simon's subsequent research with March (Organizations, 1958) that the critique of traditional administrative theory focused on how information is processed, i.e., on satisficing rather than maximizing utility (Simon, 1959; Zeckhauser and Schaefer, 1968). Unlike the expectation under the rational model, the processing of information often occurs independently of, and often prior to, any specific cognitive direction. Even in complex decisional situations, the mind categorizes and subsumes varied concepts under a single rubric, although the specific level of complexity of the belief system is dependent upon factors within the individual, such as cognitive complexity (Schroeder et al., 1967). Simon's basic division of the information processing system includes an evoked set (that which shapes behavior, such that information is processed), and an unevoked set (which does not affect behavior, whereby the information is ignored). Various stimuli (primarily external) and the evoked set filter the incoming information. Finally, the

organized belief structure processes information that is congruent with that structure. In this manner cognitive information processing is simplified, yet still predicated upon the primary belief system of the decision maker (Kirkpatrick, 1975a). An exact test of this model in an organizational context can be found in Cyert and March (1963).

#### Intra-Individual Conflict

Dependent primarily on Lewinian field theory (Lewin, 1935; Miller and Dollard, 1941), March and Simon (1958) have noted that the decision maker's internal conflict over a choice between alternatives leads to attempts to reduce that conflict. When a desired alternative cannot be identified, March and Simon hypothesize that the amount of time used in deciding will be relatively short, and the final choice will more accurately reflect the sequence in which the alternatives are presented. However, under uncertainty (when the choice outcome linkage is unknown) the decision maker will increase his/her search for information in order to identify the consequences of the final choice. Only when there are no acceptable alternatives will the individual redefine what is acceptable, primarily by altering his/her level of aspiration in the decisional situation (March and Simon, 1958; Kirkpatrick et al., 1975).

#### Cognitive Maps

The most developed use of the cognitive paradigm in political science is in the field of foreign policy and

international relations decision making. Holsti (1976: 12) defines a cognitive map as:

. . . a cluster of beliefs . . . [that] provide the individual with a more or less coherent way of organizing and making sense out of what would otherwise be a confusing array of signals picked up from the environment by his senses.

As originally defined by Snyder, Bruck, and Sapin (1962), in their seminal monograph on decision making, the central element of this approach centers on the motivation of the decision maker defined primarily by need satisfaction, tension reduction, and perception of the individual's "definition of the situation" (see, for review, Pruitt, 1965; Holsti, 1976). Most of these foreign policy studies, however, have been concerned with the decision maker and the sources, content, and structure of the predecisional belief system, not with the actual processes of decision (see Holsti, 1976: 24).

#### Consistency Management

Although seldom directly linked to decision-making analysis, the cognitive consistency approach does emphasize the small group context. Although the set of theories within the consistency model are differentiated by their specific designs, consistency theory posits balance in individual belief systems (for derivations see Festinger, 1957; 1964; Heider, 1958; for a review see Taylor, 1970). The usual discussion describes a triad with two subjects and an object. If Subject A likes Subject B, and does not like Object C, then for the system to be balanced or consistent, Subject B

should not like Object C. From this point, consistency theory becomes too complex to describe in detail here; nevertheless, it should be understood that the general construct has great potential for decision-making analysis (for example see Kirkpatrick, 1975b).

For the purposes of this study, consistency theory is more applicable when dealing with information that is inconsistent with the existing belief system. Simon hypothesized that such information is generally ignored; consistency theory allows a more dynamic process. Although discrediting the information is one alternative, the decision maker may also change his attitude about the source of the information, or possibly change his attitude about the object for which the information is provided. This last state of attitude change may be relatively rare, but it must be evaluated as a possible response (Abelson et al., 1968; Taylor, 1970).

Finally, no decision maker can achieve perfect consistency; instead, the subject must be able to make coherent those potential inconsistencies and resolve the possible pressures that may result. Steinbruner (1974: 114-121) illustrates the mechanisms applied in foreign policy by a range of inferences employed to maintain consistency: inferences of analogy (use structures in simpler situations and apply them to the current situation); inferences of transformation (or wishful thinking), inferences of impossibility (denial),

and negative images (actual change in the balance structure). Only in the latter condition will actual changes occur in the subject's attitudes, since the former three inferences all are based on restructuring reality, not belief systems.

Group Dynamic and Inter-  
Personal Communication

Any study of decision making in a contemporary environment must acknowledge that few decisions are made in a social vacuum. Instead, decisions, especially complex ones, are finalized only after a considerable amount of interaction among small groups of individuals. Given this fact, the concern for decisional analysis must shift toward greater study of the dynamic and interpersonal behaviors of small groups in a decisional context.

All of the previous paradigms, including cognitive theory, have ignored group decisions. The rational choice theorists claim that group decisions (i.e., social choice) are no more than some combination of individual decision preferences (Riker and Ordeshook, 1973: 83; Thorson, 1976: 82). Cybernetic models have generally treated groups as a whole, and thus a type of summary individual (Cyert and March, 1963; for an exception see Crecine, 1969). Cognitive theory, although acknowledging the social milieu, prefers to treat the group context as an element of the external environment, rather than the decision process.

Several areas of social psychology, as well as communications research, have addressed the group dynamics

and interpersonal communications question in depth, but, the treatment of decision making as a concept within these fields has been relatively minimal (for an exception see Collins and Guetzkow, 1964). Those sub-fields that are most relevant to decisional analysis are briefly examined below. In each area, elements of group processes are noted that extend beyond any individual-level judgments; thus, the unstated assumption of this set of theories posits that group processes are more than an aggregate of individual-level attitudes and beliefs. The three areas examine communication in small groups, group leadership, and individual versus group decision making.

#### Communication in Small Groups

Communication is regarded as an essential social process which determines man's use of symbols, interactions, and his relationship with others. Because of its widespread use and its varied definitional classifications between and even within academic disciplines, no strict definition is sought. Most communication literature in the social sciences derives its basic formulation from the S-O-R (stimulus-organism-response) model and thus reflects S. S. Steven's definition. "Communication is the discriminatory response of an organism to a stimulus" (as quoted in Barnlund, 1968: 5).

Our concern is for the interpersonal communication patterns in a specific environment--the small group. More



specifically, the emphasis in this study is on verbal communication, although non-verbal communication (specifically through symbolic behavior) is quite relevant for analysis (see Graber, 1976). Further, communication in a group environment should be examined as a process of sending and receiving messages. By so doing, the communicative act must be analyzed beyond the structural component of the group to include the action component, which involves the interaction between group members based on the task and social dimensions of the small group (Fisher, 1974).

It must be recognized that small group communication is a special case of interpersonal communication. Face-to-face interaction becomes more focused, yet obviously not equivalent to dyadic communication. Given a small group of five persons, the involvement of subjects in verbal interaction in the group setting may vary widely from those who speak out and lead discussions, to others who may be relatively passive participants in any interaction (Barnlund, 1968: 10).

Finding specific measures to analyze small group communication and its myriad of elements and levels of interaction is no trivial task. Recent attempts have been made to integrate these different components (Madron, 1969), and the most fruitful of these may be Bales' path-breaking interaction process analysis, centering upon task versus social-emotional areas of interaction (Bales, 1950). Bales'

categories delineate communication in small groups in a manner that examines the type of interaction, focuses on each subject's contributions to the group discussion, and develops methods of identifying leaders in the task and social environments. Recent studies by Bennis and Shepard (1961) and Tuckman (1965) have also clearly separated the task and socio-emotional dimensions.

All of these approaches have found that small groups move through phases of group cohesiveness and consciousness whereby initially the members are relatively individualistic, and attempts to define the problem area are often frustrated. Groups then evolve through a conflictual period until reaching a high group cohesiveness level. Finally, group members begin interchanging roles (role specialization declines) whereby each member can adapt to each other's feelings and attitudes (Fisher, 1974: 135).

Another potential procedure for analysis of small group interaction is the sociometric method, specifically beginning with research by J. L. Moreno (1951) that measures interpersonal choice. As Madron (1969) notes, the usefulness for such choice measures in political decision-making groups may give political science a new dimension to measure communication, cliques, and party roles at all levels of government (for a more extensive discussion see Hare, 1962: 407-11; Miller, 1970; 140-142).

Obviously, the potential for investigating small group communication goes beyond any discussion in this context. Nevertheless, applications of small group communication to a decisional framework are still quite rare, despite attempts to stimulate such efforts in political science (Barber, 1966; Madron, 1969).

### Group Leadership

Recognizing that leadership is treated in a diversity of ways, it is still possible to find some pattern to the study of this complex phenomenon. Most social psychological research on leadership has emphasized personality characteristics and traits of leadership (Gibb, 1968), as well as the effects of democratic versus authoritarian leadership on group performance (Stogdill, 1974: 365-410). This line of research has led to efforts that apply the findings to work environments and training of leaders in a diversity of izational areas (see, for example, Scott and Mitchell, 1976: 282-300; Kelly, 1974: 359-421).

Although a wealth of theories of leadership types have been advanced (Stogdill, 1974: 17-31), the key to this analysis is the set of leadership studies that rely on interaction in the small group. There can be no doubt that leadership is often formal and that leaders are selected by those outside the immediate small group. Obviously, the presence of a formal leader affects the behavior of the group, but efforts should be made toward analyzing the

patterns of behavior that occur in group leadership situations without that constraint. In this context, leadership is based more on the subject's involvement in group discussion, ability to influence others, and expertise in the particular situation. Stogdill (1974: 20-21) identifies this type of leadership hypothesis as interaction-expectation theory. The basis of this theory of leadership comes from Homans' (1950) discussion of leadership as frequency of interaction and participation in group activities. Stogdill (1959) refines the leadership role such that the patterns that an individual establishes in group interaction will define the expectations that group members have on the future structure of interactions within the group. Bass (1960) and House (1970) advance the view that the leader's interactions can be further explained by noting that leaders have more well-defined motives and goals for their interaction.

One further refinement by Fiedler (1967) emphasizes an important additional component--situational demands. Fiedler's contingency theory of leadership differentiates between the task and socio-emotional leader. Although an individual can fulfill both roles, those who are more task-oriented tend to assume leadership roles in simple and complex problem environments, while those whose interactions with group members are more social and emotional in nature tend to be effective leaders in situations with moderate demands on problem solution (see also Hemphill, 1954).

Finally, leaders are generally viewed as the most likely to conform to the norms of the group (Homans, 1950). Yet, the reasons for such conformity clearly reflect the leader's ability to influence those norms (Phillips and Erickson, 1970: 79-81). In a decision-making group, then, the leader's successfulness in moving decisions in the direction that he/she desires becomes crucial. In order to influence the final decision, however, the leader must be able to interact with the rest of the group in a manner that gains a favorable decision. Thus, the justification for examining leadership from an interaction framework, rather than a trait or structural viewpoint, illustrates the need for a behavioral model of leadership in small groups.

#### Individual Versus Group Decision Making in Problem-Solving Tasks

A variety of research has been most concerned with effectiveness in accomplishing tasks at the individual and group level. Studies in this area have attempted to determine when groups should be used, and when the task should be left to individual decision makers. Although studies of group performance are quite prevalent in social psychology and related fields, the conditions under which groups are effective in decision making remain largely undetermined (Hare, 1972). In fact, the general finding of much of this literature is that groups are unreliable in performing important tasks (for reviews see Collins and Guetzkow, 1964; Hackman and Morris, 1975).

One of the most thorough condemnations of group decision making is Irving Janis' Victims of Groupthink (1972). Janis' view is that groups may become excessively cohesive, to the point where the group ignores all information and alternatives that impinge on their agreement. Janis uses anecdotal evidence from various foreign-policy fiascos to illustrate this group failure syndrome. "Groupthink" can be thought of as an extreme form of limited search and satisficing behavior first described by Simon for individual decisions.

Other procedures such as T-groups, sensitivity training, and "brainstorming" are techniques that attempt to use group situations to produce more effective outcomes than would individuals; all have met with only limited success. Brainstorming is a case in point. This technique attempts to produce more creative solutions to various tasks than would an individual alone, but some evidence indicates that the creativity of individuals is repressed, not enhanced, in a brainstorming environment (Dunnette et al., 1963; Hackman and Morris, 1975).

Focused analyses of group interaction processes indicate that the collective environment may dramatically affect the nature of individual positions, especially at the small group level. A rather large body of literature emphasizing group risk-taking behavior hypothesizes that group decisions are significantly different from individual decisions (for a

review, see Kirkpatrick and Robertson, 1976). This literature emphasizes the empirical differences produced by group interaction processes, rather than the more applied performance concerns of the effectiveness studies. The specific empirical constructs of group risk-taking analysis will be treated in Chapter II.

In conclusion, there are obvious differences in decisions made by groups versus individuals on a wide variety of tasks. Maier (1970: 431-44), one of the principle authors on group problem solving, claims that the deficiencies of group decisions (conformity pressure, heterogeneity of solutions, and domination by individual members who want to "win" the argument) can affect the group's decisional task in such a manner as to damage the usefulness of the assets of the group process, i.e., greater total information and diversity of alternatives as well as acceptance of the solution by participants in the decisional solution. As Thibaut and Kelley (1961: 268) note, if the difficulties inherent in a group environment can be overcome, the resulting diversity and quantity of information should provide "for greater interstimulation of ideas without any loss of innovative creativity due to social constraints." However, it remains an empirical question as to what conditions foster the effectiveness of group decisions.

### Summary of Cognitive Processes and Group Dynamics

The above discussion of the applicability of social psychological models for decision making dichotomized the elements of individual (cognitive) and collective (group) processes. This distinction was applied primarily to delineate the crucial sub-processes that are hypothesized in group decision making. Yet, the dichotomization is only a simplification device; to examine only individual or group processes would be contrary to the basic assumption of social psychology that human behavior is an intertwining of individual psychological factors with the broader collective environment (Kirkpatrick, 1975b).

In the previous review of decision making, however, the clear implication is that decisions are seldom examined from a truly social psychological paradigm that integrates cognitive and group dynamic notions into a broader framework for processual analysis. This review delineated the kinds of variables at the cognitive/individual level and the forms of group dynamic factors that shape the final group decision. A model is now required which can link these two factors in a process explanation of group decision making.



## CHAPTER II

### DECISION PROCESS: SEARCH BEHAVIOR AND CHOICE SHIFT

#### Introduction

Various approaches used for decision-making analysis have been largely inadequate for explaining the decisional process. For rational choice theorists, the process of decision making is "assumed away" by making strong assumptions about the nature of man's capacity to process information and weigh alternatives. The cognitive models, at the other end of the spectrum, concentrate on the process of decision making at the expense of not explaining the final decisional outcome. "Decision-making scholars need not be limited to choices within this traditional dichotomy, especially with respect to the analysis of political decision making by small groups." (Kirkpatrick et al., 1976b: 35).

It is the fundamental premise of this study that the processing of information and the final choice/outcomes can be treated in the same framework. Specifically, the two fundamental elements involved in any decision-making analysis should include the search for alternatives and information

concerning those alternatives, and the shifting of choices dependent upon the perceived consequences of the various alternatives.

As in all of the previous treatments of decision making, the fundamental assumption remains that decisions are in part an attempt to reduce uncertainty, both in the alternatives and the final choice. However, the view of this study adds that in a small group context, decision making is based on communication, and the reduction of uncertainty requires communication among members of the small group (Kirkpatrick et al., 1976b; Dyson et al., 1972; Davis, 1974; Deutsch, 1966). One principal means of uncertainty reduction is the search for information and alternatives by decisional groups. This search behavior then determines, in part, the propensity of members of groups to shift their individual preferences. The framework for such analysis, as described below, makes it feasible to link processes and final decisions in a single decisional model.

#### Search Behavior and Cognitive Information Processing

"Decision making is generally characterized by choice behavior. As such, it is necessarily information-dependent" (Kirkpatrick et al., 1976b: 36). The problem, then, is to gain sufficient information to reduce the individual's (or group's) uncertainty about the choice, and thus reduce the possibilities for error. The literature most applicable to

this question is the cognitive process framework mentioned earlier. Specifically, the research originating in the "Carnegie School" and Herbert Simon's work is more relevant in this context because of its acceptance of the limits on information processing: fragmentary knowledge of consequences, a limited set of alternatives, and values that are often only vaguely defined (Simon, 1957: 81-83). Yet, the most important element of Simon's work for this study is his emphasis on the search for information. As March and Simon (1958: 174) emphasize, "a theory of choice without a theory of search is inadequate."

The information-processing approach emphasizes the juxtaposition of the individual's existing belief structure and the level of cognitive complexity with which the information is processed--from pre-existing as well as new sources. The manner in which the individual or group deals with the information is the key element of the search process.

Specifically, search behavior consists of several different kinds of information search: the nature of the problem itself, the nature and consequences of the potential alternatives, and feedback from previous decisions on the problem, or those deemed similar to the problem (Kirkpatrick et al., 1975; Skjei, 1973). Further, in a small group where political issues are involved, decision makers face an open solution set, i.e., no single correct decision

can be ascertained. Thus, the information to be processed will include interpersonal negotiation, bargaining, and compromise (Dyson et al., 1972). Once again the importance of interpersonal communication becomes paramount, but unfortunately very little of the information-processing literature notes the overlap of communication and search. In fact, recent developments in cognitive psychology have turned more to the physiological structure of the brain, research which, though certainly relevant, becomes too abstract and removed from the actual processes of decision making (see, for example, Solso, 1975; Kantowitz, 1974).

Taking cues from Simon's early work on limited rationality and satisficing behavior, this research effort will outline the primary search behaviors established in groups by examining previous typologies of information processing. Yet, using Simon's model, one must first establish the limitations of search, specifically the constraints that inhibit the reduction of uncertainty (for review, see Kirkpatrick et al., 1976b).

#### Constraints on the Search Process and Uncertainty Reduction in Decision Making

Simon's view that decision making and search behavior seldom meet the rational model of maximized search for alternatives and complete information leads him to propose the "limited rationality" approach. Unfortunately, Simon's treatment of limited search emphasizes a fairly rationalistic

approach to satisficing, i.e., the individual determines when there is sufficient information to meet some minimal criteria. Yet, the search for information is more complex and the factors that inhibit a rational or comprehensive search involve more constraints than a quasi-rational process whereby the decision maker cuts off search on the basis of some minimal criteria.

The ability of decision makers, especially in a group context, to engage in comprehensive search that will reduce all uncertainty appears limited. Even if it were feasible, the costs would often be prohibitive. As Downs (1967: 3) observes:

Information is costly because it takes time, effort, and sometimes money to obtain data and comprehend their meaning. Decision makers have only limited capabilities regarding the amount of time they can spend making decisions, the number of issues they can consider simultaneously, and the amount of data they can absorb regarding any one problem.

Thus, if uncertainty does exist, no matter how "rational" the process, the kinds of constraints on uncertainty reduction should be specified. Those constraints include limitations on the kind and amount of information that Downs and Simon describe, but also motive and personality factors that all fall outside any rational or quasi-rational constraint process. Specifically, environmental (information, organization, situation), individual (affective and cognitive), and group factors are examined as to their effects on the search process.

### Information Constraints

Given the unrealistic nature of comprehensive search, Downs suggests that decision makers will create some form of cost-benefit criteria by which the need for information is weighed against the costs involved in further search (Downs, 1967). This particular treatment regards the search constraint as information economy, but the constraint on information remains part of a rational process. In fact, halting the search for new information or alternatives when it is apparent that the costs outweigh the benefits is the epitome of rationality; thus, using the information economy approach requires the same problematic assumptions of the rational choice model. Further, since the small group is the focus in this analysis, it is doubtful that all members of a decision-making collective will have the same cost-benefit configuration for any particular situation (Davis, 1974).

Even if a cost-benefit ratio can be determined, the assertion that additional units of information reduce uncertainty is at best an assumption, and potentially a fallacy. Consumer researchers, for example, have found evidence to indicate that information overload can occur in a preferred-choice environment, and that creativity may be depressed when information levels are too high (Jacoby, 1975: 15-16). Information overload may be a potentially debilitating factor on the search process by reducing the group's willingness to make decisions. Thus, a real constraint on decision

making may be the amount and diversity of information presented to the group.

Information with which the group is familiar or which is perceived as similar to previous information, is more easily processed than new or unique information (Park and Sheth, 1975: 71-77). This hypothesis has seldom been tested beyond research in consumer and marketing areas; nevertheless, it suggests that prior familiarity may be an important constraint on the search process. By this view, a group may ignore or discount information that is divergent from established patterns. Further evidence of this effect can be derived from learning theory's emphasis on the need to place information into categories (Posner and Snyder, 1975; Jacoby, 1975).

In a political context, the information to be processed is often imprecise and heavily value-laden. Decision makers are then confronted with a wide latitude of choices for processing the information (Warr and Knapper, 1968). As the cognitive model suggests, the individual's established belief system will screen the incoming information, placing additional restraints on the kinds and amounts of information to be processed (Davis, 1974). Thus, a further constraint on information is sunk cost, or the predisposition of the members of the group toward certain types of information congruent with their current attitudes (Wilensky, 1967).

Although Down's quasi-rational economy of information approach may not be an adequate description of informational constraints on the search process, the preceding discussion has outlined areas that place very real "costs" on the reduction of uncertainty by information search. Specifically, information may be discounted if the group encounters information overload (too much information), information that is unfamiliar or does not fit any established categories, or information that fails to conform to the group members' belief systems. Limited time and resource availability compounded with the above costs may often restrict informational usage by much more than any economy of information approach would predict.

#### Organizational Constraints

Traditional patterns of behavior within the broader organization, or more specific routines within an established small group, limit the type and quantity of information acquired in a search process. Simon (1957) includes organizational constraints in his "satisficing" model because the range of decision rules and acceptable alternatives to a decision maker are often highly limited by the organization. Wildavsky (1974: 6-62), for example, suggests that budget decision making is highly restricted because administrators are expected to increase their budget requests while legislative appropriation committees tend to reduce the agency requests. Wildavsky refers to this as a "calculation



and strategy" process, yet the expected behavior is so tightly constrained as to allow only limited flexibility.

The organization, then, limits the range of alternatives prior to any search. Even within large networks, the organizational routines within specialized elements may greatly differ (Cyert and March, 1963). The type and kind of search within a research and development sub-unit would obviously differ from the accounting services division, even within the same organization. Allison's (1971) study of the Cuban missile crisis further illustrates how decision makers, by the nature of the U.S. National Security Council's organization, limit the alternatives and information processes.

Standard administrative procedures provide a significant constraint on the search for information. Information that fails to meet the goals, guidelines, decision rules, or acceptable range of alternatives of any decisional environment is ignored or rejected. By this process, information is channeled through an organizational screen (Feldman and Kanter, 1965). One would not expect General Motors, for example, to consider the alternative of asking the federal government to nationalize their industry; such alternatives are not likely to pass through the organizational filter. The inclusion of organization constraint on uncertainty reduction, although further restricting the search for information, does provide a means for a more realistic

environment for the empirical analysis of decision making than more rationalistic models.

#### Situational Constraints

An obvious restriction on information search is the situational environment. Consideration of alternatives and the amount of information is generally restricted when a crisis situation confronts decision makers (Hermann, 1969; Holsti and George, 1975). Because of the stressful environment and the limited amount of time available, decisional search is more quickly overloaded. Janis' (1971) study is illustrative of social psychological research on the inhibiting qualities of stress upon behavior.

The foreign policy decision-making literature emphasizes the definition of the situation as dependent on the initial reaction of the decision maker to the situation presented (Snyder et al., 1962). Unfortunately, tests of this foreign policy model have been difficult to operationalize beyond single case studies (Allison, 1971). Recent efforts have illustrated that less encompassing and more finite models of situational constraint can aid in explaining search behavior in foreign policy (Holsti; 1967, 1976; Pruitt, 1965).

Situational factors can affect search behavior by the controversy that may surround certain issues in a particular time frame. Presidential commissions which deal with an explosive issue before the public will engage in

different forms of search behavior than a commission that is relatively unknown (Wolanin, 1975). The Kerner Commission's study of urban violence, for example, faced a highly diffused and polarized population in gathering its data in the mid-1960s; such a commission today might reach the same conclusion, but the search would be quite different in a less polarized environment.

In the previous example, the members of the decisional group often bring with them more strongly-held predispositions than would otherwise be expected. Thus, the search process is more likely to follow directions that attempt to confirm those predispositions than in a less polarized environment. The cognitive rigidity and dogmatism of decision makers will significantly affect the capacity as well as the type of search by the group (Abelson, 1971; Holsti, 1976).

Crises, the definition of the situation, and the level of controversy of an issue can dramatically affect the quality and quantity of search. The literature does not suggest that search is only restricted under these conditions; indeed, the degree of controversy and the complexity with which group members view the situation may enhance and increase search. Only in a stressful environment has the cognitive processing literature suggested that search is reduced (Janis, 1971), the other areas remain open to testing. Finally, the uniqueness of particular situational

environments may inhibit search processes; yet it is the premise of this analysis, as well as much of empirical social science, that regularities do exist across situations so that relativistic arguments can be called into question.

#### Motive Constraints

The preceding constraints have emphasized the effects of the environment upon search behavior and decision making. The three remaining sets of constraints suggest a range of individual and group variables that affect search, and ultimately the decisions of small groups.

The first set of individual constraints are those factors in the basic personality structures of the members of a small group. These motives, or affective needs, provide the functional requisites for individuals to engage in search behavior in much the same manner as personality constructs are linked to the functional needs of any individual behavior (Smith et al., 1956; Lane, 1959; see discussion by Kirkpatrick and Pettit, 1972: 267-270; Kirkpatrick et al., 1976a: 38-40). There would be no way to effectively review all of the possible personality attributes that could alter search behavior and decision making, but in general, there is a relationship between need fulfillment and the influences that information (and significant others) have on the individual. One hypothesis asks that beliefs based on the object appraisal function will be more influenced by

information than beliefs dependent on social adjustment needs (Smith, 1968; Kirkpatrick et al., 1976a).

Other findings from the personality literature illustrate that certain personality characteristics may alter the search process. Decision makers who are low in self-esteem, high in conformity, dogmatism, and authoritarianism tend to restrict search in order not to increase anxiety about their predispositions (Knutson, 1972; Lasswell, 1954). Individuals who have high levels of ego involvement and who have progressed beyond inward needs to other-directed needs (e.g., self-actualization) may engage in a wider frame of search without exceeding their own tolerance of ambiguity (Knutson, 1972; Ferguson, 1962).

Two problems remain from the above findings on personality and search. First, does greater willingness to accept uncertainty imply greater and more varied search behavior? Beginning with Simon, decision theorists have emphasized that search reduces uncertainty; yet, if individuals tend to be tolerant of ambiguity and uncertainty, they should be more willing to halt or reduce search. Further, the amount of search by dogmatic and authoritarian personalities would not necessarily be low, but only confined to the alternatives acceptable to the decision maker's predisposition.

The second problem emphasizes the interface of individual personality factors with group factors. Individuals who are low in self-esteem and self-control (e.g., locus of

control) are generally high in conformity; such personality types will more likely yield to others in a group environment and accept their determination of search. Personality variables are needed which link the interface of individual needs and group functions; locus-of-control is one such variable. In a review of this personality characteristic, Lefcourt (1976) emphasizes that subjects who feel that external events control their situations are likely to defer to others in group decision making, as well as more likely to avoid additional search that might affect their predispositions. Another scale useful in examining personality in a group environment is the Machiavellian scale. The findings on this construct suggest that high Machiavellians represent an interface of authoritarian personality types who also manipulate others (Christie and Geis, 1970). Thus, Machiavellians should try to manipulate search toward their predispositions, eliminating or ignoring different alternatives.

Despite the previous elements, scholars have made very little progress in actually determining the impacts of personality factors on search behavior and decision making. Rational choice and limited rationality models have reduced personality constructs to elements of the environment that are then controlled. Sidney Verba (1961) hypothesizes that only in a situation where the information and the alternatives are highly detailed with recognized and accepted

differences between the alternatives, can one suggest that personality will not influence decision making. The more ambiguous the information and choices, the greater the influence of personality upon decision making. Unfortunately, no tests of this argument have been made, either in experimental or "real world" contexts. It is evident from the preceding discussion that personality, if not the crucial aspect of search in groups, can constrain the process to such an extent that information-processing is altered.

#### Cognitive Constraints

A second individual-level limitation on the search process is the specific cognitive and intellectual constraints on the information-processing abilities of the decision maker. A fundamental aspect of cognitive theory delineates the individual's perception of the environment and the stimulus as a constructed and screened image; cognitive theorists emphasize that perception of stimuli and events seldom mirror actual reality (Neisser, 1966). This redefinition of reality constrains search by limiting the process to information that either "passes through" this perceptual screen, or is reconstructed to fit the decision maker's perceptual image.

The general class of cognitive limitations that affect search behavior outline simplification rules, cognitive complexity, and information integration as the prime elements that restructure and restrain information processing.

Simplification rules allow the decision maker (or group) to examine and process a large quantity of information in a limited time frame. This simplification process allows the individual to establish "rules of thumb" or heuristics in processing information (Davis, 1974: Newall et al., 1958).

Although a diversity of rules of thumb can be employed (Steinbruner, 1974: 113), two are delineated as applicable constraints on the search process. First, decision makers use analogy to fit current problem information into prior decisional frameworks. For example, budgetary policy making in Congressional appropriation committees has long relied on comparing the current year's request with the base from the previous year (Wildavsky, 1974: 47-62), while agencies have long attempted to budget additional programs by claiming the new program is only an extension of an existing policy (Wildavsky, 1974: 111-123).

In addition, a second simplification rule is to rely on information primarily concerned with the immediate needs of the decision maker. That is, decision makers examine only information that has a short-term focus. By searching only short-term or immediate solution information, decision makers may avoid sharp changes in beliefs. Both of these simplification rules illustrate cognitive theory's fundamental premise that decision makers prefer stability to radical revision of their information-processing system (Steinbruner, 1974: 118). By using simplification rules on the



available alternatives and incoming information, decision makers avoid situations that may challenge the stability of their belief systems.

Cognitive theorists have outlined an additional constraint on information processing: the cognitive complexity of the decision maker. Schroder, Driver, and Struefert (1967: 22) indicate that the cognitively complex decision maker can examine several different dimensions of information, combine those dimensions in several ways, use multiple comparison rules to examine the alternatives, and create structures for generating complex relationships between the information categories (see also Shapiro and Bonham, 1973). Groups which have highly complex members engage in greater search behavior (Nidorf and Crockett, 1964) and yet are able to combine the new stimulus material with information already processed (Davis, 1974), although the processing capabilities still decline in highly complex situational environments (Schroder et al., 1967: 29-41).

A final cognitive constraint, information integration, is a fusion of the previous two limitations. The integration approach links the amount and type of information processed with a weighting scheme based on the values and beliefs of the decision maker. Specifically, the theory emphasizes that a simplification rule allows subjects to form initial impressions of a stimulus (based on predispositions) before any information is processed, thus performing

an important screen (the weighting scheme) upon all incoming information (Kaplan, 1975: 142-144, Anderson, 1974). Using the information constraint, decision makers require a relatively large amount of information in opposition to their predispositions before they will reverse or alter their initial evaluations of the alternatives and choices available. Obviously, the weaker the initial impression or predisposition, the less the amount and diversity of information required to alter that position.<sup>1</sup>

#### Group Constraints

Given the focus of this study on small group decision making, any constraints inherent in the group process of searching for information are important. As discussed in Chapter I, group problem solving differs from individual processes in the multiplicity of alternatives examined, the receptivity of the group (Kelley and Thibaut, 1968), the creativity of the alternatives derived (Maier, 1970), and especially the time span and accuracy with which the group responds to the decisional problem (Thibaut and Kelley, 1959).

More specifically, the group's capacity and willingness to deal with a particular problem may be constrained

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<sup>1</sup>It should be obvious to the reader that the integration model is a special case of an attitude change model, specifically linked to Fishbein's (1967) theory of attitude and to Anderson's (1971) developments of a cognitive algebra approach for modeling integration and change.

by cohesion and conformity tendencies, the level of consensus, and the nature of leadership in a collective environment. The first of these, cohesion and conformity tendencies, may be the most debilitating of the constraints on the search process. Janis' (1972) "groupthink" concept emphasizes this constraint. Analyzing various foreign policy decisions, Janis posits that groups build cohesion which heightens conformity in the search process such that initial errors are seldom corrected.

Although based on anecdotal evidence, Janis' study supports findings about the uniformity tendencies of small groups (Zajonc, 1966; Cartwright, 1968), as well as those concerning abilities to alter subjects' perceptions of reality by using divergent group opinion (Asch, 1951). Thus, groups tend to reinforce commonly held predispositions, ignore new divergent information, and suppress dissenting views (Davis, 1974).

Yet cohesion has its positive role on the group process which may heighten information search. One of the prime reasons for cohesion relates to the attractiveness of the group goals to the individual (Gross and Martin, 1952). Cohesive groups increase the security of its members and thus lower anxiety about group interaction (Lewin, 1947). If cohesion is a desired trait for group discussion and decision making, how does it reduce information search? Unfortunately, the answer is rather vague. At some point,

cohesion leads to excessive conformity such that Janis' "groupthink" is operable. Where that point is remains an unanswered question for small group researchers.

A corollary to the conformity constraint is the level of pre-decisional consensus in the group. If the group predispositions are highly similar, the amount of search should be reduced. The search process which follows need not be concerned with bargaining and negotiation (Kirkpatrick et al., 1976a), and the information collected should reflect the group consensus. Alternatively, when group members have divergent positions, search should increase (Kelley and Thibaut, 1968).

A further constraint on pre-decisional search is the nature of leadership in the small group environment. Although reviewed in greater depth in Chapter I, leadership style and characteristics do have major effects on group task performance (Stogdill, 1974: 364-407). However, most of these studies have examined member satisfaction and the productivity of the group, seldom noting the process of search that affects such outcomes.

As a constraint on information search, the assessment of leadership must note the emergence of leadership in group discussion, as well as the effects the leader has on group behavior. Because this view assumes that leadership is defined by the group, measures of sociometric choice whereby group members decide who most fits the leader role

(Stogdill, 1974: Chapter 18), as well as interaction methods for isolating leader behavior, are utilized (Madron, 1969). Thus, leaders can be identified in a group environment independent of formal role status; although such formal leadership is necessary for a complete understanding of leadership's effects on group search behavior. Once identified (whether formal, interactional, or sociometrically based) the leader's predispositions and acceptance of divergent information can then alter the search for information by the group (Maier and Solem, 1952; Kirkpatrick et al., 1976a). Further, the absence of a leader or the presence of competing leaders may decrease or increase search, respectively.

It is apparent that decision makers need information, but the gathering and processing of information is constrained by an assortment of individual and group factors, as well as environmental pressures inherent in organizational and situational specifics. Constraints even exist in the very nature and complexity of the information sought. The previous discussion is an attempt to delineate some of those constraints. In order to understand the processes used in small group decision making, such restraints upon search behavior must be delineated. No single study can examine all constraints on search; this study is no exception. In Chapter III, the specific constraints to be examined in this analysis are outlined. Before turning to those constraints, however, the measures of search behavior used in this study are described.

### Measures of Search Behavior

There are many ways in which search may be measured. Thus, the array of potential measures available cannot be quantified and examined in a single study. The following section, therefore, is not meant to be an exhaustive categorization. A typology of search used by one author is briefly examined, and the final measures for this study are outlined.

One typology of search behavior differentiates between types of decision information, based on the stages of search from developing objectives to feedback on the final decision. Skjei (1973: 9-46) suggests four types of relevant information: (1) problem information; (2) problem environment information; (3) alternatives information; and (4) feedback information. Problem information is examined in the early stages of search whereby decision makers establish basic objectives, needs, and methods to find the required information. Problem environment information is concerned with factors that are external to the problem which decision makers cannot control. Generally, the environmental factors include legal, cultural, resource, and population variables that constrain search (similar to situational constraint examined earlier). Alternatives information obviously involves the possible choices and the comparison of the benefits and costs of each alternative. Finally, feedback information refers to previous decisions related to the current problem.

Skjei's approach relies heavily on pre-decisional information, i.e., problem information, problem environment information, and alternatives information. Using his framework, the search process could be exhaustive, thus a rational planning process; or the search could be limited and more dependent on feedback information, thus similar to an incremental model (Kirkpatrick et al., 1975). It is important to note, however, that the Skjei typology does not actually measure such a continuum.

Further, the categories are not easily differentiated, especially when search does not follow a rational stage-like process. Specifically, if decision makers orderly define the problem, set the intangibles, then search for alternatives, and finally examine previous decisions, the process easily differentiates between categories. This is the central problem of the Skjei framework; when groups merge the categories and search no longer follows a linear stage model, differentiating between categories becomes extremely complex. In fact, the Skjei typology forces rationalistic processes upon decisional search, for it is only an assumption that search follows the pattern defined. The categories lack sufficient theoretical and empirical justification to force the particular typology on search.

Given the current absence of theoretical specificity to any particular typology, this study suggests that the measures important to defining the search process be examined

before any particular typology is applied. The following is an abbreviated set of variables necessary to define search in a small group (for further explanation see Kirkpatrick et al., 1976b).

- Requests for information from other group members (volume and type)
- Amount of information provided to other group members (volume)
- Specifics of information provided to other group members (type)
- Divergence of alternatives provided to other group members (volume and type)
- Efforts to stimulate, terminate, or channel group search (volume)
- Amount of information internally or externally generated (volume)

At this juncture, it is best to picture a specific small group discussion. In any discussion, unless fairly restrictive rules are employed, the interaction among group members seems often jumbled and confusing to the untrained observer: members interrupt each other; questions are introduced and not answered; one member talks at the same time as another; one member discusses the problem outlining the information available while another ignores the information and presses the group for a decision. Yet, even in such an apparent morass, group members find common ground, engage in bargaining and compromise, and reach a final decision. Search behavior has occurred; yet, if dependent upon a rational process model and categories such as Skjei's, the process may still appear mysterious.



A separation of such categories is accomplished by first delineating two crucial sub-elements of search: the sheer volume and the diversity of types of information (both between and within alternatives). As stated earlier, information is necessary in order to reduce uncertainty; as such the volume of information available becomes crucial in that reduction process. Each of the models discussed in Chapter I emphasizes the volume of search, from rational choice models and exhaustive search to the limited and satisficing search of the cybernetic paradigm.

The type of information is a more complex issue, for defining types implies some form of classification. The scheme utilized in this study, however, centers on rival measures of information types that begin with the simple and progress to more complex and diverse categorizations. Each relies on a description of the specific interaction of group members and their use of information. First, and most obviously, any categorization should note whether a particular statement, using Skjei's term, has alternatives information in its context. Often decision makers make statements devoid of any specific information that deals with the choices available. This does not mean, however, that such statements are unimportant to group discussion, only that they lack alternatives information content. Search behavior can be enhanced by positive responses to others' ideas, or by simple questions asking clarification of another group

member's position. Asking another member of the group their vote, for example, may not deal with specific information about the alternatives, yet it does contribute to the knowledge of each group member's position on a decisional problem.

Having noted the usefulness of statements devoid of alternatives information, the emphasis of the information-processing technique remains on the ability of alternative-based information in reducing uncertainty and establishing group decisions. Although a widely-held view in the literature, this premise will be tested by examining the ratio of alternatives information in group interaction against all other forms of interaction.

A second information classification emphasizes the use of available information against the use of information generated externally, or that is new to the group situation (Davis, 1974; Kirkpatrick et al., 1976b). In any small group, information may be given or presently available for the group's use, or decision makers may bring it into consideration themselves--either by external requests for others to compile, or assembled and brought into the discussion by a single decision maker. Such a measure of search behavior emphasizes the dependence of decision makers on available versus unique or new information. If decision makers depend solely on available or given information, search involves only the processing of the information, not the gathering of

information relevant to the problem. Further, decision makers who can bring to bear externally-generated information upon a decisional problem may have a greater effect on the final decision.

In any group discussion, certain information gains a greater weight in the final solution by the sheer reliance of the group members upon such information "bits" (Simon, 1958). Thus, a further classification of types of information available for search is the dependence upon particular information items for arriving at a final decision. It should be emphasized that greater discussion does not necessarily imply increased explanatory power, yet the social judgment literature does favor such an operationalization when discussing information impact (Kaplan, 1975; Anderson, 1971, Bettman et al., 1975). Of interest, however, is the final effect that single alternative search may have on decision making. The greater the information and the greater the dependence upon a single alternative, the stronger the likelihood that other alternatives will be rejected. As hypothesized later in this study, even when the available information is equally weighted, the group's search process, vis a vis group interaction, will emphasize the alternative desired by the group. This conforms to cognitive theory's premise that decision makers filter incoming information in a manner that reduces the weight of

information in opposition to their predispositions (Kirkpatrick, 1975b).

Search behavior must be understood from its primary sub-elements: volume and type of information. Several ways of analyzing these aspects have been suggested: each will be incorporated into the analysis of search behavior in Chapter IV. This study's approach centers not on establishing a taxonomy that requires some acceptance of a stage-like process of search behavior; instead, this analysis posits that the keys to understanding search behavior are the constraints imposed upon information-processing discussed earlier in the chapter. The constraints, in fact, underlie all cognitive aspects of the process, for the constraints are the limitations upon search behavior that prevent rational, complete, and exhaustive search. Since volume and complexity (type) are the two principal dimensions, these two general variables and their elements become the dependent variables in a search behavior model. In Chapter III the search measures (dependent variables) and the constraints (independent variables) are specified, and the hypotheses implicit in the preceding discussion are outlined before being tested in the fourth chapter.

#### Choice Shifts and Group Decisional Processes

Search behavior is the process whereby alternatives are enumerated and the costs and benefits are assessed based on

the information processed. Search, however, is not choice; a necessary function of any decision-making theory is to explain the effects of group processes on the outcome, or the final decision. Specifically, what shifts occur between the decision maker's predisposition and the final group decision, and why do these shifts occur? To depend solely on the study of information search behavior to answer these questions is inadequate; a more complete picture must include various individual and group characteristics that address the specifics of individual-group shift. The following treats a rather substantial body of social-psychological theory relevant to such shifts.

#### The Shift to Risk Phenomenon

A central premise of conventional wisdom about political groups posits that collective decisions are a rather slow and conservative decisional tool. Compromise and middle-of-the-road positions are frequently used to describe such group decisions. As noted in Chapter I, groups do take greater time in making decisions, and are not as creative on a problem-solving task as a single individual.

Whyte's (1956) classic view of the "organization man" pervades the popular view of political leaders as cautious decision makers. The Peter "principle" (Hull and Peter, 1969) and Kaufman's (1973) "decidophobia" have further outlined the cautious and even timid manner in which decisions are made in our society, within and outside group

confines. Yet, "risky shift" research in social psychology has found that the general principle, across cases and even cultures, is that groups are more willing to take risks in their decisions than individuals. The conflict between these two schools of theory exemplifies the need for more systematic attention to the question.

The shift-to-risk paradigm's central hypothesis is that groups will engage in greater risk-taking behavior than would individuals acting alone. In the only comprehensive volume on the subject, Kogan and Wallach (1964: 1) justify the importance of the concept for decision-making analysis:

Decision-making . . . involves the weighing of alternatives and their likelihoods . . . Issues concerning the avoidance or acceptance of risks in arriving at decisions hence are likely to be important ingredients in thinking processes.

In order to properly evaluate the "risky-shift" paradigm, a brief review of the theoretically distinct models employed in explanations of the hypothesis is included. The evolution of the risk conceptualization is then broadened to a more general choice-shift formulation, and its applicability to political decision analysis is outlined.

Most research in the risky-shift mold has been dependent on a single measurement instrument, the "Choice Dilemma Questionnaire" (CDQ), first constructed by Kogan and Wallach in 1959 to measure sex differences (Wallach and

Kogan, 1959: 554-64) and subsequently revised for the measurement of group risk-taking behavior by Stoner (1961). The CDQ is a series of hypothetical life situations in which subjects are asked to pick between two choices, one involving great risk of failure but high desirability, and the other involving a cautious choice. The CDQ instrument asks the individual to pick the acceptable probability for success of the risky alternative before recommending its adoption. Twelve CDQ items are traditionally employed ranging from job-related situations to questions about marriage. Of the twelve items normally employed, only one is political (for a complete list see Kogan and Wallach, 1964: Appendix E).

The items are pretested on each subject individually, and then responses are examined again in some form of experimental treatment involving group interaction. Mean responses are examined under pretest and treatment conditions in order to determine significant shifts in the recommendations. The shift has been referred to as the risky shift because of the tendency of the mean responses after group discussion to move toward greater risk. Such responses occur both in the group decision itself as well as in the posttest responses of group members, although the latter is not generally subsumed under the concept of risky shift<sup>2</sup> (Dion et al., 1970).

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<sup>2</sup>This point is not a trivial one. The choice-shift paradigm used in the analysis, and the risky shift model as well, are less concerned about whether individuals still

Explanations for the shift-to-risk phenomenon have engaged a large volume of research in the social psychology field. Over 300 research efforts have been conducted using the CDQ since the original work by Stoner (Myers, 1973); thus, comprehensive reviews of the literature are available elsewhere (Vinokur, 1971b; Brown, 1965; Dion et al., 1970; Pruitt, 1971). The myriad of research efforts can be subsumed under four major categories of explanation: statistical, cognitive, interactive, and affective models (Kirkpatrick et al., 1976b; Kirkpatrick, 1975b).

#### Statistical Models

This set of models treats the group shift primarily in terms of decisional rules and other strictures upon the decisional process. Similar to the organizational constraint on search, this model suggests that certain structural properties, such as the decisional rule, are the prime explanations for group risk-taking behavior (Zajonc et al., 1972). Most group risk studies have used a consensus decision rule, and yet a rule can be employed without requiring a consensus recommendation. Yet, in one risk-taking study employing a majority decision rule, significant risky shifts occurred (Wallach and Kogan, 1965). Although less theoretically satisfying than other models, the statistical model does

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accept the group decision after the group is dissolved-- although they generally do (Dion et al., 1970). The interest, instead, centers on the group decision alone and how it differs from individual predispositions.



imply that functions other than the actual behavior inside the group may explain risk-taking behavior. Further, the model allows for a potentially crucial variable to enter the equation, the decision rule.

### Cognitive Models

Two sets of explanation are most evident in cognitive models of risk-taking behavior. The first has its roots in the subjective utility model emphasizing risk-level preferences based on rational principles (Lee, 1971). Specifically, individuals change their risk preferences because the value for success is altered during group discussion, and not for any aspects of the group discussion itself. Most of the tests of this approach have used gambling situations (not CDQ items) with limited success (Burnstein et al., 1971; Cartwright, 1971; Vinokur, 1971a).

The second set of cognitive models emphasizes the use of "information relevant to the task." This approach posits that it is the additional information generated by group discussion that is the key to the group shift. Interaction among members is only important in that it enables greater information specification by the group (Kogan and Wallach, 1967; Pruitt and Teger, 1969). Thus, "information relevant to the task" theory posits a technique for reducing uncertainty through greater information search. The model's prime purpose is not the measurement of group shift, but the results of group search. As such, the approach lacks the

sophistication of the constraint paradigm posited earlier in this chapter.

Both sets of cognitive models, however, emphasize that group shifts are not a function of group processes, but instead rely on principles whereby the individual reduces the uncertainty about any particular alternative. The weight of the latter process cannot be adequately assessed until the two processes are examined separately, for as critics of cognitive approaches to risk have illustrated, empirical evidence validating increased information without group discussion remains unconfirmed (Dion et al., 1970). Tests of "information relevant to the task" theory have been unable to separate information processing from the group discussion element.

#### Interactive Models

Primarily dependent on sociological patterns of interaction, this class of risk-taking models emphasizes emerging leadership patterns that occur in a group environment. Leadership theory hypothesizes that individuals who have high risk levels before the group meeting are more persuasive in group discussion (Marquis, 1962; Wallach et al., 1962). Two sub-processes have been suggested as relevant to this approach. One model, leader confidence theory, posits that decision makers who are high risk takers are more confident, and thus more influential on the final group decision. Thus, prior certainty by one member of the group should

reduce uncertainty for the rest (Pruitt, 1971). This hypothesis assumes that greater confidence dictates greater risk. Unfortunately, when cautious shifts occur, as they do on some CDQ items, leader confidence theory cannot claim that caution is equated with confidence.

The same difficulty remains for the alternative interactive model, "rhetoric of risk" theory. The hypothesis suggests that risky language is more dramatic and thus more persuasive than cautious arguments (Pruitt, 1971). Obviously, when cautious shifts occur, a "rhetoric of caution" hypothesis is not plausible. In general, interactive approaches assume that influences occurring during group discussion are purely informational rather than affective (Vinokur, 1971a). The affective element of group interaction has been too widely illustrated in group problem solving to be dismissed in such a manner (Rettig, 1966; Kelley and Thibaut, 1968).

#### Affective Models

The final class of risk-taking models are those which emphasize group effects on individuals. Affective models are the most widely tested of the risk-taking phenomena; each of the major hypotheses are outlined below.

Diffusion-of-responsibility theory. The earliest of the risk-taking explanations, diffusion-of-responsibility, posits that group decisions allow the decision maker to reduce his/her anxiety about risk, thereby diffusing

individual responsibility for possible failure and facilitating risky shifts (Kogan and Wallach, 1967). Thus, the diffusion hypothesis represents a true group effect which cannot occur with isolated individuals (Pruitt and Teger, 1967; Secord and Backman, 1964). There has been considerable confusion as to what are the necessary and sufficient conditions for confirmation of diffusion-of-responsibility theory. The original formulation only required unanimous group decisions for responsibility-diffusion (Wallach et al., 1964); however, later findings suggesting that group discussion, not decisions, produces a risky-shift effect forced a further re-evaluation (Wallach and Kogan, 1965).

The final formulation of diffusion-of-responsibility theory proposes a causal chain such that (1) affective bonds are created in group discussion which (2) permit diffusion of responsibility which in turn (3) allow groups to shift to greater risk. Although the evidence is strong that a group effect operates to increase risk-taking behavior (for a review, see Dion et al., 1970), efforts to confirm diffusion-of-responsibility theory have been extremely mixed (Teger and Pruitt, 1967; Marquis, 1962). One study suggests that when diffusion of responsibility actually occurs among group members, no shift results (Pruitt and Teger, 1969). The latter study found evidence, however, that strong affective and emotional bonds, when measured as group cohesiveness,

results in greater risk-taking, and that cohesion is not as effective in producing a risky shift in situations when group discussion is prohibited (Pruitt and Teger, 1969). Noting this phenomenon, Dion and his colleagues (1970) suggest that members of a cohesive group do not seek to displace personal responsibility for failure on others in the group. For whatever reason, the evidence indicates that the causal chain posited by responsibility-diffusion theorists is valid to the extent that group discussion leads to cohesiveness and eventually to greater risk; but the filter mechanism for that shift is not the ability to diffuse responsibility among group members.

Familiarization theory. This hypothesis suggests that group discussion is only a single method for individuals to become acquainted, or familiar, with the information. After the decision maker becomes more confident of the information, uncertainty is reduced and the risky shift occurs (Bateson, 1966; Flanders and Thistlethwaite, 1967). This pseudo-group effect holds that subjects should engage in risky shifts if allowed to simply peruse the available information in more detail. Replications of the early work on the familiarization hypothesis have failed to provide significant shifts, especially against group discussion conditions, thus raising serious questions about the generalizability of the early work (Teger et al., 1970; Dion and Miller, 1971; Castore, 1972).

An underlying theoretical problem remains in the familiarization approach. The hypothesis assumes that individuals, or groups, will act rationally, when given sufficient time to consider the problem. Flanders and Thistlethwaite (1967) refer to this process as comprehension, while Bateson (1966) uses the more general concept of uncertainty-reduction. Once again, risk becomes synonymous with certainty no matter what the subject. Marquis (1968) provides evidence that on CDQ items which traditionally favor cautious shifts, familiarization still leads to cautious shifts. Yet, if familiarization increases comprehension and reduces uncertainty, a risky shift should occur. Others have illustrated similar problems with the familiarization approach (Myers, 1967; Vidmar, 1970).

Value theory. The most widely supported explanation of risk-taking behavior, the risk-as-value hypothesis (Brown, 1965), proposes a two-step causal chain. When risk is the admired or valued choice, decision makers see themselves as more risky than others in the decisional system. When the subject enters the group environment, others may have chosen as risky, or even more risky, alternatives. As a result, the decision maker and the group shift further out on the risky dimension (Stoner, 1968).

The strength of value theory is that it can account for cautious shifts as well as risky ones, whereas the other affective models are applicable to risk alone. If the

cautious response is the more valued response, then shifts should occur in that direction. Two of the original CDQ items, as well as items constructed later by Stoner (1968), have engaged such cautious shifts. The plausibility of cautious shifts, especially in political contexts, heightens the critical importance of value theory as a potential explanatory framework for political small groups.

Although a wide diversity of subcategories of value theory have been outlined elsewhere (Kirkpatrick and Robertson, 1976), several critical categorizations are examined here. First, the value shift can be conceived as a social comparisons process whereby group interaction and discussion offers subjects the opportunity to discover the risk levels of others and to adjust their own risk levels accordingly (Brown, 1965). By making such comparisons, groups will then shift toward the valued direction, whether risky or cautious. Brown's approach is derived from Hinds' (1962) findings that subjects see themselves as more willing to make risky choices than other subjects like them on a pre-test, and from subsequent research by Teger and Pruitt (1967), who found that group discussion includes this comparison process. Stoner (1968) further illustrates that when underlying values can be found on an item, shifts occur in the direction of that value.

A corollary to the social comparison hypothesis bases its explanation on the presence of pluralistic ignorance

and that group discussion enables subjects to discover the positions of others (Levinger and Schneider, 1969). Both of these approaches to value theory emphasize that information relevant to members' positions is the key to the shift, yet Teger and Pruitt (1967) have found that group discussion must go beyond preferences in order to elicit a group shift.

A third value explanation emphasizes that a decision maker's level of commitment induced by group discussion serves to crystallize original decisions (Moscovici and Zavalloni, 1969). Commitment theory acknowledges the element of knowing group members' positions, yet emphasizes that the processes of information handling and individual interaction are the keys to the shift. Linkage to value theory is accomplished by the assertion that greater commitment is predicted in the valued direction.

The validity of value theory, although the most widely supported of the risk-taking models, does not assume that all other models are inadequate. In fact, each of the risk-taking models are not so exclusive that confirmation of one is a rejection of all others. The theoretical literature on risk-taking has been generally myopic in its simplistic treatment of one of the alternative models without adequately fusing aspects of other approaches.

#### The Choice Shift Model

As previously noted, only value theory can adequately account for cautious as well as risky shifts, although



components of value theory are not mutually exclusive from other models. Part of the dilemma reflects the over-reliance on the Choice Dilemma Questionnaire (CDQ) and the measurement of risk-caution as the prime continuum. Political decision making is obviously more complex than calculating the probabilities necessary for success of a particular outcome; in fact, risk-caution may be too confining a principal by which to categorize decision making. Risk is only one element of choice-shift behavior and of group effects on individuals (Walker, 1976).

Levinger and Schneider (1969) were the first to use the more general "choice shift" conceptualization. Yet, their choice shift reference emphasizes only the possibilities of cautious shifts. Moscovici and Zavalloni (1969) broaden choice shift concepts with non-CDQ measures, specifically attitude shifts of French students toward DeGaulle and Americans. Myers and Bishop (1971) further extend the choice shift model on race relation attitudes among American students.

Rather than forcing subjects to define the probability of success of any given alternative--a concept more dependent on the rational weighting of alternatives--the choice shift literature prefers to utilize other measurement scales such as Likert or Semantic Differential techniques (Doise, 1969; Gouge and Fraser, 1972; and Paicheler and Bouchet, 1973). Yet, as in the earlier risky-shift formulation,

the measurement of shift remains a group dynamics phenomenon.

Given the need for measurement of political choice, the new attitude shift approach allows greater emphasis on choice--not on probabilities of success. Using Likert or similar techniques, subjects choose between alternatives which may have little relation to risk-caution. Furthermore, alternative-based items allow consideration of a more natural mid-point (neutrality) as a base from which to analyze judgments; the CDQ measurement of risk has no neutral point--only a continuum of probabilities of success on the risky alternative (Kirkpatrick and Robertson, 1976; Myers and Lamm, 1976).

For purposes of this study, the alternative-based choice shift model is more applicable for development of explanations of group decision making in a political context. In accord with this rationale, a new battery of items has been developed which is more relevant to a political decision-making environment (see also Kirkpatrick et al., 1975, for earlier efforts to modify CDQ). The five items emphasize policy issues on which "real world" political groups must often make decisions. The details of the items and the measurement are examined in Chapter III (see also Kirkpatrick and Robertson, 1976).

Fundamental to the measurement of choice shifts is the consideration of the underlying continuum. In most

studies, a seven-item Likert scale is used where two alternatives are noted, and subjects can agree with either choice, as well as establish the strength of their recommendation on a bipolar scale. Thus, instead of risk-caution as the prime continuum, group shifts are examined within a group extremization framework. Extremization posits that group decisions will be less neutral than the mean of initial subject responses (Myers and Lamm, 1976).

Given that the risk-taking paradigm is only a special case of the choice shift/extremization approach, some of the vast literature of risk taking can be re-conceptualized for political choice shifts. Value theory remains testable in its present form; in fact, the value hypothesis has been widely confirmed in the attitude/choice shift literature (Moscovici and Zavalloni, 1969). The following section delineates how risk-taking models can be redefined to test choice shifts based on an extremization continuum (see also Kirkpatrick et al., 1975).

Statistical model. Although little attention has been paid to the influence of group decision rules, such effects cannot be easily dismissed in a political environment. Informal decision rules in Congressional committees, for example, alter the speed and the results of decision making and policy in the legislature. One legislative scholar even notes that decision rules are the crucial set of intervening variables between individual predispositions and goals and the final committee decision (Fenno, 1973).

The choice shift literature has generally rejected this structural constraint, although treatment of its effects has centered primarily on the pretest distribution alone (Myers and Lamm, 1976). The hypothesis, however, goes beyond any strict statistical dispersion of individual predispositions; the decision rule should be treated as a specific influence on group decisional shifts. Using an earlier set of policy items similar to those in this study, the findings illustrated that groups under an imposed majority-decision rule engage in greater shifts than consensus-decision groups (Kirkpatrick and Robertson, 1976).

Interactive Model. Among this class of models, Pruitt's (1971) discussion of leadership-confidence theory has the most relevance to choice shifts. Decision makers whose predispositions are already extreme (toward the end-point of the continuum) should have the greatest influence on the group shift.

The specific hypothesis suggests that group leaders, as identified by interaction and sociometric measures, will be individuals whose pretest positions are the most extreme and yet are the most similar to the final group decision. Alternatively, personality variables which operationalize leadership patterns, such as the Machiavellian scale, are applicable as intervening variables in determining the kind of subject willing to assume a leadership role (Christie and Geis, 1970). Subjects with Machiavellian personalities

are hypothesized to be extreme on pretest positions while influencing group decisions in accordance with those positions.

Familiarization model. Although this affective model has been rejected as an explanation of the risky shift, its applicability for the choice shift remains unexplored. By hypothesizing that familiarization provides for reduced uncertainty and greater comprehension, the approach suggests that decisional shifts are only a conceptualization of learning. Thus, greater information, or even greater time for studying a problem, should increase the tendency to shift. The familiarization hypothesis is essentially a control group model whereby decision makers given the opportunity to examine the available information should engage in greater shifts without actual group discussion.

Diffusion-of-responsibility model. The basic responsibility-diffusion hypothesis suggests that group discussion reduces subjects' anxiety about risk. Thus, for choice shifts its conceptualization is built on anxiety-reduction for decision makers through group bonds. Such individual bonds to a group are among the most widely cited elements crucial to a strong group environment, whether task or emotional in nature (Bennis et al., 1973; Mills, 1967; Crosbie, 1975). Although specific operationalizations have been quite diverse, most rely on various measures of group cohesiveness, usually measured by posttest sociometric

scores. The diffusion-of-responsibility hypothesis would then posit that the groups that engage in the greatest shifts toward the extremes would be the most cohesive.

The Value Model and the Polarization Hypothesis. As noted previously, value theory has been widely confirmed in the attitude/choice shift literature, yet only recently has the model been more carefully defined. Specifically, Myers and Lamm (1976) refer to the value model as a special case of the group polarization hypothesis where the group decision will tend to be more extreme in the same direction as the mean of the pretest responses. Thus, group polarization is one example of the more general choice shift continuum--group extremization. The latter only requires shift away from neutrality, while polarization's emphasis is on shift toward a stronger position (more extreme) for a particular alternative. In a review of the choice shift literature in social psychology, Myers and Lamm (1976) find strong evidence for the polarization effect.

The strongest influence of the various sub-hypotheses of polarization or value theory centers on what Myers and Lamm (1976) call the informational influence interpretation, or what is more generally cited as the commitment interpretation referred to earlier in the chapter (Brown, 1965). Given initial predispositions on a particular choice, commitment theory emphasizes that subjects will tend to enhance those positions by examining information that is supportive, not contrary, to those positions.

Yet, value theory is different from polarization because the hypothesis notes that decision makers see themselves closer to the desired or valued choice than others. When this occurs, any shift that occurs should be in that desired direction. The polarization hypothesis makes no assumption about other's predispositions. In a group decisional environment the two hypotheses would differ. The polarization hypothesis predicts that group shifts should be only in the same direction as the mean of the initial predispositions; confirmation of the value hypothesis requires that the shift direction is in the valued direction which might be in the opposite direction (toward the second alternative) of the initial predisposition of the group (Kirkpatrick and Robertson, 1976).

Since redefinition is required for most of the current risk-taking models, new operationalizations based on established theoretical constructs have been suggested for political choice shifts. Further, each of the models should be examined together; all are interrelated to the extent that acceptance of one does not reject all others (Kirkpatrick et al., 1975; Myers and Lamm, 1976). In a departure from more conventional research, decision rules (statistical model) and value theory have been analyzed as to their effects on choice shifts in a single study (Kirkpatrick and Robertson, 1976). This study will expand those notions to a broader test of each of the choice shift models.

### Search and Choice Shifts--Linkages

The two fundamental decision processes of searching for information and alternatives and shifting choices in a group environment have been outlined in this chapter. Each complements the other, yet there is no research which attempts to link these processes (Kirkpatrick et al., 1976b). The choice shift paradigm emphasizes the process whereby individual positions are altered by the effects groups have on the consequences of any particular decision. The search for information and alternatives are not considered by the choice shift model.

The search literature prefers emphasis on the constraints of reducing uncertainty by gathering information for decisional solutions (Kirkpatrick et al., 1975), but the resulting decision, or the consequences of the search process are ignored. Yet, as described throughout this chapter, the independent variables that alter choice shifts are in the same class of effects as those operating on the search process. For example, what effect does a group constraint such as cohesion level have on the entire decisional process? The search and choice shift processes both theorize that group cohesion would increase the amount of search and size of shift. It is the argument in this study and elsewhere (Kirkpatrick et al., 1976a) that knowledge of either model alone is not sufficient to explain the overall decision process.



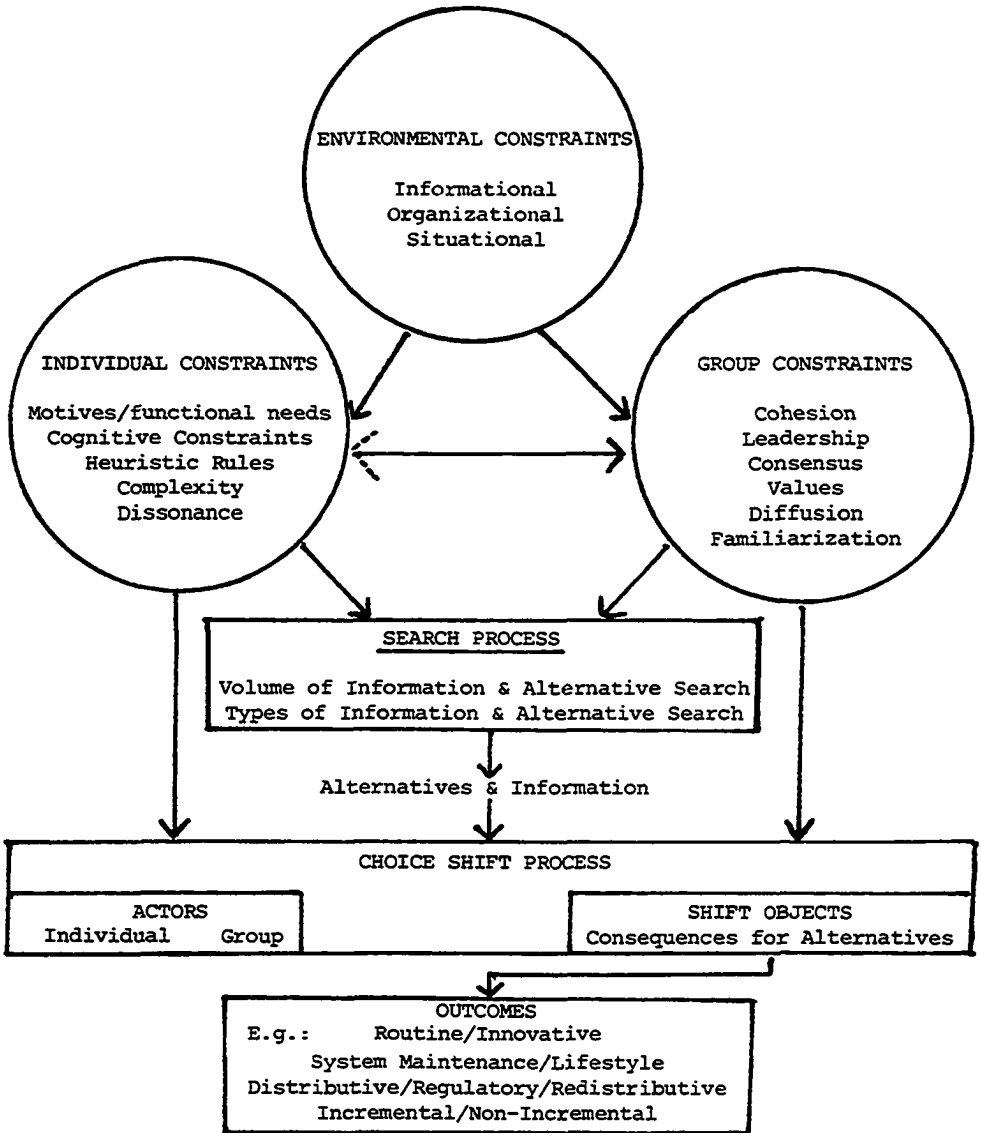
### Theoretical Framework

The preceding theory and research serve as guides to building a model of decision making based on the two component elements of such theory: search and choice shift behavior. In order to link the entire process, a framework for analyzing decision making is displayed in Figure 1. The framework is offered as a simplifying device and as a translation mechanism for movement from theory to specific operationalization of its component parts. The categorizations do not address all of the subtle and highly complex effects discussed in the last two chapters; yet, the framework does outline the primary components of this investigation. In addition, the linkages between and within the search and choice shift processes are still fairly crude given the absence of specific social psychological and group dynamics literature (Kirkpatrick et al., 1976a).

The framework is divided into four segments: independent variables that constrain decision making; the search process; the choice shift process; and the resulting outcomes. The constraints have been examined both in the search process and as underlying elements of the choice shift process. Although environmental constraints are more complex than the three elements noted, each of these describes a crucial element affecting group decision making. These include (1) information, varying in its level of complexity, volume, overload capacity, and costs for obtaining it; (2) organizational

FIGURE 1

A FRAMEWORK FOR POLITICAL DECISION MAKING



constraints based on decision rules, procedures, and general characteristics; and (3) situational variables which vary across time and policy emphasis such as routine versus crisis situations.

The general set of environmental factors are mediated by constraints on individuals and groups. Those variables that are individually determined include motive/functional needs and cognitive constraints such as heuristic rules and individual cognitive complexity. Finally, a set of group constraints are operative, including group values, levels of cohesion, diffusion and familiarization processes, and leadership patterns. As the diagram indicates, the latter two constraints filter the environmental factor and bear directly on the search process, and either directly or indirectly alter group shift. Some of the elements are more relevant for the search process than the shift element; however, each set requires operationalization and empirical testing for effects.

The search process provides outputs in both the amount and the type of information processed, as well as the alternatives/consequences of the choices. These outputs become the focal points for the evaluation of the alternatives and final choices in the shift process. The latter may also be affected by specific constraints in the individual and group domains. Further, where conditions of search are weak, or nonexistent, shifts that occur will be uniformly explained by such constraining factors.

The search process is not meant to be a "black box"; in other studies the framework for search is more complex (Kirkpatrick et al., 1976b). As noted earlier in the chapter, schemes for specific explanation of search lie primarily in its environmental, individual, and group constraints. More complex systems based on information-integration (Anderson, 1974) or evocation rules (Simon, 1957; Kirkpatrick et al., 1976b) require rationalizing assumptions about the stages of search; stages which cannot at this time be empirically tested. The keys to the search process, both in volume and type of information, are the set of constraints that prevent a totally rational, exhaustive, and comprehensive result; thus, the constraints are the prime explanation of the limitations on search behavior (March and Simon, 1958).

The shift process involves decision makers who develop orientations to prior and subsequent consequences for the alternatives and information provided by the search process. Further, group shifts may be altered by individual and group factors. The final group choice, as partially determined by additional intervening variables, such as the group decision rule, is compared to the individual predispositions before the group process began (Kirkpatrick et al., 1975).

Finally, the group decision presumably has some outcome; such results have obvious policy relevance (or may be policy) for the decision-making group. The content

of the outcome may fall within several policy dimensions: routine versus innovative policy, system maintenance or lifestyle values (Williams, 1961; Kirkpatrick and Morgan, 1971), or distributive, regulatory, or redistributive policies (Lowi, 1964). While other conceptualizations are possible (such as incremental and nonincremental decisions), the above outcome types emphasize the results of the decisional process. The outcome element of the framework is only presented to complete the model. Given the experimental emphasis of this investigation, the study of outcome typologies cannot be adequately examined; however, the decision items focus on various policy areas.

Unlike the decisional frameworks outlined in Chapter I, this model links individual, group, and environmental factors to both the search and the final choice or shift process while still dependent on basic social-psychological theory. Moreover, the framework components can be operationalized, specified through bivariate and multivariate hypotheses, and empirically tested. It is to this goal that this investigation turns to Chapter III.

CHAPTER III  
RESEARCH DESIGN AND HYPOTHESES FOR  
EXPERIMENTAL STUDY OF SMALL  
GROUP DECISION MAKING

Decision-making analysis has traditionally centered on the normative evaluation of the outcomes of decisions by individuals. The purpose of this study is to empirically examine the process of decision making, primarily in a small group context. After the description of alternative models for this form of decisional analysis in Chapter I, the specific framework for examining decision making was detailed. The bulk of the present chapter deals with the specifications necessary for operationalizing the framework and for delineating the detailed research design to test the resulting hypotheses for explaining search and choice shift behavior. In order to evaluate the resulting hypotheses, the general research design should first be explained--the randomized laboratory experiment.

Experimentation and the Process  
of Decision Making

The complexity of the framework specified in Chapter II necessitates a rather considerable division of

labor in order to study the various elements of the decisional schema and ultimately to refine the framework into a fully operationalized model of decision making. No single research effort can integrate all elements of the framework into a single study. In order to advance explanation and prediction of decisional analysis, research must proceed on several fronts, both at the laboratory and "real world" levels of analysis. The logic of experimentation provides a vehicle to begin such analysis. Although more general discussions of experimentation can be found elsewhere (Myers, 1966; Campbell and Stanley, 1966; Plutchik, 1968; Cook and Campbell, 1976; Festinger and Katz, 1953: Chapter 2), the following brief discussion emphasizes the needs of this particular investigation.

#### Traditional Objectives to Experimental Design

Although widely used in the natural sciences, the applicability of experimental design in the social sciences has been primarily limited to psychology and social psychology. Since political science has only recently rediscovered the use of experimental methodology and design, the biases against it remain prevalent. First among the objections is the artificiality of the experimental research situation, especially under laboratory conditions. Critics charge that since only certain measures are allowed to vary in an investigation, no statements of results can be justified.

In decision-making analyses the forcing of certain situational constraints to be held constant may give an unreal picture of the decisional process.

As Kerlinger (1964: 380) notes, such criticism ". . . comes from individuals lacking an understanding of the purposes of laboratory experiments." Experimentation, especially in the laboratory environment, deliberately creates an artificial situation such that a relationship between two or more variables can be examined without outside forces potentially altering the hypothesized effect. Experimentalists do not deny that other variables in fact affect the relationship in the real world environment, but their desire is to measure the effects without those external variables interfering.

The problem emphasizes experimental design's prime purpose--establishing causal relationships under "pure" conditions (Plutchik, 1968). The non-experimentalist's claim that this produces an artificial environment is correct. Yet, examination of effects in a real world mode suffers similar difficulties since all possible variables cannot be examined in the actual situation. By random assignment to conditions, the errors caused by "outside" or exogenous variables are more likely to be randomly distributed across treatment conditions than by non-random methods (Blalock, 1964; Campbell and Stanley, 1966; Cook and Campbell, 1976). Finally, the degree of artificiality



is determined by the experimenter; laboratory experiments can quite adequately simulate some situational environments (Verba, 1961).

The more general objection to experimentation is the lack of external validity or generalizability. The dominant disciplinary view in political science has obviously emphasized external validity at the expense of internal validity (Kirkpatrick et al., 1976a). As a result, field study involving large scale random sampling has dominated research in political science. Yet, unless internal validity in research is established, one loses the ability to generalize to other settings or populations (Campbell and Stanley, 1966: 5).

In decision-making research, the limits of single inquiry must be underscored. Large random samples of actual decision-making elites (Barber, 1966) will not establish external validity. Generalization rests not only on the representativeness of the subject population, but also on the representativeness of test conditions and samples of time (Cook and Campbell, 1976: 226). Establishing external validity requires replication across time, cases, and situational environments.

Objections to experimentation are not without merit. In studying political decision making, examination of laboratory groups often made up of college freshmen or volunteers certainly limits the ability to generalize from the laboratory

to city councils or Congressional sub-committees. A special difficulty in experimentation is the problem of establishing a laboratory equivalent of accountability of the decision group--accountability to constituents in the case of elected councils, or to administrative superiors in the case of appointive groups. Does the rigor of experimentation in the laboratory, and the resulting greater confidence of the research findings at that level, justify its applicability to decisional analysis?

#### Experimentation and the Decision-Making Process

The premise of this investigation is that the discomfort of scholars, especially political scientists, in using experimental laboratory groups is unwarranted at the current stage of development in decision-making theory. As noted in Chapter I, decisional theory tends to be outcome-dependent; when processual notions in political decisional analysis have been addressed, the research relies heavily on anecdotal, ex post facto interpretations of the final outcome. By testing the applicability of specific theoretical frameworks on experimental small groups, the confidence with respect to such theory can be more adequately supported (Hempel, 1966). Once established at the experimental group level, less rigorous tests of similar frameworks can be applied on actual decision-making groups. Thus, the findings at the laboratory level permit greater confidence in like results for natural groups.

Experimental designs do provide the researcher with greater confidence in the internal validity of the investigation. By experimentally manipulating explanatory variables, and randomly assigning subjects to treatments, the causal relationships of independent and dependent variables are less likely to be affected by exogeneous variables. Further, the threats to internal validity that debilitate confidence in non-experimental research are significantly reduced and often eliminated by using an experimental framework (Campbell and Stanley, 1966; Cook and Campbell, 1976).

Finally, the inferential leaps between theory and data are not as confining under the rigors of experimentation. For example, risk-taking theory has been specifically operationalized under several explanatory models; each has been extensively tested across time and settings. The result is a fairly explicit delineation of the models that explain the risk phenomenon.

Thus, experimental design seems the most logical first step in examining search and choice shift behavior in a political context. As elements of decisional theory are tested at the experimental level, the examination of natural groups becomes more applicable, although an intermediate step should be the study of actual policy decision-making groups under laboratory conditions (Kirkpatrick et al., 1976a).

The purpose of this discussion is not to claim that experimental design is a panacea for all political research;

often experimentation is not feasible for building theory. But in order to increase our knowledge of the process of decision making in groups, the approach does offer unique advantages. No claims are made about immediate practical utility to political decision-making groups; the amount of search by college freshmen on a policy item may not resemble that of a specialized Congressional sub-committee. Nevertheless, the process of interaction, leadership selection, search, and final choice shift should give strong clues as to corresponding processes in national settings. By building the theory/data linkage using experimental groups, the potential for escaping traditional anecdotal explanations of the collective decisional process may be realized.

#### Research Design

In order to refine the framework specified in Chapter II, and to test the relationships specified by it, a laboratory investigation was conducted to examine small group decision making on political/policy items.

#### Method: Subjects and Procedure

Two hundred and fifty-three undergraduates enrolled in introductory American government courses at the University of Oklahoma participated in the initial session of the experiment. Of this group, one hundred and fifty-five attended one assigned evening session over the ensuing three-week period. Students gave initial choices as to their desired

time, and from this framework, students were randomly assigned to session times, as well as to control or treatment groups. A total of twenty groups underwent experimental treatment--sixteen five-person groups, two four-person groups, and two three-person groups. A total of sixty-one students were assigned control status over the three-week period.

Before attending the evening sessions, all subjects completed two questionnaires in their classes. The first was a series of questions and scales of measurement of personality and sociological characteristics of the students (see Appendix A). The second questionnaire was a set of five policy items. Each item has two alternatives; subjects were asked to pick which alternative they would recommend based on a Likert scale of strongly favor alternative A to strongly favor alternative B. In addition, subjects were asked to check their recommendation of what other students would likely recommend. All five decisional items had an introductory statement of the problem and two pieces of "background information" for each alternative (see Appendix B).

Once subjects arrived at their evening session, they entered a room assigned to either the control group or the experimental session. The control group was given the original five-item policy schedule again and instructed to fill out the questionnaire after being informed that the first

questionnaire was designed only to familiarize subjects with the decisional problems.

The experimental group was led into a room equipped for video taping. Subjects were allowed to see the equipment and become familiar with the setting before the session began. All of the groups quickly overcame any perceivable nervousness about the equipment once the experiment began. Subjects were given questionnaires using the five policy items and asked to reach a group decision on each. Two separate treatments were experimentally manipulated based on decision rule and information level (see Appendix C). The specific treatment conditions were randomly assigned to all twenty groups. After reaching group decisions on all five items, subjects were asked individually to complete a final posttest questionnaire on the group experience, leaders in the group, and adequacy of the information. The subjects were then thanked and released.

#### Experimental Treatments

The study's design is a 2x2 factorial design (Myers, 1966) with several additional covariates. Although many different combinations of explanatory variables could have been experimentally manipulated, two particularly salient variables were isolated: decision rule and information level. Half of the groups were required to reach a majority decision, while the other condition required all members to come to a consensus decision on each policy item recommendation.

The second treatment was the level of information provided to the group. Ten groups were given the same two pieces of information as they had in the pretest (low information), and ten groups were given five additional information elements for each alternative (high information). Thus, a 2x2 design resulted, as noted in Figure 2. Using 20 groups, there were five groups in each treatment cell; once again, all groups were randomly assigned to one of the four conditions.

FIGURE 2  
EXPERIMENTAL TREATMENT CONDITIONS

		<u>Decision Rule</u>	
		Majority	Consensus
<u>Information Level</u>	High		
	Low		

In addition, several covariates were included in the analysis of search and choice shift behavior. These covariates, although not experimentally manipulated, may provide evidence to further explain the decisional process. It should be noted that experimental treatments must be limited in any single analysis because of the practical limits on the necessary cells. For example, if the design included another experimental treatment variable with two cells, the design would then be a 2x2x2 design. In order to place five groups per cell in the design, there would

have to be forty groups. As suggested elsewhere (Kirkpatrick et al., 1976a), by first establishing some effects based on covariate variation, additional research can then experimentally manipulate the desired variables.

Dependent Variables--Search Process

As described in Chapter II, there are several methods for describing the search process, yet the principal division relies on volume and type of information search. Further, the amount of alternative search, or the search for different solutions, can be determined. Within the context of this experiment, however, the emphasis remains on information search for given alternatives, and not for discovering new alternatives. Each of the measures describing informational search behavior is based on scoring the actual verbal interactions of the group sessions. The schemes for scoring are grounded in earlier methods described by Brown (1965) and Madron (1969), although the applied schema in this study is more elaborate.

Specifically, the interaction coding scheme required the coding of three specific interactions: the coding of each conversational segment as to who spoke to whom; the Bales' interaction process categories (1950); and the information coding scheme (see Appendix D).<sup>1</sup> The Bales' system

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<sup>1</sup>Three coders had primary assignments for each one of the category schemes as well as additionally coding one of the other schemes as a reliability check. After several



will be described later as one of the explanatory variables.

The informational coding scheme is the most complex measure of verbal interaction. The elements coded are (1) whether the verbal statement had any specific information about the problem; (2) if it was an information statement, then which alternative did the statement favor (or was it neutral; and (3) which piece(s) of "given" information did the statement note (or was it "unique" information).

Given these categories, the specific dependent variables for search behavior are defined below. The important distinction rests on the volume and type of information used in the group discussion. Each of the variables emphasize the three elements described above; all are the keys to explaining search behavior. First, how much information is provided by the group discussion? Specifically, does discussion center primarily on resolving the differences between individual predispositions, or is there actual search whereby group members discuss information that may reduce uncertainty and lead to a group decision? The first variable examines the general level of information search both by examining the sheer volume of information statements as well as the percentage of information statements against statements not directly linked to specific information about the alternatives. The latter can be as simple as a positive response

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trial runs, the reliability scores generally were above .80 for all items (see Madron, 1969).

to someone else's statement, or as complex as a question as to what other members' positions are on the issue.

### Search Process Variables

---Information provided by others by the subject  
(volume and type)

---Information favoring side A, B or neutral  
(volume and type)

---Available versus unique information discussed  
by the subject (volume and type)

The second and third sets of measures of search are more type-specific. When information is discussed, does it tend to reflect only one side of the problem, or do both sides receive equal discussion? Search processes which examine only a single alternative differ from those which note the other alternative as well. Third, how much information does the group generate? This third variable examines two separate aspects of search--the amount of available information discussed by the group and the amount of unique information analyzed. The former only requires a group to process the available information; unique information is first generated by a decision maker and then processed by the group.

All three of these variables will be examined both from the amount of information relevant to the category in the discussions (volume), and the specific dependence on one category against another category (type). The latter will be examined as the percent usage of unique information.

Thus, the more the subject depends on information that is unique, or external to the available information, the higher the subject's reliance on unique information. The alternative sides of the information and whether the verbal statement has alternatives information present will also be analyzed by the percent use within each category. Subjects who use information that favors a single alternative depends more on one-sided information. Other search behavior measures suggested in Chapter II cannot be addressed at this time, yet further analyses should consider such categorizations, especially those that examine alternative generation. Finally, search is measured primarily at the individual level and thus the measures reflect that emphasis. It should be remembered, however, that the final explanations of search are based on aggregating such measures across groups and treatment conditions. The result is the examination of individual search in a group environment. Nevertheless, search measures exist that analyze the collective entity. For example, city councils often instruct their staffs to gather information on a problem pertinent to council needs; such external requests have been treated in other research studies with limited results at the experimental level (Davis, 1974).

#### Choice Shift Measurement

Unlike search procedures, the measurement of choice shift is easily defined. First, all subjects are pretested

on the five policy items. Experimental treatments are then conducted using those five items under conditions defined in the treatment sections. Furthermore, control groups are given the same five items individually again. For experimental groups, the measurement of the five items is taken from the group decision and the dissents in the majority decision rule condition. The shift that is measured is that from pretest to group decision; no posttest is conducted. The emphasis is on the group because it is the decisions of small groups, not the individual's attitudes following those decisions, that should be of prime interest to decision-making scholars of small groups.

Nevertheless, there are essentially five dependent choice shift variables, one for each policy item. No summative measure is derived as in the risky shift; instead, the five separate measures enable the researcher to compare the shift across several policy areas and do not assume some underlying continuum, although the general concept of extremization will be discussed as a corollary to choice-shift measurement.

### Explanatory Variables and Hypotheses

The following discussion outlines the basic hypotheses to be examined in this investigation. Each of the basic hypotheses to be examined in this investigation follows the framework as outlined in Chapter II through environmental, individual, and group constraints as explanatory variables

for the amount and type of search; to the explanations of final group choice and the shifts from individual predispositions. Discussion of additional hypotheses relevant to the entire framework are addressed elsewhere (Kirkpatrick et al., 1975; Kirkpatrick et al., 1976a).

#### Search Process Hypotheses

Information constraint. Heavily discussed in the literature, the information constraint on search has been the prime treatment of both rational choice and cognitive process approaches to decision making. Because of its relative importance for explanations of search, two levels of information are analyzed as an experimental treatment in this investigation. Low information groups are given two pieces of background information for each of the two alternatives (four information items), while high information groups are given five separate information elements for both alternatives (ten information items), resulting in six additional elements of information for high information groups to utilize in making decisions.

How should this affect search? The rational and cognitive models both assert that information is sought to reduce uncertainty. The former hypothesizes that the more the information, the greater the search, and thus uncertainty is reduced. Cognitive approaches theorize that too much information can overload decision makers, and thus increase uncertainty (March and Simon, 1958). To the extent that

the treatment condition is sufficiently differentiated to activate such variation, the first set of hypotheses are constructed.

- H1-S: High information groups will engage in greater information search (volume) than low information groups.
- H2-S: High information groups will proportionately discuss more alternatives information (type) than low information groups.
- H3-S: High information groups will discuss more equally the information about each alternative than will low information groups (type).
- H4-S: Low information groups will be more dependent on unique information while high information groups will rely more heavily on available (or supplied) information (type).

The above hypotheses, if confirmed, emphasize that greater information availability encourages greater search. At what point does information overload occur? It is the hypothesis of this study that too much information can result in overload in three ways. The most obvious would be the reverse of H1-S and H2-S; that is, if low information groups discuss more alternatives information than high information groups, overload may be indicated. Alternatively, overload may not be evident in the amount of information processed, but in the results. One measure is satisfaction with the information provided, defined by individual posttest attitudes toward satisfaction with the available information.

- H5-S: Low information groups will be more satisfied with the available information than will high information groups.

The final overload categorization is in the final decision of the group; this will be returned to in the choice shift hypothesis section.

Organizational constraints. Specifically treated in this investigation is the final decision rule of the group defined by imposed majority or consensus decisional requirements. The hypotheses center on the needs of consensus groups to resolve their differences and come to a final decision, whereas majority groups require only three of five members to agree to a particular choice. Earlier decisional literature in social psychology found no significant differences in the final choices of groups (Dion et al., 1970), but what of the search for information?

H6-S: Groups required to gain a consensus decision will engage in greater informational search (volume) than will majority decision rule groups.

Overall, consensus groups, in an attempt to resolve group differences, will discuss more alternatives information than will majority groups. Emphasis is on sheer volume of search, not on percent use; that is, the amount of positive feedback, questions about other group members' positions, and other non-alternatives information will be proportionately similar under both decision rules.

H7-S: No significant differences should be present between decision rules in the proportion of alternatives information to the total group discussion.

Hypothesis 7-S posits a null relationship because consensus groups, although engaged in greater search, must also

increase interpersonal negotiations, bargaining, and compromise independent of specific information categorizations (Dyson et al., 1972). Thus, consensus groups should discuss more information regardless of categorization.

The remaining measures of search behavior have not previously been examined as to their effects on decision rule; literature to aid in hypothesis-testing is scarce.

H8-S: Consensus groups will engage in more equitable search among the competing alternatives than will majority groups.

Since consensus groups must resolve their differences, information on the alternatives is more likely to be equally weighted in group discussion under unanimous decision rules. Further, dissenters in majority groups may recognize their lack of influence on any particular item, and remove themselves from the discussion; in a consensus group their views must be acknowledged before a decision can be made.

H9-S: Consensus groups will be more dependent on unique information generated by group members than will majority groups.

The above hypothesis suggests the need for consensus groups to have information relevant to resolving the differences within the group. As noted previously, consensus groups will engage in greater information search, but H9-S posits that consensus groups will search more widely for information to resolve the problem than will majority groups.

Finally, given the relatively high search by consensus groups, satisfaction with available information should be reduced; thus, the following hypothesis is suggested.



H10-S: Majority decisional groups will be more satisfied with the available information than will consensus decisional groups.

The remaining sets of explanatory variables will all be measured as covariates to search, yet the basic bivariate relationships are briefly outlined (for elaboration, see Plutchik, 1968; Meyers, 1966).

Situational constraints. Given the experimental focus of this study, no attempts are made to measure situational constraints such as crisis management or level of controversy since simulations of such events remain questionable (for an alternative explanation, see Anderson, 1976). To the extent that the five items represent situational constraints, however, the analysis of their differences on search may give some suggestions for future research. For example, is the search strategy employed in a foreign policy situation (Item 2) different from search behavior in a more familiar university-based situation (Item 5)?

Individual constraints-motives. Two personality variables measured by the pretest are applicable to decisional analysis. First, the Machiavellian scale posits that "high Machs" are individuals who enjoy dominating others and controlling group discussion (Christie and Geis, 1970). Thus, the following hypotheses are relevant to individual search processes (see Appendix A for the scale used in this study).

H11-S: High Machiavellianism is positively associated with the number of statements in group

discussion, but inversely related to the proportion of statements centering on alternatives information.

- H12-S: High Machiavellianism is positively associated with discussion of single alternatives, but negatively related to the proportion of unique information used in group discussion.

A second personality scale useful in a group decisional environment is the locus-of-control scale which suggests that certain personality types feel they have control of their own lives (internals), while others (externals) are more inclined to believe that outside forces, such as luck, define the individual's current and future success in life. Researchers hypothesize that the internal personality type is more willing to examine uncertainty and to resolve its dilemmas (Lefcourt, 1976). Thus, the internal-external personality continuum should show marked differences in individual search behavior (see Appendix A for the scale used in this investigation).

- H13-S: Internals examine more alternatives information (volume and percentage) than do external personalities.
- H14-S: Internals depend less on information based on single alternatives than externals.
- H15-S: Internals will rely more heavily on unique information than will externals.

Individual constraints-cognitive. Other studies have sufficiently dealt with the constraints imposed by cognitive variables. The most prolific literature is in the area of cognitive complexity where the general hypothesis notes that increased complexity increases information-processing (for

review, see Schroder et al., 1967; Davis, 1974; Park and Sheth, 1976). This investigation examines one aspect of the complex phenomenon of information integration--the strength of attitudes. One of the concepts examined by integration theory suggests that a wealth of information is required to shift choices away from the predispositions of the group members (Anderson, 1977). Thus, one of the aspects of search behavior appears relevant.

H16-S: Pretest extremization is positively related to the dependence on a single alternative for information.

Thus, the more extreme the pretest means, the greater the search concentrates on the preferred alternative, and the less the impact of dissenting or opposing information.

Group constraints--cohesion and conformity. As described in Chapter II, cohesive groups have definite "groupthink" effects on informational search; dissenting information is not encouraged and often not even mentioned in a high conformity group condition. Although the experimental groups in this investigation cannot adequately reflect conformity tendencies that may occur in natural group settings, some effects should appear based on posttest cohesion scores. In this analysis, cohesion is primarily a measure of individual satisfaction with group members and decisions (see Appendix E).

H17-S: Cohesiveness in groups is negatively related to group alternatives search (volume and percentages).

H18-S: High cohesive groups rely more on single alternatives than do low cohesive groups.

H19-S: Cohesiveness is positively related to the proportional use of unique information.

The latter hypothesis stresses the positive aspect of group cohesion--the ability to search outside the available information categories.

Group constraints--leadership. Although leadership has been defined by many different measures (Stogdill, 1974), one operationalization is applied here--Bales leadership scores (Bales, 1950). The Bales' scheme posits that task leaders (individuals who provide answers in group discussion) have greater influence on search than non-task leaders, primarily because they engage in greater alternatives search.

H20-S: Leadership scores are positively related to individual alternatives search (volume).

#### Choice Shift Hypotheses

The above search behavior processes will be examined in Chapter IV; the choice shift hypotheses are examined in Chapter V. The general hypothesis posits that if groups are allowed to discuss the items, results will significantly differ from initial predispositions. As noted previously, since no underlying continuum between items is assumed, each problem will be examined separately.

Further, an additional underlying effect is noted in the choice shift literature--group extremization. The concept relates to movement by the group away from neutrality toward greater extremes (Myers and Lamm, 1976).

Informational constraints. Using the informational treatment condition, the level of shift is hypothesized to be conditioned by information overload. As noted earlier, too much information can result in greater confusion and heightened uncertainty for the groups. Thus, groups under the high information condition should reflect this lessened confidence by minimizing shift, or by shifting to a more neutral decision than low information groups.

H1-CS: Low information groups will engage in greater shifts after group discussion than high information groups.

H2-CS: High information groups' final decisions will be more neutral than low information group decisions.

If the obverse condition occurs--greater shifts and greater extremization in the high information condition--the rational model implication that information resolves uncertainty will gain credence, at least to the extent that the measurement levels of the information treatment actually operationalize this difference.

Organizational constraints. The effects of group decisional rule are operationalized under the treatment condition that requires half of the groups to reach a consensus or unanimous decision, while the other half of the groups are required to reach a majority decision.

H3-CS: Groups required to reach only a majority decision will engage in greater shifts than consensus decisional groups.

H4-CS: Majority decisional groups will shift to greater extremes away from neutrality than will consensus rule groups.

The underlying hypothesis suggests that consensus groups are more constrained by the needs of compromise and bargaining in resolving group differences, whereas majority groups require only three of five members to come to a final decision.

Individual constraints--motives. No specific models have been constructed by choice shift theorists that examine the effects of personality variables on decisional shifts. It is suggested that given the tendency toward extremization by Machiavellian personalities, e.g., ideology, political attitudes, high Machs are more likely to have extreme initial predispositions on the various policy items. As noted in Chapter II, high Machs should be more able to move the group's decision to their position.

H5-CS: Machiavellianism is positively related with pretest extremization, and negatively related to individual-group differences.

Group constraints--interactive model. Similar to the discussion of Machiavellian personality, the interactive model emphasizes group leadership, specifically leadership-confidence theory (Pruitt, 1971). The principal element of this hypothesis suggests that group leaders are more extreme. Using both sociometric and Bales' methods for measuring leadership, the following correlational hypothesis is posited.

H6-CS: Leadership scores are positively correlated with pretest extremization, and negatively related to individual-group differences.

Group constraints diffusion-of-responsibility model.

Essentially, responsibility-diffusion is a test of the effects of group cohesion on the final choice shift.

H7-CS: Group cohesion is positively related to the level of choice shift in the group decision.

H8-CS: Group cohesion is positively related to the final extremization of the group decision.

Group constraints--familiarization model. This choice shift model posits that decisional shifts occur simply by decision makers familiarizing themselves with the problem and the available information, and not because of a group effect. The control group serves as a test of this hypothesis by examining the five items again without group discussion.

H9-CS: There will be no significant differences between the choice shifts of experimental and control groups.

Group constraints--value and polarization models.

The strongest support for the choice shift rests in the value model (Myers and Lamm, 1976) which emphasizes that subjects view their initial predispositions as more congruent with their ultimate values than do others. When evidence suggests to the decision maker that others may be as congruent --or more congruent--with those values, group shift will occur in the desired direction. This is operationalized by asking subjects to assign what other students (specifically, "200 other students like you") might pick on each of the decisional items (see Appendix B).

H10-CS: Subjects will see themselves as significantly different from perceived others on the policy items, and the final group decisional shift will move in the valued direction.

The polarization hypothesis emphasizes a more general shift that may be more applicable to political choice items. Polarization assumes nothing about other subjects, but only that shifts conform to the direction suggested by the mean initial response (Myers and Lamm, 1976; Kirkpatrick and Robertson, 1976).

H11-CS: Group shifts will occur away from neutrality, and in the same direction as the mean of the group pretest responses.

#### Search and Choice Shift Linkage Hypotheses

Given the apparent disparate nature of the two decisional processes of search and choice shift, and the current lack of theory, no hypotheses have been examined in the decision literature that link the two concepts (Kirkpatrick et al., 1976b). Thus the primary emphasis of this section must be on those linkages.

Does greater informational search imply increased group shifts? Rational choice modellers would agree with a positive relationship; cognitive theorists, especially those in the "Carnegie school" (Simon, 1957; March and Simon, 1958; Cyert and March, 1963), would theorize that information overload may force the decisional solution to be tempered, or in this study, to be less extreme on the policy items. The separate hypotheses for information search and choice shift



by informational treatment levels suggest alternative hypotheses based on opposite movements in the process.

H1-S,CS: Group information level is positively associated with search for information (volume), but negatively correlated with shift.

H2-S,CS: Group information level is positively associated with search for information (volume), but negatively correlated with group decisional extremization.

If confirmed, credence to the effects of information overload are obviously implied; if heightened availability of information results in greater search and increased shift, the rational element of decision processes gain credence.

The other treatment in this experiment emphasizes the effect of decision rule on search and choice shift.

The linkage hypotheses are noted below.

H3-S,CS: Consensus groups will engage in greater informational search, but reduced levels of shift compared to majority decision groups.

H4-S,CS: Consensus groups will engage in greater informational search, but shifts will be toward neutrality while majority groups will search less for information, yet shift away from neutrality toward the extremes.

Thus, majority decisional groups have less need to search for information in order to shift toward greater extremes, while consensus groups require increased amounts of information in order to reach a decisional compromise.

Finally, if the above hypotheses are confirmed, the general relationship of informational search and final choice shifts will emphasize an inverse relationship.

H5-S,CS: Informational search (volume) is negatively correlated with the magnitude of the group shift.

H6-S,CS: Informational search (volume) is negatively correlated with the magnitude of the choice shift and group extremization.

Thus, groups are not hypothesized to operate in a manner that confirms rationalistic assumptions about uncertainty reduction. Greater informational search is posited to imply increasing levels of uncertainty, and thus reduced levels of group extremization. The next three chapters will provide tests of these relationships.

## CHAPTER IV

### ANALYSIS OF THE SEARCH PROCESS

This chapter's prime emphasis is on the explanation of variance in the amount and type of informational search in experimental small groups. Explanation is derived from independent variables that constrain the search for information in a group context. Search is measured through group interaction; that is, information processed is verbalized at some point in the group discussion. The verbalization affords an opportunity to measure such processes, and hence the volume and type of search. This communication requirement might appear restrictive for individual decision making, but in a collective environment, communication of individual opinions, positions, and information is crucial for resolution of a decisional problem.

The analysis will examine the two experimental treatments and their effects on the volume and type of informational search based on the hypothesized relationships described in Chapter III. The first treatment, information level, posits that greater information availability increases information search, especially search for alternatives

information. Thus, groups in the high information treatment are expected to engage in greater search based on alternatives than low information groups. The decision rule required for a group solution is the second treatment in this experiment. The basic decision rule hypothesis suggests that subjects in a group required to reach a consensus decision rather than a majority decision will engage in greater informational search. Thus, subjects in a consensus decision rule and high information group will engage in a greater search for information while search by members of majority decision/low information treatment groups will examine less information.

After establishing the relationships based on the treatments, the analysis of search behavior will turn to the inclusion of the covariates utilized in this investigation. Each major aspect of the constraints on informational search will be reviewed both in the covariate's bivariate effect on search as well as the covariate's contribution to the multivariate explained variance filtered through the treatment variables.

#### Search Process--Experimental Treatments

##### Information Constraint

No theory of search should be hypothesized until the relationship of informational level to the overall search process is established. Using an experimental treatment that

provides subjects with either "high" information (five pieces of information for each alternative) or "low" information (two pieces of information for each alternative), the volume and type of informational search is examined.

The effect of available information on the search for information underlies a more basic theoretical problem discussed in earlier chapters--does search increase when more alternatives information is available, or does Simon's concept of information overload become operational at this point? Thus, the central hypothesis questions whether information enhances the group's discussion and search for information relevant to the problem.

Table 4.1 illustrates the general hypothesis concerning the amount of alternatives information (i.e., the volume of information dealing with the specific problem involved in the item) discussed by the group members by the two information levels. The means ( $\bar{X}$ 's) of the two levels indicate that decision makers in the high information treatment category examine a greater volume of alternatives-based information (volume) than do members of low information groups. The analysis-of-variance table further notes that the differences between treatment means are statistically significant.<sup>1</sup> Thus, H1-S is confirmed at the bivariate level; the mean of alternatives information search for members of high

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<sup>1</sup>Although expressed in analysis of variance terminology, the F test in a two-category situation actually is the same as the square of difference-of-means (t) test (Blalock, 1972: 328-329).

TABLE 4.1  
 ANALYSIS OF VARIANCE OF THE VOLUME OF  
 ALTERNATIVES INFORMATION SEARCH  
 BY INFORMATION LEVEL

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		<u>Volume of Alternatives Information</u>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	7.94	7.24
	High	46	16.94	14.75
	Total	94	12.34	12.34

F(1,92) = 14.276      (p<.001)

---

information groups is 16.94, while the mean of low information group members is only 7.94. Since members were randomly assigned to these two conditions, the indication is that an individual assigned to a high information condition will discuss approximately nine more pieces of information across the five items than if assigned to a low information condition.

Table 4.2 examines the relationship of volume of alternatives information by information level on each individual item. The evidence indicates that as the discussion moves across the items the differences in the alternatives-based information search increases. Thus, as groups establish themselves over time, high information groups increase their alternatives information search while the low information groups do not. (Note, however, that the items were not randomized, thus conclusions remain speculative.) All of the differences within the items are in the hypothesized direction--high information group members discuss more alternatives information than do low information group members, although only three of five items show statistically significant differences.

The effect of alternatives information on the volume of search is also noted in Table 4.3. This element outlines the total amount of alternatives information that is unique--that is, the volume of information discussed that cannot be derived from the available information. Thus, generation of information, and not just processing of available information,

TABLE 4.2  
ANALYSIS OF VARIANCE OF VOLUME OF  
ALTERNATIVES INFORMATION SEARCH  
BY INFORMATION LEVEL AND ITEM

		Volume of Alternatives Information										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	1.88	2.11	2.00	1.64	1.54	1.62	1.40	1.91	1.11	2.07
	High	46	2.30	3.00	3.20	3.83	3.17	3.80	2.85	3.05	5.41	6.13
	Total	94	2.08	2.58	2.57	2.98	2.34	3.00	2.11	2.62	3.22	5.00
		F(1,92)=0.65			F(1,92)=3.90		F(1,92)=7.43		F(1,92)=7.73		F(1,92)=20.98	
		NS <sup>a</sup>			NS		p<.01		p<.01		p<.001	

<sup>a</sup>For all tables, an NS value indicates p>.05.



TABLE 4.3  
 ANALYSIS OF VARIANCE OF THE VOLUME  
 OF TOTAL UNIQUE INFORMATION  
 BY INFORMATION LEVEL

		<u>Volume of Unique Information</u>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	4.54	6.14
	High	46	9.24	9.80
	Total	94	6.84	8.43
		F(1,92) = 7.827 (p<.01)		

is examined in this category. Table 4.3 indicates that high information group members bring to bear significantly more unique information than do members of low information groups. Thus, group members with a large quantity of information available to them do not become complacent and fail to generate more information to solve the problem; in fact, increased availability of information encourages decision makers to generate information external to that provided.

Thus, the central premise that increased availability of information encourages alternatives-based search is confirmed for the volume of information. Yet, what effects occur for the types of information? Specifically, to what extent does the proportion of search differ when emphasizing alternatives information, differences between the alternatives, and the dependence on available versus unique information? Table 4.4 indicates that there is no statistically significant differences in the proportion of member's discussions based on alternatives information. Thus, although more alternatives information is discussed by high information members (Table 4.1), the amount of time given over to discussion to the member's vote decisions, positive and negative reactions to other members' statements, and other non-alternative information is virtually equal in the two information conditions; both treatment types indicate that group members discuss alternatives information in approximately thirty percent of their total discussion. Thus, hypothesis H2-S is rejected.

TABLE 4.4  
 ANALYSIS OF VARIANCE OF THE PROPORTION OF  
 TOTAL ALTERNATIVES INFORMATION  
 BY INFORMATION LEVEL

		<u>Percent Total Alternatives Information</u>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	31.92	15.54
	High	46	34.39	12.31
	Total	94	33.13	14.03
		F(1,92) = 0.726    NS		

Table 4.5 and 4.6 indicate similar bivariate relationships between information types and the proportion of differences between alternatives and the proportion of unique information discussed, respectively. The dependent variable in Table 4.5 is the percentage of alternatives information discussed for one alternative against the other in absolute terms. This variable examines hypothesis H3-S as to whether high information group members will more equally discuss the two alternatives before them. The evidence in Table 4.5 does not confirm this hypothesis across the five items. In fact, on Item 5, where the only statistically significant relationship exists, subjects in the low information category are more equal in their discussion of the two alternatives than are high information subjects. That is, members of low information groups depend less on single alternatives than members of high information groups.

Table 4.6 examines the effects of information level on the proportion of unique information discussed. Table 4.3 has already indicated that high information group subjects search for greater external alternatives information (volume); yet, given greater availability of information will they depend proportionately more on available information? The evidence in Table 4.6 for hypothesis H4-S does not indicate such a relationship. In fact, even though the relationship is not statistically significant, the mean differences indicate that subjects in high information

TABLE 4.5  
ANALYSIS OF VARIANCE OF DEPENDENCE ON ALTERNATIVES  
BY INFORMATION LEVEL AND ITEM

		Percent Alternatives Information										
		Item 1		Item 2		Item 3		Item 4		Item 5		
		Environment		Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding		
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	41.32	30.02	28.50	29.41	39.10	30.70	32.89	31.85	23.84	29.63
	High	46	38.90	34.08	40.29	28.54	41.87	33.03	43.82	33.09	51.96	36.63
	Total	94	40.14	31.92	34.27	29.43	40.46	31.72	38.24	32.75	37.60	35.95
			F(1,92)=0.13		F(1,92)=3.89		F(1,92)=0.18		F(1,92)=2.67		F(1,92)=16.81	
			NS		NS		NS		NS		p<.001	

TABLE 4.6  
 ANALYSIS OF VARIANCE OF THE PROPORTION  
 OF TOTAL UNIQUE INFORMATION  
 BY INFORMATION LEVEL

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		<u>Percent Total Unique Information</u>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	18.00	16.50
	High	46	24.05	15.76
	Total	94	20.96	16.34
		F(1,92) = 3.295	NS	

---

conditions depend slightly more on unique information than subjects in the low information treatment.

Organizational Constraints-  
Decision Rule

The other treatment operationalized in this experiment is the rule utilized in reaching a final group decision. The general hypothesis posits that consensus groups, because of the greater demands on resolving group differences, will discuss more alternatives information than will majority groups. In Table 4.7, the evidence denotes that the hypothesized relationship is statistically significant. Members of consensus groups examine approximately ten more pieces of alternatives information than do members of majority groups. Further, as illustrated in Table 4.8, all of the separate policy items result in significant differences as hypothesized. Thus, the volume of alternatives information search is confirmed as stated in hypothesis H6-S.

Additional evidence for the volume of alternatives information search is explored in Table 4.9. The evidence discloses a marked difference in the amount of information generated by the subjects themselves. Decision makers in the consensual treatment engage in significantly higher amounts of unique information search than do their counterparts in the majority condition. Thus, the results from Tables 4.7, 4.8, and 4.9 indicate that the volume of alternatives-based information search is as hypothesized

TABLE 4.7  
 ANALYSIS OF VARIANCE OF THE VOLUME  
 OF ALTERNATIVES INFORMATION SEARCH  
 BY DECISION RULE

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		<u>Volume of Alternatives Information</u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	7.75	6.73
	Consensus	46	17.13	14.88
	Total	94	12.34	12.34

F(1,92) = 15.730      p<.001

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TABLE 4.8  
ANALYSIS OF VARIANCE OF VOLUME OF  
ALTERNATIVES INFORMATION SEARCH  
BY DECISION RULE AND ITEM

		Volume of Alternatives Information										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	1.21	1.58	1.90	1.69	1.46	1.69	1.31	2.39	1.88	3.49
	Consensus	46	3.00	3.08	3.30	3.78	3.26	3.73	2.94	2.62	4.63	5.92
	Total	94	2.07	2.58	2.57	2.98	2.34	3.00	2.11	2.62	3.22	5.00
		F(1,92)=12.76			F(1,92)=5.51		F(1,92)=9.93		F(1,92)=9.86		F(1,92)=7.64	
		p<.001			p<.05		p<.01		p<.01		p<.01	

TABLE 4.9  
 ANALYSIS OF VARIANCE OF THE VOLUME  
 OF TOTAL UNIQUE INFORMATION  
 BY DECISION RULE

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		<u>Volume of Unique Information</u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	4.25	5.70
	Consensus	46	9.54	9.90
	Total	94	6.84	8.43
		F(1,92) = 10.173    p<.01		

---

in H6-S, consensus group members discuss more alternatives information than do majority group members.

Given the greater volume of search by consensus groups, will majority/consensus differences also be evident in the proportion of information types discussed? As described in Chapter III, the hypotheses are diverse. H7-S posits that no significant differences should occur between members of the two decision rule conditions on the proportion of alternatives information utilized in group discussion. Consensus groups, as confirmed in Tables 4.7, 4.8, and 4.9, do search for more alternatives information; yet, because of the needs for compromise, bargaining, negotiation, and other non-alternatives information, discussion should be also greater for consensus groups in this category. Table 4.10 denotes that the hypothesized null relationship is incorrect. Consensus groups utilize proportionately more alternatives information than do majority groups. The member of a consensus decision group not only discusses more alternatives information, but he/she depends more on such information in participating in the group discussion.

Table 4.11 examines the discussion of the two alternatives in terms of how equitable subjects discuss each alternative. Hypothesis H8-S posits that consensus group members will discuss the competing alternatives more equitably than will majority group members. The evidence does not support this conclusion; in fact, the findings indicate that members

TABLE 4.10  
 ANALYSIS OF VARIANCE OF THE PROPORTION OF  
 TOTAL ALTERNATIVES INFORMATION  
 BY DECISION RULE

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		<u>Percent of Alternatives Information</u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	30.26	13.54
	Consensus	46	36.12	14.05
	Total	94	33.13	14.03

F(1,92) = 4.233      p<.05

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TABLE 4.11  
ANALYSIS OF VARIANCE OF DEPENDENCE ON ALTERNATIVES  
BY DECISION AND ITEM

		Percent Alternatives Information										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Decision Rule</u>	Majority	48	33.30	31.67	40.26	27.78	36.08	30.93	30.12	31.18	31.48	34.30
	Consensus	46	47.27	30.93	28.01	30.10	45.03	32.23	46.71	32.52	44.00	36.89
	Total	94	40.14	31.92	34.25	29.43	40.46	31.72	38.24	32.75	37.60	35.95
					$F(1,92)=4.68$	$F(1,92)=4.21$	$F(1,92)=1.89$	$F(1,92)=6.37$	$F(1,92)=2.91$			
				$p < .05$	$p < .05$	NS	$p < .01$	NS				

of majority groups are less inclined to discuss a single alternative than are consensus treatment members. However, if subjects who discussed no alternatives information are excluded on each item, the differences between the two conditions are minimized, and the only statistically significant difference occurs on Item 2 (in the hypothesized direction). The shift in results occurs primarily because of the increased likelihood of subjects in the majority rule condition to communicate no alternatives information (see Table 4.12). Nevertheless, there is no clear evidence in support of H8-S.

As noted previously, consensus groups engage in the greatest unique information search, yet will they become more dependent on external information? Given the equal weighting of the available information, H9-S posits that members of consensus groups will proportionately generate more external or unique information in an effort to resolve group differences. Table 4.13 indicates that group discussion is more dependent on unique information in the consensus treatment condition.

The above discussion illustrates the bivariate relationship between decision rule and various search measures. The results denote the statistically significant relationship between decision rule and the volume of alternatives information search, as well as the effects of dependence on particular types of information search. Consensus group

TABLE 4.12

SUBJECTS COMMUNICATING NO ALTERNATIVES  
INFORMATION BY DECISION RULE

		<u>No Alternatives Information</u>											
		Item 1			Item 2		Item 3		Item 4		Item 5		
<u>Decision</u>		N	No Info <sup>a</sup>	%	No Info	%	No Info	%	No Info	%	No Info	%	
		Majority	48	20	41.6	9	18.8	17	35.4	21	43.8	21	43.8
<u>Rule</u>	Consensus	46	8	17.4	7	15.2	12	26.1	10	21.7	12	26.1	

<sup>a</sup>No information refers to the number of subjects who discussed no alternatives information on each item.

TABLE 4.13  
 ANALYSIS OF VARIANCE OF THE PROPORTION  
 OF TOTAL UNIQUE INFORMATION  
 BY DECISION RULE

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		<u>Percent Unique Information</u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	15.90	12.80
	Consensus	46	26.25	18.02
	Total	94	20.96	16.34
		F(1,92) = 10.382      p<.01		

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members are more vocal in their discussion of alternatives information and more reliant on such information than members of majority rule groups. Thus, the decision rule adopted by a small group alters the search processes on any particular problem.

Summary of Bivariate Relationships--  
Treatments on Search

As evidenced in the preceding discussion, both the level of information and decision rule affect the volume of information search, while the decision rule treatment also alters the dependence on both alternatives information and unique information search. Yet, is there an information overload factor occurring at the point? The research results indicate that high information groups search more than low information groups; no overload appears in the volume of search. Table 4.14 examines the satisfaction of group members with the available information on a posttest scale. The results note that the high information treatment subjects are more dissatisfied (the higher the mean the greater the dissatisfaction) with the available information. Thus, H5-S is confirmed; low information group members show greater satisfaction with the given information than high information treatment members. As a measure of information overload, such findings illustrate that greater information availability (an obviously rational desire) reduces satisfaction with the information. The final element of overload is examined in the choice shift chapter.

TABLE 4.14  
 ANALYSIS OF VARIANCE OF THE SATISFACTION  
 WITH AVAILABLE INFORMATION BY  
 INFORMATION LEVEL

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		<u>Information Satisfaction</u> <sup>a</sup>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	6.48	2.90
	High	46	8.39	2.98
	Total	94	7.42	3.07

F(1,92) = 9.965    p<.01

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<sup>a</sup>The higher the score, the greater the dissatisfaction.

Yet, if greater availability of information implies greater search, but less satisfaction, does not the greater need for information (consensus groups) also imply reduced satisfaction? Table 4.15 indicates that the relationship is in the hypothesized direction, but the means are not statistically different--H10-S is not confirmed.

Multivariate Analysis--Treatments  
on Search Behavior

Since the two treatments, information level and decision rule, are operationalized in a 2x2 factorial design, the next step requires their joint analysis on the volume and type of search. Specifically, two-way analysis of variance is utilized in order to examine the independent effects of each treatment on the dependent variable of interest (main effects), as well as the potential interaction of treatment levels on search behavior (Blalock, 1972: 334-347).<sup>2</sup>

Table 4.16 illustrates the effects of the two treatments on the total alternatives information across items. The F-ratios denote that the main effects of the two treatments explain the mean differences between the cell entries; no statistically significant interaction between the treatments is present. The means in the summary table clearly illustrate how prominent the differences are between the

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<sup>2</sup>The specific program utilized for two-way analysis of variance in this investigation is the OSIRIS III program MANOVA. For documentation, see Volume I, System and Program Description of the OSIRIS III manual.

TABLE 4.15  
 ANALYSIS OF VARIANCE OF THE SATISFACTION  
 WITH AVAILABLE INFORMATION BY  
 DECISION RULE

		<u>Information Satisfaction<sup>a</sup></u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Majority	48	6.85	2.90
	Consensus	46	8.00	3.18
	Total	94	7.42	3.07
		F(1,92) = 3.346      NS		

<sup>a</sup>The higher the score, the greater the dissatisfaction.

TABLE 4.16

ANALYSIS OF VARIANCE OF TOTAL ALTERNATIVES INFORMATION  
SEARCH BY INFORMATION LEVEL AND DECISION RULE

<u>Information Level</u>	<u>Decision Rule</u>		<u>Significance</u>	<u>d.f.</u>
	<u>Low</u>	<u>High</u>		
	<u>Majority</u>	<u>Consensus</u>		
	5.04 <sup>a</sup>	11.08	(N=48)	
	10.69	23.17	(N=46)	
	(N=48)	(N=46)		
<u>Main Effect</u>	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Information Level</u>	1820.56	16.34	p<.001	1,90
<u>Decision Rule</u>	2066.87	18.56	p<.001	1,90
<u>Interaction</u>	242.68	2.18	NS	1,90

<sup>a</sup>The figures in the summary table cells are the means ( $\bar{x}$ ) of alternatives information search volume by treatment condition.

extreme cells--majority decision/low information and consensus decision/high information. Thus, the bivariate hypotheses confirmed earlier remain valid in the multivariate case.

Further, the evidence for the differences in volume of search are indicated in the examination of the treatment effects on total unique information search in Table 4.17. Once again, the main effects confirmed at the bivariate level remain valid at the multivariate level with no significant interaction between the treatments affecting the hypothesized relationship. The summary table clearly illustrates this relationship since the differences are considerable between levels of treatment (low/high, majority/consensus), and the extreme cells (majority/low and consensus/high), but negligible between the interaction cells (consensus/low and majority/high).

The proportion of group discussion centering on alternatives information in the bivariate case was found to be statistically significant only for the decision rule, not the information level. This finding holds in the multivariate case in Table 4.18; further, no indication is present that the interaction of the two treatments enhances the differences in the dependence on alternatives information. Consensus groups spend more of their discussion time on alternatives information than do majority groups, regardless of the level of available information. Similarly, as noted in Table 4.19, the greater dependence by group members on unique

TABLE 4.17

ANALYSIS OF VARIANCE OF TOTAL UNIQUE INFORMATION  
SEARCH BY INFORMATION LEVEL AND DECISION RULE

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	2.20	7.09	(N=48)
	High	6.48	12.00	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>				
Information Level	494.48	8.16	p<.01	1,90
<u>Main Effect</u>				
Decision Rule	658.19	10.86	p<.01	1,90
<u>Interaction</u>	2.36	0.04	NS	1,90

TABLE 4.18

ANALYSIS OF VARIANCE OF THE PROPORTION OF ALTERNATIVES  
INFORMATION SEARCH BY INFORMATION  
LEVEL AND DECISION RULE

		<u>Decision Rule</u>			
		Majority	Consensus		
<u>Information Level</u>	Low	28.76	35.36	(N=48)	
	High	31.90 (N=48)	36.88 (N=46)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u> Information Level		129.60	0.672	NS	1,90
<u>Main Effect</u> Decision Rule		805.22	4.175	p < .05	1,90
<u>Interaction</u>		15.28	0.079	NS	1,90



TABLE 4.19

ANALYSIS OF VARIANCE OF THE PROPORTION OF UNIQUE  
INFORMATION SEARCH BY INFORMATION  
LEVEL AND DECISION RULE

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	13.46	22.93	(N=48)
	High	18.53	26.56	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>				
Information Level	798.73	3.343	NS	1,90
<u>Main Effect</u>				
Decision Rule	2518.22	10.541	p<.01	1,90
<u>Interaction</u>	14.33	0.060	NS	1,90

or externally generated information by group members is statistically significant for the decision rule treatment, but not for information level or the interaction of the two treatments.

In summary, the two treatment variables significantly alter the volume of search in experimental groups. The dependence on alternatives information, as well as unique information, is statistically significant for the decision rule treatment--not for the information level condition. Finally, the statistical interaction of the treatment variables provides no significant explanation of volume or the type of search engaged in by group members. The effects of the covariates remain to complete the explanation of search behavior, yet the strength of the relationship between the search variables by the treatment variables is established.

#### Search Process--Experimental Treatments and Covariates

##### Situational Constraints

No actual measures of the situational constraint are contained in this study. The only situational differences are between the items. As noted throughout the treatment effects, some differences do occur in search processes, especially in the volume of search. Reviewing Tables 4.2 and 4.8, where the volume of alternatives information search is examined by item, it is apparent that the level of information has the most significant effect on Item 5--the

university budget. For the decision rule treatment, no single item is more noticeable in altering the volume of search. Yet, the highest alternatives information discussion occurs on Item 5 (as illustrated in the  $\bar{X}$  total cell), and Item 2. The former concerned allocating money for athletics versus research, the latter emphasized a foreign policy issue. Given that the subjects are students, these two items might logically be the end-points of a typical subject's knowledge. Thus, the extremes where students have considerable familiarity (Item 5) and little familiarity (Item 2) seem to encourage the most discussion of alternatives information. However, such an hypothesis must be more rigorously tested.

#### Individual Constraints

Two principal personality variables are measured in this investigation in an attempt to find the kinds of individual constraints that affect information search. The first, a Machiavellian scale, suggests that the Machiavellian personality will enjoy controlling others and will dominate the group discussion. Hypotheses H11-S and H12-S suggest that the high "Mach" will discuss more information in the group. However, there is no evidence to indicate that Machiavellianism is related to either the volume or the type of information. Even simple correlation (Pearson's  $r$ ) indicates no link between the personality construct and the four major search variables--total alternatives information ( $r=0.047$ ), total unique information ( $r=0.037$ ), percent

alternatives information ( $r=0.976$ ), and percent unique information ( $r=0.024$ ). When examined in a multivariate context with the treatments included, the Machiavellian scale does not affect the F-levels of the treatment main effects, nor the interaction effect. Obviously, the F-level for the covariate is also not statistically significant.

It might be noted that Machiavellianism is negatively correlated with the satisfaction measure; that is, the stronger the Machiavellian personality, the lower the satisfaction with group discussion and decisions ( $r=0.373$ ) (higher scores on the satisfaction scale refer to greater dissatisfaction). Thus, there is no evidence that high "Machs" assert themselves in group discussion. However, this lack of discussion may be indicative of why the Machiavellian is more likely to regard the group in a negative manner.

The second personality scale in this investigation, the locus-of-control scale, posits that subjects who feel they have control of their own lives (internals) will examine more alternatives information (H13-S), depend less on single alternatives (H14-S), and rely more heavily on unique information (H15-S) than the personality type who believes that outside forces, such as luck, determine individual success. As in the Machiavellian scale's case, no significant effects result in the multivariate analysis of the major search hypotheses, nor in the simple correlations. Thus, the two

major personality constructs utilized in this study provide no clues as to the effects of individual motivation on the search process.

### Group Constraints

The first group constraint, group cohesiveness, remains an elusive construct in an experimental, single-meeting group session. The bonds of friendship and overall group linkages cannot be adequately established in a single meeting. However, based on a posttest scale, some preliminary measure of cohesiveness can be examined. One qualifying comment is necessary--cohesion is measured by the individual's satisfaction with the group and its decision. Thus, the measure of cohesiveness simply reflects the group member's satisfaction with the group and its decisions, not a comprehensive index of group cohesion. This is a crucial point, since the prime concern in this chapter is the measurement of search behavior. Although aggregated across treatments, search behavior is examined as an essentially individual phenomenon in a group context. Thus, H17-S, H18-S, and H19-S must be understood in this context. Specifically, the individual's attitude toward the group is linked only to the subject's volume of search for alternatives and unique information. As Table 4.20 and 4.21 illustrate, the stronger the individual's perceived satisfaction with the group, the lower the alternatives and unique search. The volume of alternatives information search, then, is confirmed for

TABLE 4.20

ANALYSIS OF VARIANCE OF TOTAL ALTERNATIVES  
INFORMATION SEARCH BY TREATMENTS AND  
GROUP SATISFACTION SCALE

<u>Information Level</u>	<u>Decision Rule</u>			
	Majority	Consensus	Majority Consensus	
	Low	High	Low	High
	1.87 <sup>a</sup>	1.82	4.92 <sup>b</sup>	11.09
	2.04	2.17	10.70	23.17
	(N=48)	(N=46)	(N=48)	(N=46)

	<u>Mean Squares</u>	<u>F-Level</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u> Information Level	1257.24	11.703	p<.001	1,89
<u>Main Effect</u> Decision Rule	1951.78	18.169	p<.001	1,89
<u>Interaction</u>	168.33	1.567	NS	1,89
<u>Covariate</u> Gr Satisfaction Scale	562.34	5.235	p<.05	1,89

<sup>a</sup>The summary table figures indicate the satisfaction scale scores ranging from 1 (high satisfaction) to 3 (low satisfaction).

<sup>b</sup>The summary table figures indicate the dependent variable search volume by treatment conditions.

TABLE 4.21

ANALYSIS OF VARIANCE OF THE TOTAL UNIQUE INFORMATION  
SEARCH BY TREATMENT AND GROUP SATISFACTION SCALE<sup>a</sup>

<u>Information Level</u>	<u>Decision Rule</u>			
	Majority	Consensus		
	Low	2.08		7.09
High	6.48	12.00	(N=46)	
		(N=48)	(N=46)	

	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u> Information Level	293.78	5.04	p<.05	1,89
<u>Main Effect</u> Decision Rule	614.95	10.55	p<.01	1,89
<u>Interaction</u>	0.15	0.00	NS	1,89
<u>Covariate</u> Gr Satisfaction Scale	318.88	5.47	p<.05	1,89

<sup>a</sup>The summary table for the group satisfaction scale by treatments is the same as that presented in Table 4.20. The summary table presented in this figure is that of the dependent variable--the total unique information.

H17-S--individuals search for more alternatives and unique information when dissatisfied with the group discussion and decisions. As indicated by Table 4.20, the significance of the treatment and main effects are not diminished by the satisfaction scale. The same statement holds true for the total unique information search in Table 4.21. However, neither the proportion of search based on single alternatives (H18-S), nor the proportion of use of unique information (H19-S), is altered by the individual's satisfaction with the group environment.

Finally, the covariate of leadership is examined. Measurement centers on the two prime Bales categorizations of leadership--task and social leadership--analyzed by the proportion of the subject's discussion on task matters (defined by questions and answers) and that of social concerns (defined by positive and negative reactions). Yet, a fundamental difficulty remains--since both the dependent variables and the Bales leadership scores are defined by the subject's interactions, to what extent are they measures of the same result? Because of this difficulty, the Bales categorization of leadership remains fairly inadequate for examining the volume of search. As Table 4.22 illustrates, Bales task leadership across the five items is strongly related to the total volume of alternatives information search, although both treatment conditions remain statistically significant in explaining the volume of search. The social leadership



TABLE 4.22

ANALYSIS OF VARIANCE OF TOTAL ALTERNATIVES  
INFORMATION SEARCH BY TREATMENT AND  
BALES TASK LEADERSHIP SCORES

		<u>Decision Rule</u>			
		Majority	Consensus	Majority Consensus	
<u>Information Level</u>	Low	49.48 <sup>a</sup>	57.46 (N=48)	5.04 <sup>b</sup>	11.09
	High	56.48 (N=48)	64.57 (N=46)	10.70	23.17
		<u>Mean Squares</u>	<u>F-Level</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u> Information Level		686.30	8.99	p<.01	1,89
<u>Main Effect</u> Decision Rule		685.39	8.97	p<.01	1,89
<u>Interaction</u>		238.91	3.13	NS	1,89
<u>Covariate</u> Bales Task		3228.05	42.27	p<.001	1,89

<sup>a</sup>The figures in the summary table denote the percentage of the subject's discussion emphasizing the task leadership function.

<sup>b</sup>The figures in the summary table denote dependent variable's means by treatment levels.

function, however, did not affect the subject's volume of alternatives information search.

### Conclusion

The findings in this chapter indicate that the volume and type of information search can be explained by two environmental variables--the level of available information and the rule for final group decisions. Both environmental variables are strongly related to the volume of alternatives and unique information search such that the highest amount of search occurs in the high information/consensus rule condition. The proportion, or type, of information search is primarily explained by the decision rule; seldom does the level of available information affect the dependence on types of information.

Finally, the set of individual and group constraints generally are not found to be significantly related to information search. The correlational evidence suggests that in future studies group effects such as leadership and group conformity might be explored as treatment effects on search behavior instead of their exploratory nature in this investigation.

Yet, as the framework in Chapter II illustrates, the search for information is only the first step in the process of group decision making. For an adequate theory of collective decision making, the final choices of the group must be examined, especially in the framework of individual

to group decisional shifts. It is this task that Chapter V addresses.

## CHAPTER V

### ANALYSIS OF GROUP DECISIONS AND THE CHOICE SHIFT

To depend solely on individual information search behavior in explaining the group decisional process is inadequate, especially in analyzing the final choices in a collective environment. In this chapter, the analysis examines the shifts in individual predispositions to final group decisions and the extremization of group decisions based on various hypotheses outlined in earlier chapters. Each proposition is analyzed according to the framework established in Chapter III.

#### Choice Shifts--Experimental Treatment

##### Informational Constraint

Given divergent levels of available information, do high information groups engage in greater shifts, and do group decisions approach the extremes of the Likert-scale alternatives? Based on a rationalistic model of group decision making, group shifts are posited to be larger in the high rather than the low information condition.

Evidence favoring this proposition is highlighted by the results in Chapter IV illustrating greater alternatives and more unique information search in the high information than in the low information condition.

The hypothesized relationship in this investigation, however, posits that information overload will reduce high information group members' abilities to make decisions, and will result in greater shifts for subjects in the low rather than the high information treatment. Thus, a cognitive processing model is indicated and the rational choice model is rejected. It is the hypothesis of this investigation that greater shifts (H1-CS) and greater extremization (H2-CS) will occur for subjects in the minimal information condition because high information subjects will face heightened confusion and uncertainty in this stage of their decision-making process--the final choice. This is especially so when the final choice must be a collective decision.

One qualifying comment should be noted: given that choice shift theory requires an indication of a pre-decisional preference among subjects, the differences among subjects should not be significantly diverse on the pretest. Random assignment to treatment conditions usually minimizes such differences, and as illustrated in Table 5.1, no significant differences occur between treatment and control conditions on pretest mean choices across all five items.

TABLE 5.1

ANALYSIS OF VARIANCE OF PRETEST MEANS  
BY INFORMATION LEVEL AND ITEM

		<u>Pretest Means</u>										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	2.92	1.93	3.54	1.92	4.63	1.91	5.19	2.07	2.66	1.88
	High	46	3.39	1.88	3.51	1.77	4.47	1.95	5.06	1.95	2.59	1.47
	Control <sup>1</sup>	58	2.90	1.33	3.99	1.76	4.97	1.58	5.21	1.77	3.05	1.96
	Total	152	3.06	1.72	3.67	1.82	4.70	1.81	5.15	1.91	2.79	1.79
		F(2,149)=1.33			F(2,149)=0.76		F(2,149)=1.07		F(2,149)=0.09		F(2,149)=1.04	
		NS			NS		NS		NS		NS	

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<sup>1</sup>The control group is the group of subjects who were assigned only to read the items again, and not allowed to discuss the items with others.

The results in Table 5.2 indicate that information treatment levels differ significantly from each other and from the levels of the control group condition on the first three policy items, but not in the final two. Further, the shifts from pretest to group decision between information levels on Item 1 are obviously minimal, while the differences on Items 2 and 3 on the treatment levels are in opposite directions--high information group members shifted more on Item 2, while low information subjects shifted more on Item 3. The size of shift on Item 2 is similar to that of Item 5 for the two information conditions; the reason for the difference in statistical significance rests primarily on the slight shift by control groups on Item 2 whereas no shift occurred for subjects in the control condition on Item 5.

The evidence cannot support H1-CS--there is no relationship between the level of available information and the shifts to a final group decision. Thus, neither the rational nor the cognitive models gain any particular support from the results in Table 5.2. The lack of relationship is more debilitating to the rational model since higher information levels may result in greater certainty, and thus greater shifts; the examination of information overload requires only that group shifts should be minimized for higher information levels. Nevertheless, the level of available information does not appear to have a significant effect on the subject's shift from pretest to group decisions.

TABLE 5.2  
ANALYSIS OF VARIANCE OF CHOICE SHIFT  
BY INFORMATION LEVEL AND ITEM

		Choice Shift											
		Item 1			Item 2		Item 3		Item 4		Item 5		
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding		
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	
<u>Information</u>  <u>Level</u>	Low	48	0.85	2.53	-0.33	2.19	-0.71	2.06	-0.81	2.68	0.21	2.07	
	High	46	0.82	2.15	-0.51	2.12	-0.53	2.18	-0.84	2.29	-0.02	1.69	
	Control	58	-0.22	1.96	0.40	1.72	0.24	1.29	0.00	1.82	0.00	1.35	
	Total	152	0.43	2.25	-0.12	2.03	-0.30	1.89	-0.52	2.28	0.08	1.70	
		F(2,149)=4.17			F(2,149)=3.14		F(2,149)=4.01		F(2,149)=2.42		F(2,149)=0.28		
		p<.05			p<.05		p<.05		NS		NS		



Hypothesis H2-CS emphasizes a slightly different aspect of group choice--the extremization of final group decisions. In Table 5.3, the results are displayed. Only on Items 1 and 4 are statistically significant differences found between treatments and the control conditions. In both of those cases, however, low information decisions are more extreme than those in the high information condition (The range of scores is from 1 to 7, with neutral scored as 4). In each of the other three items the differences between conditions are in the hypothesized direction, although not statistically significant. Thus, only weak evidence can be cited for support of H2-CS--low information groups will engage in greater extremization than high information groups.

Tables 5.2 and 5.3 signify the lack of evidence for the effects of information level on the final group decision. In spite of evidence in Chapter IV that high rather than low information groups engage in greater alternatives and unique information search, we find no support for the effects of information availability on final group decisions. Thus, given the positive relationship between information level and search behavior, the heightened dissatisfaction with available information by high information group members may be linked to the lack of shift (Table 4.14).

TABLE 5.3

ANALYSIS OF VARIANCE OF GROUP DECISION  
BY INFORMATION LEVEL AND ITEM

		Group Decisions										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	48	2.04	1.83	3.88	1.14	5.33	1.28	6.00	1.79	2.46	1.29
	High	46	2.57	1.63	4.02	1.53	5.00	1.32	5.90	1.28	2.61	1.27
	Control	58	3.12	1.65	3.50	1.61	4.72	1.65	5.21	1.78	3.05	1.76
	Total	152	2.61	1.75	3.78	1.47	5.00	1.45	5.67	1.67	2.73	1.49
		F(2,149)=5.28			F(2,149)=1.84		F(2,149)=2.34		F(2,149)=3.77		F(2,149)=2.34	
		p<.01			NS		NS		p<.05		NS	

Organizational Constraints--  
Decision Rule

Originally treated in the risky shift literature as the statistical model, traditional efforts at measuring decision rule effects have yielded little explanation of decisional shifts (Kirkpatrick et al., 1976b). Yet, the type of decision rule utilized for collective processes may alter the final decision. The results in Chapter IV indicate that consensus groups, by their needs for bargaining and compromise, require greater informational search. Yet, given those same needs, does the shift from pretest to group decision become minimized in a consensus decision environment? Are collective decisions more extreme under majority decision rules than under a consensus requirement? As shown in Table 5.4, differences between decision rule groups and the control condition are statistically significant on all five items, although the difference between decision rule treatment levels is minimal on Item 3-- Military/Domestic Spending. Further, on all but the third item, the shift differences are in the hypothesized direction--majority group subjects engage in greater shifts than do consensus decisional members. In fact, shifts from pretest positions for the consensus group condition are less than the shifts for control group members on Items 1 and 2. Thus, in spite of the greater alternatives and unique information search by consensus group members, the shift of individual positions is greater for subjects under majority

TABLE 5.4

ANALYSIS OF VARIANCE OF CHOICE SHIFTS  
BY DECISION RULE AND ITEM

		Choice Shifts										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Decision Rule</u>	Majority	48	1.62	1.96	-0.65	2.29	-0.54	2.05	-1.17	2.12	0.62	1.75
	Consensus	46	0.08	2.42	-0.20	1.99	-0.69	2.19	-0.49	2.76	-0.41	1.88
	Control	58	-0.22	1.96	0.40	1.72	0.24	1.29	0.00	1.82	0.00	1.35
	Total	152	0.44	2.25	-0.12	2.03	-0.30	1.89	-0.52	2.28	0.06	1.70
		F(2,149)=10.82			F(2,149)=3.66		F(2,149)=3.98		F(2,149)=3.56		F(2,149)=4.65	
		p<.001			p<.05		p<.05		p<.05		p<.05	

than consensus decision rules--H3-CS is confirmed in the bivariate case.

The evidence for the group extremization hypothesis (as indicated in Table 5.5) is less strong than for the shift hypothesis. Treatment and control conditions are significantly different in three of the five items. Only on Items 2 and 3 are the conditions not statistically distinct--and only on Item 2 is the hypothesized direction of the relationship not indicated. Thus, despite lower information search, majority groups decisions are more extreme than consensus group decisions.

Summary of Bivariate Relationships--  
Treatments on Choice Shifts

From the bivariate relationships between treatments levels on choice shifts and group extremization displayed in Tables 5.2 through 5.5, the evidence indicates that information level has little or no effect on either the individual/group shift, or the extremization of the final group decision. Yet, the evidence from the analysis does illustrate that the decision rule utilized by the group alters shifts, and to a lesser extent, also alters group extremization. In both treatment conditions, the magnitude of the extremization is negatively related to the findings on information search examined in Chapter IV such that groups that shift toward greater extremes generally search less.

TABLE 5.5  
ANALYSIS OF VARIANCE OF GROUP DECISION  
BY DECISION RULE AND ITEM

		Group Decision										
		Item 1			Item 2		Item 3		Item 4		Item 5	
		Environment			Foreign Policy		Mil/Domes. Spending		Mass Transit		University Funding	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
<u>Decision Rule</u>	Majority	48	1.52	0.83	4.17	1.42	5.31	1.01	6.40	0.94	2.06	0.93
	Consensus	46	3.08	2.05	3.74	1.25	5.02	1.53	5.51	1.87	3.00	1.40
	Control	58	3.12	1.65	3.50	1.61	4.72	1.65	5.21	1.78	3.05	1.76
	Total	152	2.61	1.75	3.78	1.47	5.00	1.46	5.67	1.67	2.73	1.49
		F(2,149)=16.18			F(2,149)=2.82		F(2,149)=2.189		F(2,149)=7.61		F(2,149)=7.55	
		p<.001			NS		NS		p<.001		p<.001	

In Chapter IV, the evidence illustrates that in spite of heightened information search in the high information treatment, satisfaction with available information is lower for members of high than low information groups. Does the same result occur for satisfaction with group decisions? As illustrated in Table 5.6, the evidence indicates that members of high information groups are less satisfied with the final outcomes of group decisions than are low information group members. Yet, as noted in Table 5.7, there are no statistical differences between majority and consensus group members on satisfaction with the group decision.

Thus, significant differences are observed on shift and group extremization for the decision rule treatment, but majority and consensus groups do not differ on satisfaction with group decisions. High information group members do not differ significantly from low information treatment members on shifts or group extremization; yet the former are more dissatisfied with group decisions. As indicated in Chapter III, this result provides further evidence that information overload has occurred for high information group members--they search for more information, and yet are more dissatisfied with the increased information; their decisions are no different from low information group subjects, yet they are still more dissatisfied with the final results.

TABLE 5.6  
ANALYSIS OF VARIANCE OF DECISION SATISFACTION  
BY INFORMATION LEVEL

		<u>Decision Satisfaction Scale<sup>a</sup></u>		
		N	$\bar{X}$	S.D.
<u>Information</u> <u>Level</u>	Low	47	19.49	6.34
	High	46	25.48	7.89
	Total	93	22.45	7.72
		F(1,91) = 16.334		p < .001

<sup>a</sup>The higher the satisfaction score, the greater dissatisfaction with group decisions.



TABLE 5.7  
ANALYSIS OF VARIANCE OF GROUP DECISION  
SATISFACTION BY DECISION RULE

		<u>Decision Satisfaction Scale<sup>a</sup></u>		
		N	$\bar{X}$	S.D.
<u>Decision</u> <u>Rule</u>	Low	47	21.47	7.54
	High	46	23.46	7.85
	Total	93	22.45	7.72
		F(1,91) = 1.553    NS		

<sup>a</sup>The higher the satisfaction score, the greater the dissatisfaction with group decisions.

Multivariate Analysis--Treatments  
on Search Behavior

Do the effects of the treatments operate independently (main effects), or do they interact in explaining choice shifts and group extremization? The multivariate analysis of search behavior found that the interaction of information level and decision rule was insignificant. Yet, both treatment or main effects were found to be statistically significant explanatory variables on information search--primarily in terms of the volume of information.

Tables 5.8-5.12 illustrate the treatment effects on choice shift behavior by item. The only two items that indicate effects are Item 1 (Environment) and Item 5 (University Funding). In both cases, the decision rule is the only significant independent variable. As hypothesized, on both items majority group members shift more away from individual pretest positions than do consensus group members. As indicated in the bivariate case, the level of available information has no statistically significant effect on choice shifts. Further, no statistical significant interaction occurs across the policy items, although such an effect is indicated on Item 2 (Foreign Policy).

The summary tables denote that the greatest shifts should be toward the majority rule/low information treatment condition. In fact, on Items 1, 3, and 5 the strongest shifts are in the majority rule/low information cell, while the remaining items show greatest shifts in the

TABLE 5.8

ANALYSIS OF VARIANCE OF CHOICE SHIFTS  
BY TREATMENTS--ITEM 1 (ENVIRONMENT)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	1.75	-.09	(n=48)
	High	1.48	.23	(n=46)
		(n=48)	(n=46)	
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>
<u>Main Effects</u>				<u>d.f.</u>
Information Level		0.02	0.00	NS
<u>Main Effects</u>				
Decision Rule		56.55	11.39	p<.05
<u>Interaction</u>		2.08	0.42	NS

TABLE 5.9  
ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY  
TREATMENTS--ITEM 2 (FOREIGN POLICY)

		<u>Decision Rule</u>			
		Majority	Consensus		
<u>Information Level</u>	Low	-.16	-.52	(N=48)	
	High	-1.17	.08	(N=46)	
		(N=48)	(N=46)		
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d. f.</u>
<u>Main Effects</u>					
Information Level		0.97	0.21	NS	1,90
<u>Main Effects</u>					
Decision Rule		4.73	1.05	NS	1,90
<u>Interaction</u>		15.72	3.48	NS	1,90

TABLE 5.10  
ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY  
TREATMENTS--ITEM 3 (MIL/DOMES. SPENDING)

		<u>Decision Rule</u>			
		Majority	Consensus		
<u>Information Level</u>	Low	-.72	-.70	(N=48)	
	High	-.35	-.69	(N=48)	
		(N=48)	(N=46)		
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Mean Effects</u>					
	Information Level	0.84	0.18	NS	1,90
<u>Mean Effects</u>					
	Decision Rule	0.56	0.12	NS	1,90
<u>Interaction</u>					
		0.82	0.18	NS	1,90

TABLE 5.11  
ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY  
TREATMENTS--ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	-1.16	-.43	(N=48)
	High	-1.17	-.54	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Mean Effects</u>				
Information Level	0.08	0.01	NS	1,90
<u>Mean Effects</u>				
Decision Rule	11.11	1.79	NS	1,90
<u>Interaction</u>	0.05	0.01	NS	1,90

TABLE 5.12  
ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY  
TREATMENT--ITEM 5 (UNIVERSITY FUNDING)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	.83	-.43	(N=48)
	High	.39	-.38	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effects</u>				
	Information Level	0.88	0.26	NS
<u>Main Effects</u>				
	Decision Rule	25.21	7.52	p<.05
<u>Interaction</u>				
		1.45	0.43	NS

majority rule/high information condition. The most unusual movement is on Item 5 (University Spending) where majority and consensus group members shift in opposite directions; that is, majority group shifts are toward increased research support, while consensus groups shift toward increased athletic support. Nevertheless, the results on choice shifts indicate that the decision rule utilized in reaching final decisions has some effect on the shifting of preferences, but neither the level of available information nor the interaction of the treatments alter the final decisional shifts.

Is the same true for the extremization of the final group decision? Are group decisions primarily affected by decision rules rather than information levels? The evidence in Tables 5.13 through 5.17 indicates that on Items 1, 4, and 5 the rule required for group decision is the only treatment effect on group extremization. No significant differences are found on Item 2 (Table 5.14); in fact, in each of the four conditions, the group decisions are very close to neutral.

The most unusual extremization occurs on Item 3 (Table 5.15), where the interaction of the treatment variables provides the prime explanation of group extremization. Once again, the most extreme decisional means are in the majority rule/low information condition, but the next most extreme cell occurs in the consensus rule/high information condition.



TABLE 5.13

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 1 (ENVIRONMENT)

<u>Information Level</u>		<u>Decision Rule</u>					
		Low	High			Majority	Consensus
						1.60 <sup>a</sup>	2.52
		1.44	3.58	(N=48)	(N=46)		
<u>Main Effects</u>							
<u>Information Level</u>	Mean Squares	F-Ratio	Significance	d.f.			
Information Level	4.91	2.07	NS	1,90			
<u>Main Effects</u>							
Decision Rule	59.07	25.00	p<.001	1,90			
<u>Interaction</u>							
Interaction	9.00	3.81	NS	1,90			

<sup>a</sup>The figures are the group decision means ranging from 1-7.

TABLE 5.14

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 2 (FOREIGN POLICY)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	4.00	3.74	(N=48)
	High	4.35	3.73	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effects</u>				
Information Level	0.68	0.38	NS	1,90
<u>Main Effects</u>				
Decision Rule	4.52	2.49	NS	1,90
<u>Interaction</u>	0.77	0.42	NS	1,90

TABLE 5.15  
ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 3 (MIL/DOMES. SPENDING)

		<u>Decision Rule</u>			
		Majority	Consensus		
<u>Information Level</u>	Low	5.80	4.83	(N=48)	
	High	4.78	5.19	(N=46)	
		(N=48)	(N=46)		
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effects</u>					
	Information Level	2.46	1.56	NS	1,90
<u>Main Effects</u>					
	Decision Rule	2.07	1.31	NS	1,90
<u>Interaction</u>					
		11,57	7.31	p<.05	1,90

TABLE 5.16

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	6.60	5.35	(N=48)
	High	6.17	5.65	(N=46)
		(N=48)	(N=46)	
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>
<u>Main Effect</u>				<u>d.f.</u>
Information Level		0.08	0.03	NS
<u>Main Effect</u>				
Decision Rule		19.02	8.57	p<.01
<u>Interaction</u>		3.24	1.46	NS

TABLE 5.17

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 5 (UNIVERSITY FUNDING)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	2.00	2.96	(N=48)
	High	2.13	3.03	(N=46)
		(N=48)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>				
Information Level	0.27	0.19	NS	1,90
<u>Main Effect</u>				
Decision Rule	21.31	14.73	p<.001	1,90
<u>Interaction</u>	0.01	0.01	NS	1,90

Thus, group decisions tend to be bound by compromise and bargaining for collective decisions by consensus groups. Majority groups are more apt to move decisions toward stronger recommendations on the various items. As in the case of the choice shift hypothesis, group extremization is not affected by the level of available information.

The Choice Shift Process--  
Experimental Treatments  
and Covariates

Individual Constraints--  
Machiavellian Scale

The Machiavellian personality scale is hypothesized to be an additional explanatory variable on the choice shift process. Specifically, hypothesis H5-CS posits that Machiavellianism is positively related to both the subject's pretest extremization and the individual-group shifts.

The evidence in support of the hypothesis is rather weak. From the simple correlations (Pearson's  $r$ ), the only correlations of Machiavellianism with pretest extremization equal to or above 0.10 are on Items 2 and 4 ( $r_2=0.10$ ;  $r_4=0.13$ ), while the only noticeable correlation of Machiavellianism with individual/group shift is on Item 2 (-0.13). Given the lack of explanation for shift by the treatment variables, the only statistically significant effect of Machiavellianism is on the second item. As illustrated in Table 5.18, the only significant effect of this covariate

TABLE 5.18

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND MACHIAVELLIAN SCALE--ITEM 2 (FOREIGN POLICY)

		<u>Decision Rule</u>			
		<u>Majority Consensus</u>		<u>Majority Consensus</u>	
<u>Information Level</u>	Low	92.00 <sup>a</sup>	97.17 (N=48)	-.16 <sup>b</sup>	-.52
	High	95.78 (N=48)	97.28 (N=46)	-1.17	-.12
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
Information Level		0.27	0.06	NS	1,89
<u>Main Effect</u>					
Decision Rule		8.42	1.94	NS	1,89
<u>Interaction</u>		13.48	3.10	NS	1,89
<u>Covariate</u>					
Machiavellian Scale		23.28	5.35	p<.05	1,89

<sup>a</sup>The figures are the  $\bar{X}$ 's of the Machiavellian scores by treatment conditions. The range of values are from 40 to 160--with the higher figure denoting the high "Mach" personality.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the choice shifts by treatment conditions.

is the rather small shift on the foreign policy item. As noted from the correlations above, the results suggest that as the Machiavellian score increases, the extremization on the pretest score of the foreign policy item increases primarily toward support of Nation B--the dictatorship ally. As indicated in the analysis of variance, the minor shift that occurs is linked to the Machiavellian scale. However, given the lack of effects on the remaining four items, hypothesis H5-CS cannot be supported.

Group Constraints--  
Interactive Model

Emphasizing the effects of group leadership, the interactive model examined in this investigation assumes that group leaders are more extreme on pretest positions, and as a result have a stronger effect on the group shift (H6-CS). Similar to the Machiavellian linkage to choice shifts, leadership-confidence theory, as defined in this study, posits pretest extremization and leadership scores (as measured by Bales task leadership) should be positively correlated. Only on Items 4 and 5 did the Bales leadership score positively correlate at 0.10 or above ( $r_4=0.13$ ;  $r_5=0.14$ ) with extremization. On one item (Item 2) the relationship was negative ( $r_2=-0.14$ ). Thus, the evidence linking leadership and extremization is suspect.

Nevertheless, the subject's leadership score does have a significant effect on Item 4. As Table 5.19



TABLE 5.19

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND BALES TASK LEADERSHIP--ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>				
		Majority Consensus		Majority Consensus		
<u>Information Level</u>	Low	49.48 <sup>a</sup>	57.48	(N=48)	-1.16 <sup>b</sup>	-.43
	High	56.48	64.57	(N=46)	-1.17	-.91
		(N=48)	(N=46)			
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>						
Information Level		6.27	1.14	NS	1,89	
<u>Main Effect</u>						
Decision Rule		0.49	0.09	NS	1,89	
<u>Interaction</u>		1.29	0.23	NS	1,89	
<u>Covariate</u>						
Bales Task Scale		27.32	4.07	p<.05	1,89	

<sup>a</sup>The figures are the  $\bar{X}$ 's of the Bales task leadership scores by treatment condition. High scores represent higher leadership.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the choice shifts by treatment condition.

illustrates, the Bales task score has the only statistically significant effect on the choice shift. As noted earlier in Table 5.16, the decision rule main effect was the prime explanation of the choice shift; the Bales score on Item 4 suggests, however, that most of the differences observed between decision rules can be primarily explained by the leadership variable. As illustrated in the simple correlation, the higher the Bales task score the greater the shift toward recommending the highway over the mass transit system ( $r_4=0.23$ ).

Group Constraints--Diffusion  
of Responsibility Model

Does greater individual support of the group's decisions affect the level of choice shift and the final extremization of group decisions? According to the responsibility-diffusion hypothesis, the higher the perceived similarity and cohesion of the group by its members, the greater the choice shift (H7-CS) and the greater the final decisional extremization (H8-CS). As defined in this investigation, cohesion is primarily a measure of individual satisfaction with group decisions. For a true cohesion measure to be operationalized, groups must be examined over time rather than in a single ad hoc meeting.

The effects of satisfaction on choice shift are apparent on Items 1 and 2. On Item 1, the effects of decision rule on the dependent variable remain strong, but the

satisfaction measure indicates an additional significant effect on the magnitude of the choice shift (Table 5.20). Given the simple correlation of satisfaction and shift on Item 1 ( $r_1=.16$ ), the direction of shift suggests that the greater the movement toward support of the dam (a positive shift), the greater the dissatisfaction with general group outcomes. In addition, as indicated in the first summary table of means in Table 5.20, dissatisfaction is correlated with the level of information--although that has no significant effect on the magnitude of shift.

On Item 2, the effects of decisional satisfaction and the interaction of the treatment variables affect the magnitude of shift. Statistical interaction is indicated because of the magnitude of the shift for subjects in the majority rule/high information condition (see Table 5.21--the summary of dependent variable  $\bar{X}$ 's). The satisfaction measure indicates that the greater the shift toward Nation B (the dictatorship ally), the greater the dissatisfaction with the group ( $r_2=-.13$ ).

Although only significant on these two items, the effects on the direction of shift are curious. Hypothesis H7-CS indicates that greater satisfaction increases the magnitude of choice shift. Yet, on Item 1 the greater the subject's satisfaction with overall group decision making, the more the individual shifts away from the predominant shift indicated in the summary table. That is, the greater

TABLE 5.20

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY TREATMENTS  
AND SATISFACTION SCORE--ITEM 1 (ENVIRONMENT)

		<u>Decision Rule</u>				
		Majority Consensus		Majority Consensus		
<u>Information Level</u>	Low	1.83 <sup>a</sup>	1.83	(N=46)	1.78 <sup>a</sup>	-.09
	High	2.04	2.17	(N=46)	1.48	.17
		(N=46)	(N=46)			
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>						
Information Level		2.09	.42	NS	1,87	
<u>Main Effect</u>						
Decision Rule		62.66	12.72	p<.001	1,87	
<u>Interaction</u>		1.06	.22	NS	1,87	
<u>Covariate</u>						
Gr. Dec. Satisfaction		22.37	4.54	p<.05	1,87	

<sup>a</sup>The figures are the  $\bar{X}$ 's of the satisfaction scores, scales from 1 to 3 where the latter indicates dissatisfaction with group decisions.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment condition.

the positive shift indicated in Table 5.20, the more dissatisfied subjects are with final group decisions. The same effect occurs on Item 2 (Table 5.21)--dissatisfaction with group decisions are higher for shifts in the direction of Nation B, which is the direction that most shifts indicate (It must be emphasized that this satisfaction measure examines posttest satisfaction on all decisions of the group).

Since there are no effects on shifts on the final three items, it is apparent that the dissatisfaction with early items extinguishes on later shift items. Nevertheless, the indication from the first two items emphasizes that subjects who are the most dissatisfied with group decisions across the five items are those who shifted away from the predominant shift on Items 1 and 2. According to H7-CS, satisfaction should be positively correlated with group shift--but subjects satisfied with the general set of decisions actually shift in the opposite direction of the general shift on the first two items. Hypothesis H7-CS cannot be confirmed.

The effects of satisfaction with decisional results is even more marked on the extremization of the final group decision. On Items 2, 4, and 5 decision satisfaction significantly alters the extremization of the final decision. However, the direction of the simple correlations indicate conflicting directions ( $r_2 = .19$ ;  $r_4 = .17$ ); that is, greater

TABLE 5.21

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND DECISION SATISFACTIONS--ITEM 2 (FOREIGN POLICY)

	<u>Information Level</u>	<u>Decision Rule</u>			
		Majority	Consensus		
	Low	-.17 <sup>a</sup>	-.52	(N=46)	
	High	-1.17	.08	(N=46)	
		N=46)	(N=46)		
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
	Information Level	.04	.01	NS	1,88
<u>Main Effect</u>					
	Decision Rule	5.43	1.20	NS	1,88
<u>Interaction</u>		18.50	4.10	p<.05	1,88
<u>Covariate</u>					
	Gr. Dec. Satisfaction	21.34	4.73	p<.05	1,88

<sup>a</sup>The summary table  $\bar{X}$ 's are on the dependent variable--the covariate  $\bar{X}$ 's are identical to those in Table 5.20.

satisfaction with group decisions is indicated when those decisions favor Nation A (Item 2), highway recommendations (Item 4), and research choices (Item 5). As noted in Tables 5.22-5.24, the individual choices by groups are generally neutral (Item 2), recommending the mass transit system (Item 4), and favoring research spending (Item 5). On the latter two items, extremization is not in the indicated direction in the first case (Item 4), but it is indicated in the final item (Item 5).

Although the effects of group decisional satisfaction are apparent in this investigation on both choice shifts and group decisional extremization, the direction of the effects is conflicting. The evidence suggests that the subject's attitude toward group decisions is often in opposition to preferred choices. Thus, although satisfaction is correlated with choice shifts and group extremization, the direction of the covariate's effects are in a negative direction to the group shift.

Group Constraints--  
Familiarization Model

The general hypothesis of this model posits that individuals do not need group discussion in order to significantly shift their choices on the various items. Thus, no differences should be apparent between subjects in the experimental groups and those in control conditions. The latter groups, simply by examining the information again

TABLE 5.22

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY TREATMENT  
AND SATISFACTION SCORE--ITEM 2 (FOREIGN POLICY)

		<u>Decision Rule</u>			
		Majority	Consensus	Majority	Consensus
<u>Information Level</u>	Low	1.88 <sup>a</sup>	1.83 (N=47)	4.04 <sup>b</sup>	3.74 (N=47)
	High	2.04 (N=47)	2.17 (N=46)	4.35	3.78 (N=36)
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
Information Level		.00	.00	NS	1,88
<u>Main Effect</u>					
Decision Rule		4.92	2.78	NS	1,88
<u>Interaction</u>		.87	.49	NS	1,88
<u>Covariate</u>					
Gr. Dec. Satisfaction		10.97	6.21	p<.05	1,88

<sup>a</sup>The figures are the  $\bar{X}$ 's of the satisfaction scale by treatment condition.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the individual decisions by groups and treatment conditions.



TABLE 5.23

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS--ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	6.58	5.35	(N=47)
	High	6.17	6.00	(N=46)
		(N=47)	(N=46)	
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>				
Information Level	.29	.16	NS	1,88
<u>Main Effect</u>				
Decision Rule	12.96	7.29	p<.01	1,88
<u>Interaction</u>	4.67	2.63	NS	1,88
<u>Covariate</u>				
Gr. Dec. Satisfaction	17.97	10.11	p<.01	1,88

TABLE 5.24

ANALYSIS OF VARIANCE OF GROUP DECISIONS BY  
TREATMENTS AND SATISFACTION SCORE--ITEM 5  
(UNIVERSITY FUNDING)

		<u>Decision Rule</u>		
		Majority	Consensus	
<u>Information Level</u>	Low	2.00	2.96	(N=47)
	High	2.13	2.01	(N=46)
		(N=47)	(N=46)	
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>
				<u>d.f.</u>
<u>Main Effect</u>				
Information Level		.37	.28	NS
<u>Main Effect</u>				
Decision Rule		16.45	12.57	p<.001
<u>Interaction</u>		.50	.38	NS
<u>Covariate</u>				
Gr. Dec. Satisfaction		10.20	7.79	p<.01

(familiarization), should shift significantly on all items. As Table 5.25 indicates, shifts are generally significantly different in experimental and control conditions. Except for slight shifts on Item 2, members of the control group generally do not change their pretest positions when the questionnaire is administered a second time. Thus, group discussion is required for choice shifts; individual familiarization does not alter pretest positions.

Group Constraints--Value  
and Polarization Models

The value hypothesis rests on the initial assumption that individuals will see themselves as different from other subjects like them on the various policy items. Once that difference is established, group members will then shift to greater extremes in that valued direction (H10-CS). Polarization requires only that the group decision be more toward the extremes of the alternative already indicated by pretest means (H11-CS). For example, if the pretest means suggest that the groups tend to support building the dam, the final decision should be an even stronger recommendation of that alternative.

For three of the five items, statistically significant differences are apparent for the disparity between pretest self and perceived others (Table 5.26). Subjects saw themselves as more favorable toward building the dam (Item 1), constructing the mass transit system (Item 4), and supporting

TABLE 5.25

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY  
EXPERIMENTAL AND CONTROL GROUPS BY ITEM

		Item 1	Item 2	Item 3	Item 4	Item 5
		Environment	Foreign Policy	Mil/Domes. Spending	Mass Transit	University Funding
	N					
Experimental Groups	94	0.83 2.33	-0.42 2.14	-0.62 2.11	-0.83 2.48	0.09 1.88
Control Groups	58	-0.22 1.96	0.40 1.72	0.24 1.29	0.00 1.82	0.00 1.35
Total	152	0.44 2.25	-0.12 2.03	-0.30 1.89	-0.52 2.28	0.06 1.70
		F(1,150)=8.38	F(1,150)=7.85	F(1,150)=7.85	F(1,150)=4.87	F(1,150)=0.11
		p<.01	p<.05	p<.05	p<.05	NS

TABLE 5.26  
ANALYSIS OF SELF-OTHER  
DIFFERENCES BY ITEM

	$\bar{X}$ (Self-Other)	S.D.	d.f.	t- distribution	significance
Item 1 (N=94) (Environment)	-.56	2.06	151	-3.29	p<.05
Item 2 (N=93) (Foreign Policy)	-.13	1.89	151	-.87	NS
Item 3 (N=93) (Mil/Domes. Spend.)	-.06	2.40	151	-.30	NS
Item 4 (N=94) (Mass Transit)	.32	1.92	151	2.00	p<.05
Item 5 (N=94) (University Funding)	-1.14	2.46	151	-5.70	p<.001

research funding (Item 5) than other typical university students. No significant differences were apparent on Items 2 and 3.

As a result, when examined as a covariate, the self-other differences significantly affect choice shifts on Items 1, 4, and 5 (along with the decision rule on Items 1 and 4--see Tables 5.27-5.29). For the hypothesis to be confirmed, however, the direction of shift must be in the opposite direction from the self-other differences. That is, shifts must be toward greater support of the dam (Item 1), increased support for the mass transit system (Item 4), and higher support of research funding for universities (Item 5). Thus, shifts should be positive on Item 1 and 5 and negative on Item 4. As can be seen in the summary tables of means for each item, the direction is confirmed on Items 1 and 4 and mixed on Item 5, since majority-rule groups shift in the valued direction, but consensus groups shift toward the non-valued alternative.

In examining group polarization, group decisions are required to be less neutral than the pretest means, yet favoring the same alternative. To confirm hypothesis H11-CS, group shifts are required to be shifts away from neutrality and in the same direction as the pretest means. As indicated in Table 5.30, except for Item 2 and the consensus groups in Item 5, the groups move toward greater extremization in the same direction as denoted by pretest means (polarization).

TABLE 5.27

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND SELF-OTHER DIFFERENCES--ITEM 1 (ENVIRONMENT)

<u>Information Level</u>	<u>Decision Rule</u>				
		<u>Majority Consensus</u>		<u>Majority Consensus</u>	
	<u>Low</u>	-.29 <sup>a</sup>	-.68 (N=46)	1.75 <sup>b</sup>	.18
<u>High</u>	-.39	-.08 (N=46)	1.48	.23	
		(N=46)	(N=46)		

	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>				
Information Level	1.39	.41	NS	1,88
<u>Main Effect</u>				
Decision Rule	46.64	13.68	p<.001	1,88
<u>Interaction</u>	.01	.00	NS	1,88
<u>Covariate</u>				
Self-Other Differences	113.14	33.17	p<.001	1,88

<sup>a</sup>The figures are the  $\bar{X}$ 's of the self-other differences for the item. Possible ranges are from  $\pm 6$ .

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment condition.

TABLE 5.28

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND SELF-OTHER DIFFERENCES--ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>				
		<u>Majority Consensus</u>		<u>Majority Consensus</u>		
<u>Information Level</u>	Low	.75 <sup>a</sup>	-.48	(N=46)	-.96 <sup>b</sup>	-.43
	High	.43	.65	(N=46)	-1.17	-.54
		(N=46)	(N=46)			
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>						
	Information Level	3.53	.72	NS	1,88	
<u>Main Effect</u>						
	Decision Rule	16.26	3.32	NS	1,88	
<u>Interaction</u>		2.59	.53	NS	1,88	
<u>Covariate</u>						
	Self-Other Differences	106.49	21.73	p<.001	1,88	

<sup>a</sup>The figures are the  $\bar{X}$ 's of the self-other differences.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variables by treatment condition.



TABLE 5.29

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS AND  
 SELF-OTHER DIFFERENCES--ITEM 5 (UNIVERSITY FUNDING)

		<u>Decision Rule</u>				
		Majority Consensus		Majority Consensus		
<u>Information Level</u>	Low	-.71 <sup>a</sup>	-1.65	(N=46)	.83 <sup>b</sup>	-.43
	High	-1.39	-1.08	(N=46)	.39	-.38
		(N=46)	(N=46)			
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>						
Information Level		.73	.29	NS	1,88	
<u>Main Effect</u>						
Decision Rule		19.59	7.73	p<.05	1,88	
<u>Interaction</u>		.00	.00	NS	1,88	
<u>Covariate</u>						
Self-Other Differences		77.87	30.71	p<.001	1,88	

<sup>a</sup>The figures are the  $\bar{x}$ 's of the self-other differences by treatment condition.

<sup>b</sup>The figures are the  $\bar{x}$ 's of the dependent variable by treatment condition.

TABLE 5.30  
POLARIZATION BY TREATMENT AND ITEM

	Treatment	Pretest $\bar{X}$	Group Dec. $\bar{X}$	Shift	Polarization
Item 1	Maj/Low	3.37	1.62	1.75	Pol
	Maj/High	3.80	2.32	1.48	Pol
	Cons/Low	1.61	1.43	.18	Pol
	Cons/High	3.81	3.58	.23	Pol
Item 2	Maj/Low	3.92	4.04	-.12	Non-Pol
	Maj/High	3.18	4.35	-1.17	Non-Pol
	Cons/Low	3.22	3.74	-.52	Non-Pol
	Cons/High	3.81	3.73	.08	Non-Pol
Item 3	Maj/Low	5.00	5.79	-.79	Pol
	Maj/High	4.43	4.78	-.35	Pol
	Cons/Low	4.13	4.83	-.70	Pol
	Cons/High	4.50	5.19	-.69	Pol
Item 4	Maj/Low	5.62	6.58	-.96	Pol
	Maj/High	5.00	6.17	-1.17	Pol
	Cons/Low	4.91	5.35	-.44	Pol
	Cons/High	5.11	5.65	-.54	Pol
Item 5	Maj/Low	2.79	1.96	.83	Pol
	Maj/High	2.52	2.13	.39	Pol
	Cons/Low	2.53	2.96	-.43	Non-Pol
	Cons/High	2.66	3.04	-.38	Non-Pol

In conclusion, the effects of the value and polarization explanations significantly alter choice shifts and the final group extremization respectively. The strongest results are on Items 1, 4, and 5, with only slight effects on the remaining two items.

#### Conclusion

The final choice in a group decision-making setting cannot be explained by any single explanatory model. Several research hypotheses have been offered as possible explanations of the shift of individual pretest positions into a final group solution. Two variables, the decision rule and the value model, offer the strongest explanations for the choice shift phenomenon. The decision rule effect posits that groups required to arrive at a majority decision are less constrained than consensus rule groups, and thus shift more away from their initial predispositions. Further, the shift is generally toward greater extremization for the choice initially preferred by the group (as established by pretest means).

The value shift posits that subjects see themselves as different from others and that this difference denotes the direction of shift. Thus, subjects who see others as more favorable toward increasing athletic funding (Item 5) will shift toward increased funding for research needs. Such differences are apparent on Items 1, 4, and 5.

The remaining variables in this investigation provide little conclusive evidence on the choice shift effect. Both the interactive-leadership hypothesis and the diffusion-of-responsibility model provide conflicting evidence for explanations of the choice shift. In fact, the responsibility-diffusion model appears to have some negative effect--greater satisfaction implies individual shifts in directions opposite to the group shift. Finally, the level of available information has no effect on the shifting of choices in a group context, in spite of the positive relationship to the level of information search. It is this linkage of search behavior and choice shifts that the final chapter will now address.

## CHAPTER VI

### CONCLUSION--LINKAGE OF SEARCH AND CHOICE SHIFT

In this final chapter, three sections are delineated. First, findings on search and choice shift are reviewed. Second, the linkages of the two concepts are analyzed, specifically the effects of the volume of search on the magnitude of the choice shift. Finally, the findings are directed toward their possible implications for the natural group setting. In this final section, future research possibilities are illustrated with an eye on developments in theory and research both in the laboratory and the field setting.

#### Review of Findings--Search and Choice Shift

##### Informational Level Treatment

Of the measures of information search behavior, only the volume of information is affected by the information level treatment. As hypothesized, individuals in high information, rather than low information, groups engage in greater alternatives and unique information search. Thus,

increased availability of supplied information encourages groups to discuss the information in detail. Groups with greater availability of information, however, do appear to have increased difficulties in the group decision-making process. Specifically, high information group members are less satisfied with the supplied information than members of low information groups. Thus, in spite of the greater availability and discussion of such information, members are more dissatisfied with information in the high information condition. One possible implication is that high information groups overload; that is, members cannot cope with the increased information burden; thus they become more dissatisfied with the available information.

Furthermore, greater search by high information groups is not reflected in choice shifts or group extremization. The information treatment has no effect on the shifting of choices; in fact, in the few cases that indicate some effect of information level on choice shift, the direction implies that high information group members shift less than low information members. In summary, members of high information groups engage in greater alternatives and unique information search than low information subjects; they are less satisfied with the information; show no differences in their choice shifts or group extremization; and, finally, are less satisfied with the final decisions of the group process.

### Decision Rule Treatment

The required rule for making final group decisions significantly affects the volume and type of information search. Consensus group members engage in greater alternatives and unique information search and show a greater dependence on both information types in their search process. The prime explanation for this phenomenon is that consensus groups need to resolve interpersonal differences. To do so, no argument can be ignored, for a single member can inhibit a final group decision. Majority groups are not so constrained; requiring only a simple majority for a final decision on each item, subjects spend much less time discussing the information or bargaining for a final decision than do consensus group members.

Unlike the information level dichotomy, no differences are indicated between majority and consensus group members on their satisfaction with the available information. Since both consensus and high information group subjects discuss greater amounts of alternatives and unique information, and only the latter is frustrated with the final decisions of the group, the implication is that the increased information availability in the high information condition is the factor that causes the dissatisfaction with group decisions.

### Covariates

Generally, the covariates examined in this investigation explain little about either information search or choice shift. The two personality dimensions examined in this analysis, the Machiavellian and locus-of-control measures, provide little evidence of any significant effect on alternatives search. The lack of relationship between those personality characteristics and the magnitude of choice shift has also been noted. The implication is that individual personality differences, although clearly important in political attitude studies, apparently do not alter the behavior of subjects involved in a group decision-making situation. Of course, this hypothesis requires testing using personality variables other than the two utilized in this study.

As for group constraints on decision making, several covariates appear most relevant. First, leadership behavior affects the volume of information search. Specifically, task leaders, as established by Bales task leadership scores, are subjects who discuss more alternatives information than non-task leaders. Yet, task leadership is also hypothesized to be related to pretest extremization and finally to group shift. Little evidence can be found to substantiate either claim; in fact, leadership is not related to either pretest extremization or final shift. Thus, leadership appears to primarily affect the search for information, and not choice shift.



Another covariate relevant to group decision making is the individual's satisfaction with group members and decisions--regarded in this investigation as a surrogate for group cohesion. Although having no direct effect on either search or choice shift, the measure indicates that greater information search may be linked with increased dissatisfaction. Although the magnitude of the shift is not generally related to the individual's satisfaction with group processes, the direction of shift implies that greater agreement with the predominant shift of the group on an item is correlated with greater dissatisfaction with group processes. Thus, the responsibility-diffusion hypothesis may be correct in claiming that satisfaction is related to choice shifts--but not in a negative direction.

Finally, two other hypotheses have been examined for their effects on the choice shift process. The first, the familiarization hypothesis, posits that group discussion is not necessary to engage choice shift--individual familiarization is a sufficient condition. This hypothesis has no support; neither in this study, nor by other investigations of the choice shift (for review, see Dion et al., 1970; Pruitt, 1971). The second hypothesis, the value model, does receive support from the analysis. The model posits that if subjects see themselves differently from others on the policy items, they will shift to greater extremes following group discussion in the opposite direction

of the perceived others. The model emphasizes that the shift is in the valued direction since subjects see themselves as more attuned to those values than perceived others. For most of the items, these self-other differences exert a significant effect on choice shifts. Furthermore, its corollary hypothesis, the polarization model, positing that shifts by group members will be toward extreme responses, is also supported, except for the foreign policy issue (Item 2).

Thus, the set of covariate measures' impact on search behavior and choice shift have met with limited success. What do the hypotheses indicate about individuals in group decision-making environments? In terms of the volume of alternatives and unique information search, subjects who can be identified as task leaders, and who are not generally satisfied with the group and its decisions, are those most likely to search for information. Also, if subjects are in a group setting where members have already been supplied a considerable volume of information, and are required to reach a consensus decision on the problem, the search for information will increase.

As for the shifting of choices, those members who shift the most tend to be dissatisfied with the decision-making process, and especially tend to shift in directions that most uphold their valued choices. Additionally, subjects who shift are more likely to be in a decision environment requiring a simple majority decision. Finally,

the choices of group members tend to be more extreme than pretest positions indicating that group discussion enhances shifts.

#### Linkage of Search and Choice Shift

If the final decisions of group members tend to shift away from neutrality and toward greater extremization, can this shift be explained by increased information search? Alternatively, does greater information search inhibit the shifting of choice to the extent that greater shifts are negatively correlated with the volume of information search? Some evidence has already been presented. In the two-way analysis of variance of the effects of the two treatments (information level and decision rule) on the volume of alternatives information search, the main effects of each treatment variable on the dependent variable are significant in the hypothesized direction (Table 4.16). However, of the two treatments, only decision rule alters the shifting of choices. The critical element is that choice shifts are greater for majority, not consensus, group members, although the latter engages in greater alternatives search.

The final connection remains--the linkage of the volume of alternatives information search to the shifting of choices, with the treatment effects included. Thus, the volume of alternatives information is examined as a covariate on the magnitude of choice shift by item. The evidence

in Tables 6.1-6.5 indicates that the volume of alternatives information has no independent effect on the magnitude of the choice shift. Although not presented in tabular form, none of the remaining search variables--total unique information, proportion alternatives information, and proportion unique information--affect the magnitude of choice shifts on the items.

#### Search Behavior and Choice Shifts in Natural Group Settings

Given that scholars accept the validity of experimental group investigations, how can the results of this study affect theory and research in a natural group environment? The following section identifies research areas that can benefit from experimental results. One corollary should be noted; for small group laboratory studies to have a legitimate claim on political decision-making theory, the research findings must be replicated across numerous settings.

#### Search Behavior and the Natural Group Environment

Studies employing search measures for examining small group decision making are quite scarce, especially in political settings (Barber, 1966; Skjei, 1973). Too often, political science investigations have ignored such processual considerations in order to concentrate on the final choice. Yet, given that decision makers must have information

TABLE 6.1

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND VOLUME OF ALTERNATIVES INFORMATION SEARCH--  
ITEM 1 (ENVIRONMENT)

		<u>Decision Rule</u>				
		Majority Consensus		Majority Consensus		
<u>Information Level</u>	Low	1.38 <sup>a</sup>	2.47	(N=47)	1.75 <sup>b</sup>	-.09
	High	1.09	3.52	(N=46)	1.48	.17
		(N=47)	(N=46)			
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>						
Information Level		.03	.01	NS	1,88	
<u>Main Effect</u>						
Decision Rule		60.08	11.80	p<.001	1,88	
<u>Interaction</u>		1.04	.20	NS	1,88	
<u>Covariate</u>						
Vol. of Alt. Info.		3.36	.66	NS	1,88	

<sup>a</sup>The figures are the  $\bar{X}$ 's of the volume of alternatives information search on the item by treatment levels.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment levels.

TABLE 6.2

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND VOLUME OF ALTERNATIVES INFORMATION SEARCH--  
ITEM 2 (FOREIGN POLICY)

		<u>Decision Rule</u>			
		<u>Majority Consensus</u>		<u>Majority Consensus</u>	
<u>Information Level</u>	Low	1.68 <sup>a</sup>	2.35 (N=48)	-.16 <sup>b</sup>	-.52
	High	2.13 (N=48)	4.26 (N=46)	-1.17	.09
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
	Information Level	.05	.01	NS	1,89
<u>Main Effect</u>					
	Decision Rule	8.93	1.98	NS	1,89
<u>Interaction</u>		19.49	4.31	p .05	1,89
<u>Covariate</u>					
	Vol. of Alt. Info.	15.93	3.52	NS	1,89

<sup>a</sup>The figures are the  $\bar{X}$ 's of volume of alternatives information search on the item by treatment conditions.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment conditions.

TABLE 6.3  
 ANALYSIS OF VARIANCE OF CHOICE SHIFT BY TREATMENTS  
 AND VOLUME OF ALTERNATIVES INFORMATION SEARCH--  
 ITEM 3 (MIL/DOMES. SPENDING)

<u>Information Level</u>	<u>Decision Rule</u>				
		Majority Consensus		Majority Consensus	
	Low	1.00 <sup>a</sup>	2.13 (N=48)	-.72 <sup>b</sup>	-.70
High	1.46	4.39 (N=46)	-.35	-.87	
		(N=48)	(N=46)		
	<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>	
<u>Main Effect</u>					
Information Level	.01	.00	NS	1,89	
<u>Main Effect</u>					
Decision Rule	2.16	.50	NS	1,89	
<u>Interaction</u>	2.16	.46	NS	1,89	
<u>Covariate</u>					
Vol. of Alt. Info.	1.73	.37	NS	1,89	

<sup>a</sup>The figures are the  $\bar{X}$ 's of the volume of alternatives information search on the item by treatment conditions.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment conditions.

TABLE 6.4

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND VOLUME OF ALTERNATIVES INFORMATION SEARCH--  
ITEM 4 (MASS TRANSIT)

		<u>Decision Rule</u>			
		Majority Consensus		Majority Consensus	
<u>Information Level</u>	Low	.48 <sup>a</sup>	2.39 (N=48)	-1.16 <sup>b</sup>	-.43
	High	2.22 (N=48)	3.48 (N=46)	-1.17	-.91
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
Information Level		2.49	.43	NS	1,89
<u>Main Effect</u>					
Decision Rule		3.03	.53	NS	1,89
<u>Interaction</u>		1.02	.18	NS	1,89
<u>Covariate</u>					
Vol. of Alt. Info.		2.56	.44	NS	1,89

<sup>a</sup>The figures are the  $\bar{X}$ 's of the volume of alternatives information search on the item by treatment conditions.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment conditions.



TABLE 6.5

ANALYSIS OF VARIANCE OF CHOICE SHIFTS BY TREATMENTS  
AND VOLUME OF ALTERNATIVES INFORMATION SEARCH--  
ITEM 5 (UNIVERSITY FUNDING)

		<u>Decision Rule</u>			
		Majority Consensus		Majority Consensus	
<u>Information Level</u>	Low	.58 <sup>a</sup>	1.74 (N=47)	.83 <sup>b</sup>	-.43
	High	3.30 (N=47)	7.52 (N=46)	.39	-.43
		<u>Mean Squares</u>	<u>F-Ratio</u>	<u>Significance</u>	<u>d.f.</u>
<u>Main Effect</u>					
Information Level		.16	.05	NS	1,88
<u>Main Effect</u>					
Decision Rule		19.75	6.02	p .05	1,88
<u>Interaction</u>		1.62	.49	NS	1,88
<u>Covariate</u>					
Vol. of Alt. Info.		1.60	.49	NS	1,88

<sup>a</sup>The figures are the  $\bar{X}$ 's of the volume of alternatives information search on the item by treatment conditions.

<sup>b</sup>The figures are the  $\bar{X}$ 's of the dependent variable by treatment conditions.

in order to make decisions, and in a collective environment must find some way to process the incoming information, the relevance of search behavior cannot be ignored.

The prime contribution of the search literature to a theory of political decision making is the more complete explanation of the process which groups utilize in arriving at final choices. To ignore this processual component forces the decision-making scholar to make simplifying assumptions about search behavior. As noted in Chapter I, these assumptions generally require theorists to accept that decision makers utilize some rational calculus where all alternatives are weighed and individual and group preferences are quantitatively measured. Alternatively, search is linked to a cybernetic process where only "critical" variables are examined as to their impact on the decision process. In both cases, the theorist assumes that the search process "fits" the model. This investigation, in part, has been an attempt to illustrate that this process need not be assumed, but can be empirically examined.

Furthermore, given the increased accessibility of political and government units to examination, political science scholars can no longer claim that the small group decision-making unit is not available for investigation. In fact, many political committees are routinely videotaped and their discussions recorded. Such data allow the decision analyst to examine the processual features of the

small group environment either by interaction coding or content analytic techniques (Madron, 1969). Admittedly, such analysis does not allow the theorist to control the treatment variables as in this investigation. However, with further experimental testing of ad hoc groups, the evidence from non-experimental settings can be built on developments in the laboratory.

From this investigation, small group scholars may find evidence that by increasing the information available to decision makers more information will be discussed by group members. Yet, unless simplification rules can be utilized that combine seemingly diverse information, groups may become more dissatisfied with the available information and may even become more frustrated with the group itself--increasing the possibilities that the group may not be able to effectively continue. Additionally, small group scholars may examine the effects of decision rule on decision making. In some Congressional sub-committees, dissension is discouraged. If the group insists on agreement, then the search for information should increase. On the other hand, if group members clearly split on most major issues, the need for increased search for resolving individual differences is reduced.

There have been no attempts to make normative judgments on the search process in this study. Nevertheless, the effects of heightened search in ad hoc groups have

indicated that such behavior increases the likelihood that group members will be more dissatisfied with group processes and decisions. Since political groups are faced with increasingly complex issues and information about those issues, the ability of decision-making collectives to deal with such information must be examined. If groups become more dissatisfied with the information and with each other under heightened information conditions, then the implication may be that new methods need to be adopted for examining the "information revolution" in policy decision making.

Choice Shifts and the  
Natural Group Environment

Choice shift and group extremization theory may enable researchers to escape the traditional confines of ex post facto research on choices and outcomes. As in the case of information search analysis, examination of choice shifts more adequately treats processual notions of decision making. By following group members' positions over time, and not just on a single issue, the shifting of choices can be inspected. For example, the recent discussion that Congressmen become more ideologically conservative in their voting over a several year period can be loosely linked to a choice shift framework (Clem, 1977).

Given the amount of decision making in small groups, continuing dependence on outcome explanations of the group

decision ignores the ongoing process of decision making. Although the choice shift framework is an attempt to explain the final outcome of group decisions, the principal models are linked to group processes, specifically those involving group interaction and discussion.

The findings in this investigation emphasize several components of choice shift which may have immediate effect on studies of group decisions. One treatment variable, decision rule, indicates that greater shifts will occur when only a majority decision is required. The implication for political groups is clear; the requirement for a group consensus will result in smaller shifts away from individual predispositions than would occur under a majority decision rule. The results of this investigation also imply that the premises of value theory are correct. Thus, when decision makers view themselves as different from other typical decision makers on an issue, the result is a greater choice shift.

Possibly more important to political decision-making theory is the lack of relationship between the volume of alternatives search and the shifting of choices. No clear evidence can be presented for increased volume of information search or increased availability of information having any effect on group shifts. In fact, the evidence indicates that when groups are required to reach a consensus decision, rather than majority solution, the shifts will be less--in

spite of the fact that consensus groups search for more information. Given the increasing information availability in society, can the consequences of greater information be decisions that reflect the predispositions of individuals before group processes?

The current evidence indicates that shifts still occur, but without the influence of information availability or search. Instead, the processes of group interaction enable decision makers to move away from initial positions such that the decisions of groups move toward stronger recommendations of choices which were initially favored by the individuals before the group meeting.

#### Conclusion

Group decision making is becoming more prevalent for resolving the complex political and policy problems in our society. Additionally, the increasing complexity of policy issues requires different individuals with often divergent skills and interests to meet and attempt to resolve the issues placed before them. If the results of this study are correct, and groups do make decisions on the basis of factors other than the information that they gather in the group setting, then the future usage of small groups for resolving political and policy issues needs to be examined.

Yet, the evidence in this study does not indicate that individual-level search and decision making resolves the issue. More complex analyses of individual versus group

decision making have suggested that the former may also result in decisions that simply reflect individual predispositions (for review, see Dion et al., 1970). Thus, no answers are suggested in this investigation. Future research must come to grips with the realization that the current explanatory factors for examining group decision making cannot adequately tap all of the aspects of the decision process. Thus, research must find new measures that empirically isolate the elements of decisional analysis. This investigation has attempted to delineate areas, both in theory and research, that may enable greater understanding of the process of decision making--a process which may be crucial for explaining the political and policy decisions of our society.

APPENDIX A

PRETEST QUESTIONNAIRE

1. Please fill in your social security number in the space provided below.

\_\_\_\_\_

2. What is your class standing? Circle the appropriate response.

Freshman      Sophomore      Junior      Senior      Graduate

3. What is your sex? Circle the appropriate response.

Male      Female

The next section of the questionnaire centers on your attitudes toward various social and political events around you. Below is a sample question for illustration.

Sample Question:

Politicians are basically honest people.

Strongly    Moderately    Somewhat                      Somewhat    Moderately    Strongly  
Agree      Agree      Agree    Neutral    Disagree    Disagree    Disagree

If you agree strongly, circle #1

If you moderately agree, circle #2

If you have mixed feelings, but tend to agree, circle #3

If you are not in agreement or disagreement, circle #4

If you have mixed feelings, but tend to disagree, circle #5

If you moderately disagree, circle #6

If you disagree strongly, circle #7

Each line represents your attitude or opinion on each of the questions. Please read each carefully and give your judgment by circling the number of the response that most closely reflects your feelings or opinion. Take



your time and answer each question. Circle only one response for each question.

4. Large universities overemphasize organized athletics.

Strongly Agree	Neutral					Strongly Disagree
1	2	3	4	5	6	7

5. New technological developments are needed to save America's large cities.

SA	N					SD
1	2	3	4	5	6	7

6. The federal government has spent too much money on military weaponry and not enough for its people.

SA	N					SD
1	2	3	4	5	6	7

7. This country should not support military dictatorships around the world.

SA	N					SD
1	2	3	4	5	6	7

8. We need to protect our environment even if it means some people will lose their jobs.

SA	N					SD
1	2	3	4	5	6	7

9. One of the reasons our environment is in danger is because Americans are too selfish.

SA	N					SD
1	2	3	4	5	6	7

10. The prime purpose of the government in Washington is to defend the people against outside aggression, not to try to solve all of the problems of society.

SA	N					SD
1	2	3	4	5	6	7

11. Foreign aid has been used too often to aid nations which are unfriendly to our country.

SA	N					SD
1	2	3	4	5	6	7

12. Americans buy whatever is new just because it is different.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
13. Professors who do a lot of research are not very good teachers.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
14. Never tell anyone the real reason you did something unless it is useful to do so.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
15. The best way to handle people is to tell them what they want to hear.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
16. One should take action only when sure it is morally right.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
17. Most people are basically good and kind.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
18. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
19. Honesty is the best policy in all cases.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
20. There is no excuse for lying to someone else.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
21. Generally speaking, people won't work hard unless they're forced to do so.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |

22. All in all, it is better to be humble and honest than to be important and dishonest.

SA				N			SD
1	2	3	4	5	6	7	

23. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which carry more weight.

SA				N			SD
1	2	3	4	5	6	7	

24. Most people who get ahead in the world lead clean, moral lives.

SA				N			SD
1	2	3	4	5	6	7	

25. Anyone who completely trusts anyone else is asking for trouble.

SA				N			SD
1	2	3	4	5	6	7	

26. The biggest difference between most criminals and other people is that the criminals are stupid enough to get caught.

SA				N			SD
1	2	3	4	5	6	7	

27. Most people are brave.

SA				N			SD
1	2	3	4	5	6	7	

28. It is wise to flatter important people.

SA				N			SD
1	2	3	4	5	6	7	

29. It is possible to be good in all respects.

SA				N			SD
1	2	3	4	5	6	7	

30. Barnum was wrong when he said that there's a sucker born every minute.

SA				N			SD
1	2	3	4	5	6	7	

31. It is hard to get ahead without cutting corners to get there.

SA				N			SD
1	2	3	4	5	6	7	

32. People suffering from incurable diseases should have the choice of being put painlessly to death.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
33. Most people forget more easily the death of a parent than the loss of their property.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
34. If I have an important project for class, I would rather work on it with a few others as a group project than work on it on my own.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
35. Without the right breaks one cannot be an effective leader.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
36. I enjoy planning things and deciding what each person in a group should do.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
37. I must admit that I try to see what others think before I take a stand.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
38. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
39. People seem to naturally turn to me when decisions have to be made.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |
40. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
- | SA |   |   |   |   |   | N |  |  |  |  |  | SD |
|----|---|---|---|---|---|---|--|--|--|--|--|----|
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |  |  |  |  |  |    |

41. Generally, I find that solving problems in a group takes twice as long as it would take to solve them myself.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
42. When I work on a committee, I like to take charge of things.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
43. There really is no such thing as luck.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
44. I feel nervous when I try to do something in a group.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
45. Many times I feel that I have little influence over the things that happen to me.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
46. Most groups that I have been in are not effective in making decisions.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
47. I would rather not have much responsibility for getting people introduced.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
48. It is impossible for me to believe that chance or luck plays an important role in my life.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
49. When in a group of people, I have trouble thinking of the right things to say.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
50. Most people don't realize the extent to which their lives are controlled by accidental happenings.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |

51. I find that I learn more when I study for an exam with other students, rather than by myself.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
52. In school, I generally find it easy to talk in front of a class.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
53. By taking an active part in political and social affairs, the people can better control world events.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
54. In a group, I am often the person who gets the group started by making sure everybody gets introduced.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
55. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
56. I must admit that I feel that I have accomplished more when I finish a task by myself rather than completing it with a group.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
57. In a group of strangers, I am often afraid of saying or doing something that I might regret afterwards.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
58. Capable people who fail to become leaders have not taken advantage of their opportunities.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |

The Machiavellian Scale--Questions 14-33.

The Locus-of-Control Scale--Questions 35, 38, 40, 43, 45, 48, 50, 53, 55, and 58.

APPENDIX B

PRETEST--FIVE POLICY ITEMS

INSTRUCTIONS

Social Security No. \_\_\_\_\_

This section of the questionnaire contains five items that require some important decisions. We would like you to read each item carefully and examine all of the information given to help you make an advisory recommendation. Then check the blank at the end of the item that most clearly approximates your decision. The possible recommendations range from strongly favoring one alternative to strongly favoring the other. If you feel that you cannot make a recommendation either way, mark neutral.

Next to your decision on each item we ask you to check the blank that most closely approximates how you think 200 other University of Oklahoma students like you might respond. Obviously, we are asking you to estimate their response.

Please answer all five decision items. There are no right or wrong answers. An example of the answers you must check appears below:

<u>Your Recommendations:</u>	<u>Check What Other Students Might Recommend:</u>
____ (1) <u>Strongly</u> favor alternative X	____ (1) <u>Strongly</u> favor alternative X
____ (2) <u>Moderately</u> favor alternative X	____ (2) <u>Moderately</u> favor alternative X
____ (3) <u>Slightly</u> favor alternative X	____ (3) <u>Slightly</u> favor alternative X
____ (4) <u>Neutral</u> ; favor neither alternative X or Y	____ (4) <u>Neutral</u> ; favor neither alternative X or Y
____ (5) <u>Slightly</u> favor alternative Y	____ (5) <u>Slightly</u> favor alternative Y
____ (6) <u>Moderately</u> favor alternative Y	____ (6) <u>Moderately</u> favor alternative Y
____ (7) <u>Strongly</u> favor alternative Y	____ (7) <u>Strongly</u> favor alternative Y

## Problem # 1

An important decision-maker in state Alpha needs to decide whether or not to build a dam on a local river. Serious spring flood problems caused considerable damage to farms, yet environmentalists object to the dam because of damage to a scenic river.

## BACKGROUND INFORMATION

For the Dam

1. For the last 10 years several floods to farms have cost approximately \$50 million; a dam would control such floods.
2. Loss of food crops affects rising prices on food items in neighboring communities.

Against the Dam

1. The dam will require several years to complete and will cost at least \$100 million to the state (even though federal funding will help).
2. Environmentalists claim an historic, wild and scenic river will be destroyed--and recreational facilities that have functioned along the river will be lost.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly oppose building the dam

## CHECK WHAT OTHER STUDENTS MIGHT RECOMMEND

- \_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly oppose building the dam



Problem #2

Nation A and Nation B are at the edge of war over a lightly populated mountain area along their common border. Both nations turn to your nation in the situation and a national decision-maker whom you are advising must take a position on the issue. Your nation is very influential with both nations and neither will meet with the other.

BACKGROUND INFORMATION

For Nation A

1. Nation A is a democracy while Nation B is a military dictatorship.
2. Nation A has developed the natural resources in the disputed area in the last 10 years and Nation B has never mentioned its claim until the area has been developed.

For Nation B

1. Nation B is a strong supporter of your nation, while Nation A is building close ties with your strongest enemies.
2. The mountain area has belonged to Nation B until only 30 years ago when Nation A claimed it during a world war.

CHECK YOUR RECOMMENDATION

- \_\_\_\_\_ (1) Strongly favor Nation A keep the land
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly favor Nation B

CHECK WHAT OTHER STUDENTS MIGHT RECOMMEND

- \_\_\_\_\_ (1) Strongly favor Nation A keep the land
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly favor Nation B

## Problem #3

Your nation is at a crossroads. The nation is no longer as wealthy as 10 years earlier, thus the usual high monetary commitment to both domestic and military programs will change. Your advise to a national decision-maker is to recommend which programs should have the highest priorities.

## BACKGROUND INFORMATION

For Military Spending

1. Because your nation is a world power further cutbacks in military weaponry will reduce the nation's ability to defend itself.
2. A reduction in military spending will result in a loss of jobs to many people currently working in military-related jobs.

For Domestic Spending

1. Internal needs for housing, medical care and aid to the elderly are growing and all have been limited in the amount of funds previously available.
2. Those in favor of domestic spending argue that the military, through cost overruns and waste, are misusing their funds.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on domestic spending

## CHECK WHAT OTHER STUDENTS MIGHT RECOMMEND

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on domestic spending

Problem #4

Your city has a limited amount of funds available for building new transportation facilities. The city's population is climbing dramatically. The alternatives are to build a new highway in and out of the city or a new mass transit system consisting of increased bus service and a new subway system. The mayor needs your advice on these alternatives.

BACKGROUND INFORMATION

For the Highway

- 1. The new highway is over a million dollars cheaper than the mass transit system.
- 2. Mass transit systems in other large cities have met with mixed success; many are not being used by the population.

For Mass Transit

- 1. The mass transit supporters point out that if the population continues to grow, the highway will be out of date in 10 years while the mass transit system will be useful for at least 50 years.
- 2. Mass transit advocates have polled the city residents and find a large percentage claiming they would ride the new transit system.

CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly recommend building the mass transit system

CHECK WHAT OTHER STUDENTS MIGHT RECOMMEND

- \_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly recommend building the mass transit system

Problem #5

Your college regents need advice on priorities. Money for education is currently extremely tight in your university. Your institution is a private school with only a small amount of governmental funding. Because of the tight money situation, either money for research must be cut back, or athletic funding will need to be reduced.

BACKGROUND INFORMATION

For Emphasis on Research Funding

1. In past years, organized athletics has a mixed record of success. Football and various minor spring sports have failed monetarily. Basketball has been successful but cannot make up for the deficits in other athletic programs.
2. Because of the high academic quality of your school, a reduction in research funding may cause several prominent scholars to leave the school and thus lower the prestige of the school.

For Emphasis on Athletic Funding

1. The alumni chapter is pushing for continued support of athletics, and their contributors make up some 25% of the university budget each year.
2. The community where the school is located points out that research from the university has done very little to aid the community, whereas athletics brings community ties closer to the school.

CHECK YOUR RECOMMENDATION

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on athletic funding

CHECK WHAT OTHER STUDENTS MIGHT RECOMMEND

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on athletic funding

**APPENDIX C**

**GROUP CONDITIONS**

CONTROL GROUPS

INSTRUCTIONS

Social Security No. \_\_\_\_\_

The questionnaire before you is similar to the one you completed recently in class. You were asked to answer it in order to familiarize yourself with the various situations and to reach some tentative decisions about each. At this time, read each one of the situations carefully and mark your decision in the appropriate space.

## Problem #1

An important decision-maker in state Alpha needs to decide whether or not to build a dam on a local river. Serious spring flood problems caused considerable damage to farms, yet environmentalists object to the dam because of damage to a scenic river.

## BACKGROUND INFORMATION

For the Dam

1. For the last 10 years several floods to farms have cost approximately \$50 million; a dam would control such floods.
2. Loss of food crops affects rising prices on food items in neighboring communities.

Against the Dam

1. The dam will require several years to complete and will cost at least \$100 million to the state (even though federal funding will help).
2. Environmentalists claim an historic, wild and scenic river will be destroyed--and recreational facilities that have functioned along the river will be lost.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5) Strongly oppose building the dam

## Problem #2

Nation A and Nation B (both friendly to your nation) are at the edge of war over a lightly populated mountain area along their common border. Both nations turn to your nation in the situation and a national decision-maker whom you are advising must take a position on the issue. Your nation is very influential with both nations and neither will meet with the other.

## BACKGROUND INFORMATION

For Nation A

1. Nation A is a democracy while Nation B is a military dictatorship.
2. Nation A has developed the natural resources in the disputed area in the last 10 years and Nation B has never mentioned its claim until the area has been developed.

For Nation B

1. Nation B is a strong supporter of your nation, while Nation A is building close ties with your strongest enemies.
2. The mountain area has belonged to Nation B until only 30 years ago when Nation A claimed it during a world war.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly favor Nation A keep the land
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly favor Nation B



## Problem #3

Your nation is at a crossroads. The nation is no longer as wealthy as 10 years earlier, thus the usual high monetary commitment to both comestic and military programs will change. Your advice to a national decision-maker is to recommend which program should have the highest priorities.

## BACKGROUND INFORMATION

For Military Spending

1. Because your nation is a world power, further cutbacks in military weaponry will reduce the nation's ability to defend itself.
2. A reduction in military spending will result in a loss of jobs to many people currently working in military-related jobs.

For Domestic Spending

1. Internal needs for housing, medical care and aid to the elderly are growing and all have been limited in the amount of funds previously available.
2. Those in favor of domestic spending argue that the military, through cost-overruns and waste, are misusing their funds.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on domestic spending

## Problem #4

Your city has a limited amount of funds for building new transportation facilities. The city's population is climbing dramatically. The alternatives are to build a new highway going in and out of the city or a new mass transit system consisting of increased bus service and a new subway system. The mayor needs your advice on these alternatives.

## BACKGROUND INFORMATION

For the Highway

1. The new highway is over a million dollars cheaper than the mass transit system.
2. Mass transit systems in other large cities have met with mixed success; many are not being used by the population.

For Mass Transit

1. The mass transit supporters point out that if the population continues to grow, the highway will be out of date in 10 years, while the mass transit system will be useful for at least 50 years.
2. Mass transit advocates have polled the city residents and find a large percentage claiming they would ride the new transit system.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6) Strongly recommend building the mass transit system

## Problem #5

Your college regents need advice on priorities. Money for education is currently extremely tight in your university. Your institution is a private school with only a small amount of governmental funding. Because of the tight money situation, either money for research must be cut back, or athletic funding will need to be reduced.

## BACKGROUND INFORMATION

For Emphasis on Research Funding

1. In past years, organized athletics has a mixed record of success. Football and various minor spring sports have failed monetarily. Basketball has been successful but cannot make up for the deficits in other athletic programs.
2. Because of the high academic quality of your school, a reduction in research funds may cause several prominent scholars to leave the school and thus lower the prestige of the school.

For Emphasis on Athletic Funding

1. The alumni chapter is pushing for continued support of athletics, and their contributors make up some 25% of the university budget each year.
2. The community where the school is located points out that research from the university has done very little to aid the community, whereas athletics brings community ties close to the school.

## CHECK YOUR RECOMMENDATION

- \_\_\_\_ (1) Strongly recommend emphasis on research funding
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly recommend emphasis on athletic funding

## MAJORITY DECISION/LOW INFORMATION GROUPS

Social Security No. \_\_\_\_\_

## INSTRUCTIONS

The questionnaire before you is similar to the one you completed recently in class. You were asked to answer it individually first in order to familiarize yourself with the various situations and to reach some tentative decisions about each. We would now like you to discuss each situation with other members of the group and, in turn, arrive at a majority recommendation. That is, at least three of you must agree to a particular choice. After reaching a majority decision, you are to mark this choice on your questionnaire. If you disagree with the majority, your personal recommendation should be indicated by placing an additional check in the appropriate blank on the second set of answers.

Problem #1

An important decision-maker in state Alpha needs to decide whether or not to build a dam on a local river. Serious spring flood problems caused considerable damage to farms, yet environmentalists object to the dam because of damage to a scenic river.

BACKGROUND INFORMATION

For the Dam

1. For the last 10 years several floods to farms have cost approximately \$50 million; a dam would control such floods.
2. Loss of food crops affects rising prices on food items in neighboring communities.

Against the Dam

1. The dam will require several years to complete and will cost at least \$100 million to the state (even though federal funding will help).
2. Environmentalists claim an historic, wild and scenic river will be destroyed--and recreational facilities that have functioned along the river will be lost.

CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly oppose building the dam

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly oppose building the dam

## Problem #2

Nation A and Nation B (both friendly to your nation) are at the edge of war over a lightly populated mountain area along their common border. Both nations turn to your nation in the situation and a national decision-maker whom you are advising must take a position on the issue. Your nation is very influential with both nations and neither will meet with the other.

## BACKGROUND INFORMATION

For Nation A

1. Nation A is a democracy while Nation B is a military dictatorship.
2. Nation A has developed the natural resources in the disputed area in the last 10 years and Nation B has never mentioned its claim until the area has been developed.

For Nation B

1. Nation B is a strong supporter of your nation, while Nation A is building close ties with your strongest enemies.
2. The mountain area has belonged to Nation B until only 30 years ago when Nation A claimed it during a world war.

## CHECK THE RECOMMENDATION OF YOUR GROUP

- \_\_\_\_\_ (1) Strongly favor Nation A  
keep the land
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly favor Nation B

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly favor Nation A  
keep the land
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly favor Nation B

## Problem #3

Your nation is at a crossroads. The nation is no longer as wealthy as 10 years earlier, thus the usual high monetary commitment to both domestic and military programs will change. Your advice to a national decision-maker is to recommend which program should have the highest priorities.

## BACKGROUND INFORMATION

For Military Spending

1. Because your nation is a world power, further cutbacks in military weaponry will reduce the nation's ability to defend itself.
2. A reduction in military spending will result in a loss of jobs to many people currently working in military-related jobs.

For Domestic Spending

1. Internal needs for housing, medical care and aid to the elderly are growing and all have been limited in the amount of funds previously available.
2. Those in favor of domestic spending argue that the military, through cost-overruns and waste, are misusing their funds.

CHECK THE RECOMMENDATION OF YOUR GROUP

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on domestic spending

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on domestic spending

## Problem #4

Your city has a limited amount of funds available for building new transportation facilities. The city's population is climbing dramatically. The alternatives are to build a new highway going in and out of the city or a new mass transit system consisting of increased bus service and a new subway system. The mayor needs your advice on these alternatives.

## BACKGROUND INFORMATION

For the Highway

1. The new highway is over a million dollars cheaper than the mass transit system.
2. Mass transit systems in other large cities have met with mixed success; many are not being used by the population.

For Mass Transit

1. The mass transit supporters point out that if the population continues to grow, the highway will be out of date in 10 years while the mass transit system will be useful for at least 50 years.
2. Mass transit advocates have polled the city residents and find a large percentage claiming they would ride the new transit system.

CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend building the mass transit system

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend building the mass transit system



## Problem #5

Your college regents need advice on priorities. Money for education is currently extremely tight in your university. Your institution is a private school with only a small amount of governmental funding. Because of the tight money situation, either money for research must be cut back, or athletic funding will need to be reduced.

## BACKGROUND INFORMATION

For Emphasis on Research Funding

1. In past years, organized athletics has a mixed record of success. Football and various minor spring sports have failed monetarily. Basketball has been successful but cannot make up for the deficits in other athletic programs.
2. Because of the high academic quality of your school, a reduction in research funds may cause several prominent scholars to leave the school and thus lower the prestige of the school.

For Emphasis on Athletic Funding

1. The alumni chapter is pushing for continued support of athletics, and their contributors make up some 25% of the university budget each year.
2. The community where the school is located points out that research from the university has done very little to aid the community, whereas athletics brings community ties closer to the school.

## CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on athletic funding

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL PREFERENCE

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend emphasis on athletic funding

## MAJORITY DECISION/HIGH INFORMATION GROUPS

Social Security No. \_\_\_\_\_

## INSTRUCTIONS

The questionnaire before you is similar to the one you completed recently in class. You were asked to answer it individually first in order to familiarize yourself with the various situations and to reach some tentative decisions about each. In addition, more background information has been provided to aid in your decision. We would now like you to discuss each situation with other members of the group and in turn, arrive at a majority recommendation. That is, at least three of you must agree to a particular choice. After reaching a majority decision, you are to mark this choice on your questionnaire. If you disagree with the majority, your personal recommendation should be indicated by placing an additional check in the appropriate blank on the second set of answers.

Problem #1

An important decision-maker in state Alpha needs to decide whether or not to build a dam on a local river. Serious spring flood problems caused considerable damage to farms, yet environmentalists object to the dam because of damage to a scenic river.

BACKGROUND INFORMATION

For the Dam

1. For the last 10 years several floods to farms have cost approximately \$50 million; a dam would control such floods.
2. Loss of food crops affects rising prices on food items in neighboring communities.
3. Pro-dam groups suggest that new recreational facilities will result from the lake created by the dam.
4. Farmers in the area claim that if severe floods continue most of the farmers will eventually go bankrupt.
5. Pro-dam groups note that dams built in neighboring states have not adversely affected the wildlife in those areas.

Against the Dam

1. The dam will require several years to complete and will cost at least \$100 million to the state (even though federal funding will help).
2. Environmentalists claim an historic, wild and scenic river will be destroyed--and recreational facilities that have functioned along the river will be lost.
3. Anti-dam groups claim that the surrounding wilderness area will be destroyed by over-commercialization of the area.
4. Environmentalists claim that too little is known about the possible effects on the animal wildlife if the dam is built.
5. Environmentalists emphasize that several varieties of fish in the river may be destroyed if the dam is built.

CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly oppose building the dam

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly favor building the dam
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly oppose building the dam

## Problem #2

Nation A and Nation B (both friendly to your nation) are at the edge of war over a lightly populated mountain area along their common border. Both nations turn to your nation in the situation and a national decision-maker whom you are advising must take a position on the issue. Your nation is very influential with both nations and neither will meet with the other.

## BACKGROUND INFORMATION

For Nation A

1. Nation A is a democracy while Nation B is a military dictatorship.
2. Nation A has developed the natural resources in the disputed area in the last 10 years and Nation B has never mentioned its claim until the area has been developed.
3. Nation A's developing economy is deeply tied to keeping their new resources--while Nation B is a relatively rich nation.
4. Nation A's development has provided jobs for most of the people in the area.
5. Some claim that if Nation A loses the mountain area, a revolution will occur in the country and the democratic regime will collapse.

## CHECK THE RECOMMENDATION OF YOUR GROUP

- \_\_\_\_ (1) Strongly favor Nation A keep the land
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly favor Nation B

For Nation B

1. Nation B is a strong supporter of your nation, while Nation A is building close ties with your strongest enemies.
2. The mountain area has belonged to Nation B until only 30 years ago when Nation A claimed it during a world war.
3. Although sparsely populated, about 60% of the people in the mountain area want to be joined to Nation B.
4. Nation B claims that Nation A is exploiting the mountain area by taking all of the natural resources out of the area for its own use.
5. The close relationship of your nation to Nation B will be severely damaged if Nation B loses its claim to the land.

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_ (1) Strongly favor Nation A keep the land
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly favor Nation B

Problem #3

Your nation is at a crossroads. The nation is no longer as wealthy as 10 years earlier, thus the usual high monetary commitment to both domestic and military programs will change. Your advice to a national decision-maker is to recommend which programs should have the highest priorities.

BACKGROUND INFORMATION

For Military Spending

1. Because your nation is a world power, further cutbacks in military weaponry will reduce the nation's ability to defend itself.
2. A reduction in military spending will result in a loss of jobs to many people currently working in military-related jobs.
3. Other advisors argue that reducing our commitments around the world is just isolationism and will only cause the nation to decline as a world power.
4. Some claim that the money spent on domestic programs has been wasted, and that no new commitments should be made in such programs until they work.
5. Others emphasize that the government should not be involved in housing, welfare, and other such programs, but that it only should protect the population from foreign invasion.

For Domestic Spending

1. Internal needs for housing, medical care and aid to the elderly are growing and all have been limited in the amount of funds previously available.
2. Those in favor of domestic spending argue that the military, through cost-overruns and waste, are misusing their funds.
3. Some argue that we have become too reliant on solving world problems with military actions and now we must turn back to our own internal problems.
4. Some claim that we carry too much of the weight for supplying the world military weapons, and that our allies should contribute more of their manpower and money for military uses.
5. Because there are increasing numbers of elderly in the population, more money is necessary to provide for their needs.

CHECK THE RECOMMENDATION OF YOUR GROUP

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend empha-

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly recommend emphasis on military spending
- \_\_\_\_\_ (2)
- \_\_\_\_\_ (3)
- \_\_\_\_\_ (4) Neutral
- \_\_\_\_\_ (5)
- \_\_\_\_\_ (6)
- \_\_\_\_\_ (7) Strongly recommend empha-

Problem #4

Your city has a limited amount of funds available for building new transportation facilities. The city's population is climbing dramatically. The alternatives are to build a new highway going in and out of the city or a new mass transit system consisting of increased bus service and a new subway service. The mayor needs your advice on these alternatives.

BACKGROUND INFORMATION

For the Highway

1. The new highway is over a million dollars cheaper than the mass transit system.
2. Mass transit systems in other large cities have met with mixed success; many are not being used by the population.
3. Highway advocates point out that people in your city always drive cars and that mass transit will be ignored.
4. Highway supporters point out that highways are the most favored means of travel and that mass transit is still in an experimental stage.
5. Even though a mass transit system is useful longer than a highway, replacing highways are much cheaper than replacing transit systems.

For Mass Transit

1. The mass transit supporters point out that if the population continues to grow, the highway will be out of date in 10 years while the mass transit system will be useful for at least 50 years.
2. Mass transit advocates have polled the city residents and find a large percentage claiming they would ride the new transit system.
3. Because of increasing costs of fuel and the growth of the city further away from the central city automobiles may become too expensive to operate.
4. Building more highways just encourages more urban sprawl.
5. As highways are built, people lose their homes, or their property values decline while mass transit causes a minimum of population disruption.

CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly recommend building the transit system

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_ (1) Strongly recommend building the highway
- \_\_\_\_ (2)
- \_\_\_\_ (3)
- \_\_\_\_ (4) Neutral
- \_\_\_\_ (5)
- \_\_\_\_ (6)
- \_\_\_\_ (7) Strongly recommend building the transit system

## Problem #5

Your college regents need advice on priorities. Money for education is currently extremely tight in your university. Your institution is a private school with only a small amount of governmental funding. Because of the tight money situation, either money for research must be cut back, or athletic funding will need to be reduced.

## BACKGROUND INFORMATION

For Emphasis on Research Funding

1. In past years, organized athletics has a mixed record of success. Football and various minor sports have failed monetarily. Basketball has been successful but cannot make up for the deficits in other athletic programs.
2. Because of the high academic quality of your school, a reduction in research funds may cause several prominent scholars to leave the school and thus lower the prestige of the school.
3. The school's faculty suggests that research has often contributed to the advancement of science throughout the world.
4. A large petition drive is currently being boosted by some of the students in support of the research funding.
5. The standards of education and the prestige that a degree from this school exacts may decline if the university cuts back on research funding.

## CHECK THE RECOMMENDATION FOR YOUR GROUP

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding  
 \_\_\_\_\_ (2)  
 \_\_\_\_\_ (3)  
 \_\_\_\_\_ (4) Neutral  
 \_\_\_\_\_ (5)  
 \_\_\_\_\_ (6)

For Emphasis on Athletic Funding

1. The alumni chapter is pushing for continued support of athletics, and their contributions make up some 25% of the university budget each year.
2. The community where the school is located points out that research from the university has done very little to aid the community, whereas athletics brings community ties closer to the school.
3. Athletic programs make universities more visible in the population; a cut in athletic funding thus may cause a decline in student enrollment, and thus force a cutback in all university funding.
4. Athletics gives a university something to build a cohesive school around and such "school spirit" is crucial for the maintenance of a university.
5. Beyond a prestige factor, research does not help the school, but successful athletic programs usually increase enrollment and thus increase funds for the university.

IF YOU DISSENT OR DISAGREE WITH THE MAJORITY RECOMMENDATION, CHECK YOUR PERSONAL CHOICE

- \_\_\_\_\_ (1) Strongly recommend emphasis on research funding  
 \_\_\_\_\_ (2)  
 \_\_\_\_\_ (3)  
 \_\_\_\_\_ (4) Neutral  
 \_\_\_\_\_ (5)  
 \_\_\_\_\_ (6)

## CONSENSUS GROUPS/LOW INFORMATION GROUPS\*

Social Security No. \_\_\_\_\_

## INSTRUCTIONS

The questionnaire before you is similar to the one you completed recently in class. You were asked to answer it individually first in order to familiarize yourself with the various situations and to reach some tentative decisions about each. We would now like you to discuss each situation with other members of the group and arrive at a unanimous recommendation about each item. After reaching a unanimous decision, mark the group's choice on your questionnaire.

\*The information presented for each item is the same as in the majority/low information condition.



## CONSENSUS DECISION/HIGH INFORMATION GROUPS\*

Social Security No. \_\_\_\_\_

## INSTRUCTIONS

The questionnaire before you is similar to the one you completed recently in class. You were asked to answer it individually first in order to familiarize yourself with the various situations and to reach some tentative decisions about each. In addition, more background information has been provided to aid in your decision. We would now like you to discuss each situation with other members of the group and arrive at a unanimous recommendation about each item. After reaching a unanimous decision, mark the group's choice on your questionnaire.

\*The information presented for each item is the same as in the majority/high information condition.

APPENDIX D

INTERACTION CODING FORMS

CODER 1--INTERACTION AND BALES CATEGORIES

Coder 1      Group No. \_\_\_\_\_      Group Type \_\_\_\_\_      Problem No. \_\_\_\_\_

Bales

<u>Statement #</u>	<u>From Whom</u>	<u>To Whom</u>	<u>Positive React.</u>	<u>Answers</u>	<u>Questions</u>	<u>Negative React.</u>
1						
2						
3						
4						
5						
<hr/>						
6						
7						
.						
.						
.						
50						

## CODER 2--INFORMATION CODING

Coder 2            Group # \_\_\_\_\_            Group Type \_\_\_\_\_            Problem # \_\_\_\_\_

From            A            B            C            D            E            O

---

Info

Yes

No

Side

A

B

Neutral

A/B

Which Bit

Info

Unique

A1

A2

A3

A4

A5

B1

B2

B3

B4

B5

## CODER 3--BALES AND INFORMATION CODING

Coder 3            Group # \_\_\_\_\_            Group Type \_\_\_\_\_            Problem # \_\_\_\_\_  
 From            A            B            C            D            E            O

---

Positive  
React.

---

Answers

---

Questions

---

Negative  
React.

---

(If any)  
Side Info

A  
 B  
 N  
 A/B

---

Which Bit

A1  
 A2  
 A3  
 A4  
 A5

---

B1  
 B2  
 B3  
 B4  
 B5

---

APPENDIX E

POSTTEST

Social Security No. \_\_\_\_\_

The following are a list of questions on your experience in the group session. Please answer all of the questions. Each item is based on the continuum as shown below.

Strongly Agree	Moderately Agree	Somewhat Agree	Neutral	Somewhat Disagree	Moderately Disagree	Strongly Disagree
1	2	3	4	5	6	7

After reading the question, please circle the response that is most like your preferred response.

1. I am satisfied with the decisions of my group.

Strongly Agree			Neutral			Strongly Disagree
1	2	3	4	5	6	7

2. The information we had was helpful in making our decisions.

SA			N			SD
1	2	3	4	5	6	7

3. We had adequate information with which to make our decisions.

SA			N			SD
1	2	3	4	5	6	7

4. The members of my group worked well together.

SA			N			SD
1	2	3	4	5	6	7

5. I was interested in the policy issues.

SA			N			SD
1	2	3	4	5	6	7

6. There was a great deal of conflict in my group.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
7. The group as a whole was interested in the policy issues.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
8. There was general consensus in my group in terms of the final decision on the policy issues.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
9. In my group, a single person tended to push ideas on the rest of the group.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
10. In my group, a small group of people tended to push ideas on the rest of the committee.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
11. In general, I disagreed with the final decisions of my group.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
12. In general, the differences among the people in my group on the policy issues were minor.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
13. My group was tense when we began the meeting.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
14. By the end of the meeting, my group was relaxed.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SA |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |
15. I would like to work on similar problems with this group again.
- |    |   |   |   |   |   |   |    |
|----|---|---|---|---|---|---|----|
| SA |   |   |   | N |   |   | SD |
| 1  | 2 | 3 | 4 | 5 | 6 | 7 |    |

16. I enjoyed the group session.

SA				N			SD
1	2	3	4	5	6	7	

Now we would like to ask you some questions on the other members of your group. For each question, all of the member are listed. Circle the letter for the member, other than yourself, who best fits the question.

17. First, identify yourself by letter.

A            B            C            D            E

18. When given a specific policy problem similar to those just completed, with whom would you most like to work?

A            B            C            D            E

19. When given a specific policy problem similar to those just completed, with whom would you least like to work?

A            B            C            D            E

20. When seeking advice on specific policy problems, who could advise you most competently?

A            B            C            D            E

21. Among member of the group, who would you most enjoy having as a personal friend?

A            B            C            D            E

22. Who contributed most to the decisions which were made by your group?

A            B            C            D            E

23. If your group would meet again, who should be the chairperson of the group?

A            B            C            D            E

24. If you could remove one person from a future group meeting, who would you remove?

A            B            C            D            E

25. What do you think this exercise was about?

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