GROUP STRUCTURE AND LOCUS OF CONTROL IN PREDICTIVE RISK JUDGMENTS

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1970

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ACKNOWLEDGEMENTS

I wish to express my thanks to the members of my dissertation committee, Dr. Salomon Rettig, Dr. Walter Weiss, and Dr. William Oakes, for their advice and counsel. Particular gratitude is expressed to the committee chairman, Dr. Rettig, for his personal concern and careful guidance through the stages of conception, execution, and presentation of this research.

Also, of course, to Barbara.

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INTRODUCTION

General Statement of the Problem

The present paper is concerned with the characteristics and determinants of risk decision making. The particular emphasis here is on group decision making, on the differences in decisions made by individuals and groups, and especially on the differences found under different group conditions.

Risk situations require a choice between alternate actions, and generally involve both uncertainty of outcomes and differences in the values associated with the alternate outcomes. Typically, the least likely outcome is the most valued. There is often also relatively greater loss associated with trying and failing to achieve the least likely outcome. Risk situations, thus, vary as a function of the likelihoods and values associated with outcomes.

Historical Background I: Early Approaches

As Kogan and Wallach (1967b) point out, "Experimental work explicitly concerned with the comparison of individuals and groups in the taking of risks is of quite recent origin" (p. 232). Speculation on this problem, though, is traceable at least as far back as LeBon's The Crowd (1960), first published in 1895. Speculation by LeBon, and such other early social theorists as McDougall (1920) and Freud (1960; first edition, 1921), typically characterized groups as far more

emotional than individuals, more impulsive, more violent, and knowing neither doubt nor uncertainty. While the overall impression conveyed is that groups are considerably more risky than individuals, this might be misleading since groups were also characterized as easily susceptible to panic (McDougall, 1920), as being fundamentally "conservative," and as having "a deep aversion to all innovations and advances and an unbounded respect for tradition" (Freud, 1960, p. 14).

In actuality, early thought on individual and group differences did not clearly differentiate risk as a separate category of behavior. Since groups were more emotional than individuals, it followed that group decisions would be more extreme than those of individuals; but the direction of the extremeness, or the determinants of direction were scarcely considered.

Historical Background II: Contemporary Approaches

More recent approaches to the problem of the differences between individual and group risk taking differ from the earlier work in three important ways. The earliest work (e.g., LeBon's The Crowd) focused primarily on large, short lived, unconstructured groups, i.e., crowds or mobs. Later theorists, like McDougall and Freud, began to explore some of the differences between structured and unstructured groups, but attention was still directed to large, pervasive organizations, (e.g., the Church and the army in Freud, 1960). Contemporary work is essentially concerned with small, task oriented, decision

making groups.

Secondly, with the exception of Freud, early theorists sought for explanations in emergent characteristics of the group (e.g., emotional contagion, irrational thought processes), which as causes of behavior were somehow qualitatively different from the antecedents of individual action. In contemporary theory, the group alters the stimulus context in which decisions are made, but explanations are ultimately based on psychological principles which are similar to those employed in explaiing individual decision making.

Third, in contrast to the highly speculative approaches of early social theorists, present theory is rooted in an active empiricism.

Contemporary models of risk decision making have generally been based on the assumption of man as a rational, economic creature, seeking maximum gains and minimum losses. According to these models, decisions are said to be a function of the probabilities and values of outcomes. Differences between models are mainly centered on whether probabilities and values (or utilities) should be specified in objective or subjective terms (Edwards, Lindman, and Phillips, 1965).

Kogan and Wallach (1967b), in a thorough review of the risk taking literature, criticize these models of risk decision making on a number of grounds. They point out the unavailability of methods for measuring subjective probabilities and values. They question the common assumption that, from

the perspective of the decision maker, probabilities and values are independent of each other. They doubt the validity of the "rational man" assumption of human decision making; and they note the inadequacy of present models to account for the findings of risk taking research, particularly the marked individual differences reported.

Kogan and Wallach (1967b) suggest the need for a model that "leaves...room for the possibility of variation of decision styles along risky or conservative lines" (p. 123); that is, for inclusion of a notion of "utility of risk" (p. 119). Another way of expressing this same idea is to conceptualize the term risk taking as the description of a class of operant responses. An adequate explanation of such responses would entail not only consideration of the intrinsic contingencies associated with decisions (i.e., gains or losses) and their respective schedules of occurrence (i.e., probabilities), but it also becomes necessary to consider other consequences, ones which are extrinsic to the actual risk alternatives.

For example, in an earlier monograph, Kogan and Wallach (1964) reported that subjects who were classified in the category "strongest motivational disturbance" because of both a high need for approval and high fear of failure, were more consistent in risk taking behavior across a number of situations than those not so classified (see also Kogan and Wallach, 1967a). The latter "were more responsive to the varying task and

situational characteristics that faced them in one or another decision-making procedure" (Kogan and Wallach, 1967b, p. 211). That is, they responded primarily to the intrinsic contingencies of the decision making task. The highly "disturbed" subjects had other, extrinsic, goals in mind. Kogan and Wallach (1967b) comment: "A person who is disposed to make sure that others view him in a favorable light will...always want to appear bold and daring if he views risk taking as socially more desirable, or he will always want to appear to be careful and judicious if he views conservatism as more desirable in the eyes of others" (p.210).

Risk Taking in Groups

Although theoretical interpretations and experimental procedures have varied considerably, research in group risk taking has usually involved, at the least, a comparison of the riskiness of decisions made by individuals working alone with the decisions of individuals working in groups, and/or a comparison of levels of risk under different group conditions. These comparisons have generally produced two major findings. Compared to individuals working alone, the variability of risk levels across individuals working in groups is reduced (Wallach and Kogan, 1965; Teger and Pruitt, 1967; Flanders and Thistlethwaite, 1967). In other words, group interaction leads to a convergence of members' decisions. (This is, of course, an inevitable consequence if group consensus is required.)

Secondly, most studies report a "risk shift." Compared to the average of individual decisions, there is a reliable increase (or decrease in some conditions) in the levels of risk chosen by groups (Wallach, Kogan, and Bem, 1962, 1964; Rettig, 1966; Marquis, 1962; Teger and Pruitt, 1967).

Since Stoner (1961) first reported that groups tended to make riskier decisions than individuals, this risky shift phenomenon has been observed by a score of investigators, under a variety of experimental conditions, on a diversity of populations, and with an assortment of different decision-making tasks. A number of explanations have been offered to account for this phenomenon; each of these, subsequently, being challenged by later research and alternate points of view. While each explanation seems to account for a particular set of results, none appears to encompass all experimental findings.

The past decade has seen the development of four major theoretical positions to account for the data reported: responsibility diffusion theory, familiarization theory, leadership theory, and value theory. In their attempts at explaining the differences between individuals and groups in riskiness these theories may be distinguished according to whether they ascribe such differences to intrinsic or extrinsic influences.

Responsibility Diffusion. Kogan and Wallach's (1967a) position emphasizes an intrinsic determinant: a decrease in

the probability of negative consequences in groups. Wallach, Kogan, and Bem (1962, 1964) have argued that the shift toward risk is a consequence of "responsibility diffusion." That is, under group decision making conditions the burden of responsibility for failing as a result of an overly risky decision is removed from the individual, leading to an increase in the boldness of decision making. In the more recent statements of the responsibility diffusion position, such feelings of responsibility are said to arise from other feelings: the establishment of affectional bonds between members (Kogan and Wallach, 1967b, p. 260).

These authors have provided support for their point of view by experimentally manipulating the responsibility for decision making in both a simulated risk situation ("the "Choice Dilemma") and an actual risk taking task with money as the stake. Compared to individual decision making, increased riskiness was found under various conditions when decisions were made by the group as a whole.

For example, in the study by Wallach, Kogan, and Bem (1964) some subjects were responsible for only their own outcomes, and some were responsible for the outcomes of other group members, as well as their own. When risk levels were decided alone, without group discussion, those responsible for others were more cautious than those responsible for themselves only. In contrast to this, when the responsibility for choice of risk levels was shared through group discussion, decisions of both groups--those responsible only for them-

selves and those responsible for others--exhibited a significant risky shift. Interestingly, the risky shift was greater for those whose outcomes determined the outcomes of others.

Responsibility diffusion theory has been criticized on a number of grounds. It has been unable to account for reports of cautious shifts (Stoner, 1961; 1968; Rabow, Fowler, Bradford, Hofeller, and Shibuya, 1966). It also appears inadequate to explain Bateson's (1966) and Flanders and Thistlethwaite's (1967) familiarization effect, i.e., the finding that directed individual restudy of the choice problems is sufficient to produce a risky shift.

According to responsibility diffusion theory, group discussion serves to permit the establishment of affectional bonds and the sharing of responsibility over decisions. Other aspects of the discussion, e.g., information exchange, are not considered important. Therefore, Pruitt and Teger's (1969) failure to find a risky shift when direct discussion of the risk items was prevented, while members both shared in the responsibility for decisions and established affectional bonds, argues against the adequacy of responsibility diffusion theory. Responsibility diffusion theory also seems incapable of accounting for Lamm's (1967) finding of equivalent risk shifts in observers of, and participants in group discussions. The former should presumably have been less able to establish affectional bonds.

Aside from such empirical repudiations, responsibility diffusion theory suffers from an important conceptual inadequacy.

Lamm (1967) has expressed this clearly. Much of this risky shift research has been carried out with Wallach and Kogan's (1959) Choice Dilemma scale, on which subjects make decisions about hypothetical stories.

> The question is then raised of whether the concept of responsibility is really applicable in view of the hypothetical nature of the Choice Dilemmas. For whom, to whom, in which way and to what extent are the group members responsible? Essential dimensions of responsibility are absent in this decision context. (Lamm, 1967, pp. 470-471).

Familiarization. Another explanation of the differences between individual and group risk taking has been proposed by Bateson (1966), and also by Flanders and Thistlethwaite (1967). Their "familiarization" theory ascribes the differences between individual and group decisions to an extrinsic influence. They propose that group discussion leads to an increased familiarity with the risk situation, and that, independent of the intrinsic contingencies, this has an unconstraining effect on decision making. This increased familiarization can follow from group discussion, but can just as readily result from instructing individuals to carefully restudy, on their own, the risk situation. Flanders and Thistlethwaite (1967) report that such instructions lead to as great a shift as does group discussion, and, further, that group discussion following individual restudy does not produce a significantly greater shift than does restudy alone.

It might be noted that familiarization theory, as elaborated by Flanders and Thistlethwaite (1967), ignores

totally shifts toward caution and attributes the increased riskiness that comes with familiarization, not to wiser or more enlightened decision-making, but to individuals' invariable unwillingness to make anything but relatively cautious judgments before adequate information is gathered. With increased information, decision-making is presumed to be disinhibited. The generality of this assertion that increased comprehension of a situation is always associated with increased riskiness seems particularly doubtful, especially in the light of Flanders and Thistlethwaites own finding of cautious shifts on two of the Choice Dilemma items.

Bateson's (1966) and Flanders and Thistlethwaite's (1967) familiarization explanation seems also to fall short of a complete understanding of the risky shift. For one thing, the "validity" of the findings of these authors is called into question by Pruitt and Teger (1969) who failed to reproduce the familiarization effect in four separate replications.

As another point, it is obvious that variations in environmental stimuli or social structure which beget variations in the risky shift, while holding constant opportunities to become familiar with the risk situation, preclude explanation via familiarization. Such results are reported by Rettig and Turoff (1967) and Kogan and Wallach (1967c). Rettig and Turoff (1967) found that direct observation of a group discussion led to significantly greater risk taking

on post-discussion decisions than did listening to a tape recording of the same discussion. In a similar study, Kogan and Wallach (1967c) compared the effects of active participation in a group with listening to a recording of the discussions, and found risk taking greater by the participants.

Leadership. A third explanation of the risk shift has been suggested by Collins and Guetzkow (1964). These authors propose that high risk takers may, in general, be more persuasive than more cautious persons. In other words, high risk takers are more likely to emerge as group leaders and it is their influence which causes the shift in others.

Whether Collins and Guetzkow's (1964) "leadership" theory is based on intrinsic or extrinsic influences is unclear, and depends on whether they are referring to (in the terminology of Deutsch and Gerard, 1955) normative or informational social influences. Leadership theory posits a positive correlation between risk tendencies and leadership potential, and assumes that leaders lead their groups to greater risk than would normally be taken by the other members. Such an explanation would be invoking intrinsic factors if the influence of the leader were primarily informational, i.e., if he influences the other group members to actually reevaluate the probabilities and outcomes of the risk alternatives.

Consistent with the leadership explanation is the finding by Wallach, Kogan, and Bem (1962) that the riskier

members of the group were judged by their co-members to be the more influential group participants. In this study, though, the direction of causality is not clear. As Kogan and Wallach (1967b) put it, "The judgment that high risk takers are more influential might be a consequence of the group shift toward greater risk taking rather than a cause of this shift " (p. 256).

Brown (1965) argues that both the choice of leader and the direction of shift are consequences of members' values, and he reports that when the shift is toward caution it is the more cautious members who are judged as most influential. Rabow et al. (1966) have confirmed this finding. This evidence casts doubt on the notion that high risk takers are invariably more influential than low risk takers, but it (and most other research as well) does not say anything about the effect of leadership in groups comprised of members who differ in already established status.

Data on this question were reported in a recent study by Mackenzie (1969) in which he utilized as subjects middle managers at a U.S. government installation. Individuals and then groups worked on the Choice Dilemma, and within-group status differences based on real rank on the job were arranged. The direction of shift was found to depend on the original Choice Dilemma position of the highest status member of the group. Thus, leadership appeared to play a significant role, and it should be obvious that great care should be taken before making generalizations about risk taking behavior in

groups with established status structures from data gathered in leaderless, peer groups.

Rettig and Turoff (1967) point out that the findings of differences in their taped and live exposure conditions is not explainable in terms of risk leadership. The influence of leaders would be exerted predominantly by verbal communication, but this did not vary across the two conditions. Kogan and Wallach (1967b, p. 258) also rejected the leadership notion as sufficient explanation because of their failure to find, at least in males, any transituational leadership qualities in high risk takers. Such persons were no more persuasive than low risk takers in groups discussing non-risk problems.

Stoner has rejected the leadership hypothesis on a number of counts. He did not find high risk takers to be significantly higher than others in initiated interaction (Stoner, 1961). Hoyt and Stoner (1968) report results which support the notion that "risk taking propensity may in fact be situation specific and not a stable and general personality characteristic as implied by the leadership hypothesis" (p.281).

A recent study by Swap and Miller (1969) was based on leadership theory. These authors noted the failure of dyads to exhibit significant risky shifts on the Choice Dilemma (cf., Rim, 1967). On the basis of social exchange theory, they suggested that in stable dyads the riskier members should be unable to assert leadership on each item because of the need

to reciprocate the less risky member for conforming on early decisions. They predicted that if a new dyad was formed for each Choice Dilemma item, such needs for reciprocation would not arise. Hence, the riskier members could continue to exert leadership and risky shifts should occur. Their results substantiate their prediction.

The relationship between riskiness and persuasiveness was discussed in a recent paper by Burnstein (1969). He cites a dissertation by Clausen (1965) which found high risk takers to be more confident of the correctness of their choices than those who chose more conservatively. If it is assumed that greater confidence is associated with greater persuasiveness, it should follow that high risk takers should generally be the more persuasive members of the group.

The hypothesis that the risky shift is mediated by the greater confidence (and, hence, the greater persuasiveness) of the risky members was supported by Clausen's additional finding that the positive correlation between confidence and probability of failure choices was directly related to the risky shift. That is, the greater the confidence of the riskiest group member in his initial decisions, the greater the likelihood of the group exhibiting a risky shift.

Clausen (1965) also hypothesized that if groups were arranged so that the more cautious individuals were the most confident, these cautious members should be the more persuasive members of the group and the shifts following discussions would be toward caution. While such an arrangement did eliminate the risky shift, no shift toward caution was evidenced.

Burnstein (1969) pointed out that perhaps a cautious shift should not have been expected since the initial choices of the members labeled by Clausen as conservative were, in fact, generally located on the risky half of the choice scale.

The question of why the risky members should possess greater confidence than the cautious members is worth considering. In her experiment, Clausen employed Wallach, Kogan and Bem's (1964) "college board" instrument. Burnstein (1969) indicates that on this and other "real life" risk instruments the distribution of individual responses is generally skewed toward the cautious end of the decision scale. Thus, it should be more likely to find extremely risky than extremely cautious subjects.

It might be recalled that Sherif, Sherif, and Nebergall (1965) reported a positive relationship between the extremeness of a position and the degree of confidence in or commitment to that position. Additionally, Tannenbaum (1956), among others, has found that those holding extreme attitudes are more resistant to persuasion than those advocating more moderate positions. Thus, the greater confidence and persuasiveness (or resistance to being persuaded) of the risky subjects in Clausen's (1965) study may be related to the fact that they were more likely to be advocating relatively extreme positions.

In contrast to the distribution of individual choices in real life risk situations, Burnstein (1969) notes that individual risk responses to hypothetical risk situations

(e.g., the Choice Dilemma, the BPS) are not distributed toward the risky end of the scale. The frequency of extreme risk appears to be no greater than the frequency of extreme caution. If the risky subjects in such situations were also found to be more confident about their positions, such an association between riskiness and confidence could not be explained in terms of the relative probabilities of extreme risk and caution.

Values. Brown (1965) has taken an approach to the question of individual and group differences in riskiness which emphasizes the role of cultural values. Noting Nordhy's finding (cited in Brown, 1965, p. 702) that under structurally similar group decision making conditions some risk situations produce a risky shift while others produce shifts in the direction of increased caution, Brown suggests that the direction of shift depends on members' values. Different situations will evoke or engage a value which encourages either riskiness or caution, and group discussion reinforces the salient value producing appropriate shifts in position.

More specifically, Brown's (1965) value theory actually proposes two value related determinants of the risk shift--one intrinsic and one extrinsic (p. 705). With regard to the former, he suggests that group discussion enhances the saliency of the values associated with the risk alternatives. The second determinant proposed by Brown is based on the assumption that individuals generally wish both to maintain risk positions of at least an average degree of

extremeness in comparison with others, and tend to underestimate the true positions of others. After group discussion reveals true positions, those below the average are likely to make more extreme choices. The contingencies associated with succeeding or failing at maintaining such average positions are extrinsic to the particular alternatives inherent in the specific risk situations.

Brown's approach has been supported by Madaras and Bem (1968) who found that in risk situations which usually produce a risky shift, risk takers were judged more favorably by others than "risk-rejectors." In risk situations which usually evoke cautionary shifts, risk-takers received less favorable judgments.

Additional support for Brown's theory has been provided by Wallach and Wing (1968) who report that subjects generally judged their own positions on risk problems producing risky shifts to be more risky than the positions of a hypothetical group of peers. They propose (following Brown, 1965, p. 700, who cites a similar unpublished study by Hinds, 1962) that in the group risk taking situation, some individuals, finding themselves to be either below or no more risky than average, and thus failing to live up to a value that calls for at least or more than average riskiness, consequently revise their positions in the direction of greater risk (assuming riskiness to be the value engaged by the risk situation).

The role of values is supported further in a study by Rabow, Fowler, Bradford, Hofeller, and Shibuya (1966). These authors used items similar to those on the Choice Dilemma, and found either no shift at all or a shift toward caution rather than risk. The Choice Dilemma consists of a series of twelve stories, each depicting a character faced with a choice between a very attractive but very risky goal or a less attractive and less risky goal. Subjects are asked to indicate the lowest probability of success they would require before recommending that the potentially more rewarding alternative be chosen. Most--but not all--Choice Dilemma items normally elicit a risky shift (Wallach, Kogan, and Bem, 1962).

Some of Rabow's et al. (1966) revised stories introduced a negative consequence of achieving the more attractive goal (e.g., gaining a political office will reduce even further the time available to spend with children). This devaluing of the more positive outcome was apparently sufficient to arouse relatively cautious or conservative values and produce a shift toward caution.

Rabow et al. also eliminated the risky shift in stories without altering the value of the more desirable outcome. They used two Choice Dilemma stories exactly as they had been used by Wallach, Kogan, and Bem (1962), but changed only the impersonal reference of the stories. The original Choice Dilemma instructions ask subjects to imagine that they are consultants to some unspecified other person

(e.g., a businessman, a soldier). Rabow et al. instructed subjects to imagine that they were advising their father (about an operation) or their brother (about escaping from a prisoner-of-war camp). These stories ordinarily show a risky shift. The change in reference eliminated this shift. Rabow et al. explain their findings in terms of normative differences in the personal and impersonal decision-making conditions.

Further support for value theory has recently been provided by Wallach and Mabli (1970). They argued that one of the implications of value theory is that group discussions primarily affect the more conservative members of the group by informing them "that a more risky position than theirs is available" (p. 155). Risky members should be far less affected. They also hypothesized that this differential effect of discussions should hold regardless of whether conservatives possess minority or majority status in the group. Their findings strongly supported their hypotheses. Wallach and Mabli's (1970) finding of a risky shift in groups with conservative majorities has also been obtained in a study by Vinokur (1970).

Vidmar (1970), also, reported that the magnitude of individual risky shift was inversely related to the member's relative initial positions in the group. According to Vidmar (1970), another implication of value theory is the prediction that the "magnitude of group risky shift should be directly related to the differences (or heterogeneity) of opinions

among the group members' initial preferences" (p. 155). That is, the greater the discrepancy between the riskiest member's initial preferences and those of the other members, the greater should be the shift of the other members as they bring their preferences into line with the more risky member. This prediction was confirmed.

If a direct test of value theory is at all possible, it would require some independent measurement of subjects' values and utilization of these measurements as predictors of risk shifts. Research along these lines was conducted recently by Stoner (1968) with results that are consistent with the value position. Stoner had subjects rank items on a list of statements describing various "widely held values" in order of importance to themselves. Subjects also made risk decisions on stories which simultaneously presented two such values in conflict. He found that the rank ordering of value statements predicted both individual responses to the stories, and also the direction of shift following group discussion.

Stoner's conclusions with respect to the validity of value theory might have been more convincing if he had used a procedure that more adequately established the independence of his independent and dependent variables. In his study, the value statements were derived directly from the stories, and the act of ranking any two particular value statements is not dissimilar from favoring one of two risk alternatives in the stories. Stoner's findings might be more simply

explained in terms of stimulus generalization or consistencies in responding.

An alternate approach could use some independent criterion of values, such as the Allport, Vernon, Lindzey Study of Values (1960), and then assess the correlation between value scores and risk responses to an independently constructed set of risk situations designed to engage related values. While any such correlational design would not preclude explanation in terms of stimulus generalization, it could enhance the tenability of value theory.

A few other studies have attempted to identify subjects' pre-experimental or pre-shift values, and then tried to relate these to the risky shift. Teger and Pruitt (1967), assuming that an individual's values determine initial Choice Dilemma positions as well as any subsequent risky shifts, predicted positive correlations between these two responses across items (but not across groups). Their data confirmed this prediction.

Alker and Kogan (1968) attempted to manipulate the immediate saliency of generalized norms of caution or conservatism. They found that preliminary group discussions which upheld "universalistic" ethical norms were followed by conservative shifts on the Choice Dilemma items. These authors assert that "...group affirmation of a society's fundamental values induces or releases dispositions toward conservatism..." Whether or not one wishes to accept an explanation in terms of released dispositions, it is worth

taking note of the interesting finding that the risky shift (and supposedly the values under whose mediation this shift is presumed to occur) may vary with variations in the stimulus context preceeding the decision making problems.

Another attempt to test value theory is provided in a recent study by Levinger and Schneider (1969). Using the Choice Dilemma scale, these authors not only measured individuals' responses to the usual set of instructions (according to which subjects enact the role of advisers to the stories' protagonists) but afterwards instructed subjects to indicate the positions which they themselves most admired. These latter positions were consistently more risky than the former "own choice" positions. "Admire" scores supposedly reflect subjects' ideal values, and the results are thus understood to support the hypothesis that the risky shift is mediated by such values.

Levinger and Schneider's (1969) data lead them to propose a modification of Brown's theory, though values still retain a major--but not the only--influence on decision making. These authors label their proposal the "choice shift" effect. Subjects' initial positions were found to be about midway between their beliefs about the positions of a "majority of their fellow students" and their ideal or most admired positions. They suggest that in thus positioning their initial choices, subjects were making a compromise between what they valued and what they considered reasonable. When discussion uncovered that the true positions of

others were closer to one's own ideals or values than previously suspected, a new compromise was made, one that more closely approximated these ideals. The change to this new position constituted, in effect, the risky shift.

Value theory has not gone unscathed in the arena of risky shift research. For example, Bateson's (1966) and Flanders and Thistlethwaite's (1967) finding that familiarization, i.e., directed individual restudy of the choice problems, is sufficient to produce a risky shift has not been explained in terms of value theory. Nor can it readily accomodate Wallach and Kogan's (1965) failure to find a risky shift under conditions which did permit exchange of information on both initial and revised risk positions, but which did not allow the usual group discussions. (Teger and Pruitt, 1967, in a criticism of this study, used a similar but slightly modified design and failed to confirm the Wallach and Kogan, 1965, finding.)

Recall that Brown (1965) proposed two reasons for the risky shift. The first was based on the value-related arguments in group discussions: "The value engaged will influence the flow of information so that more relevant information will be elicited supporting the value than opposing it" (p. 705). Brown's second reason cited subjects' underestimation of the positions of others. He suggested "that the discussion served to make known the actual distribution (of positions) and all those who were below the group average could no longer think of themselves as living up to

the value on risk. So...they change to riskier decisions" (p. 705).

While there is ample evidence that even cautious subjects do, indeed, think themselves at least as risky as the average person (Wallach and Wing, 1968; Levinger and Schneider, 1969), a recent study by Willems (1969) leads to a serious question about the validity of Brown's second determinant. Willems found that even after discussions, group members continued to underestimate the riskiness of hypothetical peers (e.g., other University students). In other words, contrary to Brown's hypothesis the group discussions did not change members' judgments about the positions of others (with the exception, of course, of the other participants in the group).

Considering Willem's (1969) finding that after group discussions subjects retained their original estimations of peer positions, it would seem to be necessary to attribute the risky shift to antecedents other than Brown's conjecture about the reassessment of such positions. Brown's first stated reason concerning pro-risk arguments might provide part of the answer. In line with this, Rettig and Turoff (1967) noted that in the discussion of items which display a risky shift, groups tend to formulate justifications for the riskier alternatives.

Why such justifications are more likely to come to mind in the group situation, as compared to individuals working alone, is not clear (Rettig and Turoff, 1967).

Brown (1965) suggested that "No single member of a group is likely to possess all the information that objectively bears on the decision and so the discussion will give each one some new reasons for moving toward the value" (p. 705). It would seem, though, that with nonobjective problems as in the Choice Dilemma, quantity of information may not be a relevant variable. As will be discussed more fully below in the section on "locus of control" theory (Rettig, 1969a), the answer may lie in differences in the contingencies associated with individual and group decision making.

There is additional data that is difficult to reconcile with value theory. It cannot easily account for the differential effects of live and taped discussions (Rettig and Turoff, 1967; Kogan and Wallach, 1967c) on risky shift, since information exchanged under these two conditions is the same.

It is also difficult to reconcile value theory with Rettig's (1966) finding (confirmed recently by Alker and Kogan, 1968) of a risky shift in situations involving ethical dilemmas. In Rettig's research commission of a crime (e.g., stealing) is the risky alternative. Ordinarily it would be assumed that such anti-social behavior is disvalued and, according to value theory, cautious shifts should ensue. It may be, though, that the contexts of the ethical dilemmas in Rettig's Behavior Prediction Scale (BPS) are far from ordinary and, on the contrary, provide sufficient justification for supporting an act such as

stealing. For example, in one situation the protagonist needs money for a "crucial operation." Perhaps, at least with the populations sampled, these are situations in which stealing is not antithetic to subjects' values; but rather, that subjects feel that such behavior is appropriate and desirable. This question is considered further later.

Kelly and Thibaut (1969) have proposed an explanation of the risky shift that is similar to Brown's (1965) in that it too is based on discussion mediated changes in the intrinsic values associated with the risk alternatives. Like Brown (1965, p. 705) they suggest that these changes come about from arguments for or against particular risk positions. But, whereas Brown attributes the power of the arguments to the introduction of additional information (a cognitive influence), Kelley and Thibaut speculate that their persuasive effect is due to an emotional influence based on the "rhetoric of risk." That is, they suggest that the proponent of a risky position "may have the advantage of a more potent language, more intensively produced" (Kelley and Thibaut, 1969, p. 82).

Kelley and Thibaut are themselves aware of some of the limitations of their rhetoric of risk notion. They point out that it can not explain Kogan and Wallach's (1967c) finding of differences between direct and taped exposure conditions. In the Kogan and Wallach study, as in Rettig and Turoff's (1967) similar study, the rhetoric was identical for both conditions.

Perhaps the major disadvantage of Kelley and Thibaut's explanation of the differences between individual and group risk taking is that, in contrast to Brown's value theory, it totally ignores shifts toward caution.

Before terminating this review of the major theoretical attempts to account for the risky shift, it should be mentioned that in a recent article, Clark and Willems (1969) questioned the validity of these various interpretations. They suggested that the findings in much of the risky shift research (specifically, in those studies that have employed the Choice Dilemma or instructions derived from the Choice Dilemma) can be attributed to a demand characteristic of the instructions. The Choice Dilemma instructions ask for subjects to check the "lowest" probability of risky acceptable. By eliminating the word "lowest" from their instructions, Clark and Willems (1970) eliminated the risky shift.

CHAPTER II

SOCIAL PROCESSES AND LOCUS OF CONTROL

Social Processes

The previous theories differ markedly in their interpretations of the social process underlying group risk taking and the risk shift. To Kogan and Wallach (1967b) it is the affective component of the social process that produces the risky shift. Through discussion, members form affective bonds. These bonds enable members to share responsibility with each other for any possible negative consequences resulting from their decisions. Lifting from each individual the burden of responsibility for failure releases the members of the group from a major constraint on their risk taking behavior.

For Brown (1965) it is not the affective bonds of the social interaction that account for the risky shift, but, rather, it is the value-relevant information exchanged during the discussion. Through discussion, members reinforce the salient value invoked by the risk situation, they provide each other with encouragement for bringing their own decisions into line with this value, and they learn that their own decisions do not uphold the value to the degree that seems appropriate.

Some group interaction is essential since the critical information being exchanged concerns the relative positions of the various members of the group. Interaction need not

occur, though, at anything but a minimal level since information about others' positions alone should be sufficient to produce a revision of one's own risk level. These minimal conditions were set up in an experiment by Teger and Pruitt (1967). The results support Brown's theory.

Bateson (1966) and Flanders and Thistlethwaite (1967) would agree with Brown that the effective component of the group process is information exchanged, though they would not ascribe any special importance to information about relative position. They disagree with him, also, on the necessity of that exchange for producing the risk shift, and question whether group interaction is essential at all. They argue instead that discussion produces increased comprehension of alternatives and consequences, and that this increased comprehension may be achieved just as well through careful consideration of the risk situation as it can from social intercourse.

It is worth noting that the instructions utilized by Flanders and Thistlethwaite to induce restudy may have unwittingly introduced a social stimulus into their design (aside from the always present <u>social</u> relationship between subject and experimenter). While subjects in the familiarization condition did not overtly interact with each other, at each testing session three subjects worked on their tasks simultaneously in the same room. The instructions led them to believe that the purpose of restudy was to "<u>prepare</u> for a group discussion which (would) involve all three . . . ."

It is not clear to what degree this expectation of an impending group discussion affected risk judgments, beyond the effects of restudy alone, but certainly effects from the psychological (as well as the physical) presence of others should not be overlooked. (In this context, it might be mentioned that Zajonc, Wolosin, Wolosin, and Loh, 1970, tested and failed to support a social facilitation explanation of the risky shift.)

Although Flanders and Thistlethwaite did not find any differences between familiarization through discussion (i.e., social interaction) and familiarization through individual reappraisal in their respective effects on risk shift, they do note a difference in the effects on within-group variability. The former condition produced not only a risky shift, but also led to decreased variability (or a convergence) of positions. Familiarization without discussion did not have this effect.

Explanations of the risk shift in terms of group leadership emphasize the influence of structural components of the group in group risk taking, and introduce notions of differential social role, influence, and conformity. In the Mackenzie (1969) study, in one condition, two relatively risky lower status members shifted or conformed toward the positions of a more cautious but higher status member.

Interestingly, the cautious, high status member himself displayed a risky shift--the reverse of the other two; but the overall group shift was toward caution. It

appears then that, even though power was distributed unequally, under these conditions (two low status members against one high status member) each member exerted some amount of influence on the others in the group, and each did some conforming. In contrast to this, when the experimental manipulations called for a single low status member to defend his (cautious) position against two higher status (risky) members, power appeared to reside totally with the two risky members. The group as a whole exhibited a risky shift, and each member shifted toward greater risk.

In general, it may be seen that the Mackenzie (1969) research demonstrates that the structural components of the group have a critical effect on group decision making behavior, above and beyond the value of the risk.

The importance of structural variables has been demonstrated in a series of studies by Kogan and his co-workers. Hermann and Kogan (1968) arranged dyads so that some subjects were assigned the role of leader, and others were given a lower status "delegate" position. After four leader-delegate dyads reached joint decisions on the Choice Dilemma, four-person homogeneous (all leader or all delegate) groups were assembled and asked to reevaluate the items and arrive at unanimous decisions. It was found that groups composed of all leaders manifested a risky shift. That is, their new decisions were riskier than the average of the members' earlier decisions in dyads. The delegates did not exhibit any such shift. Hermann and Kogan (1968)

suggest that relative to the leaders, the lower status delegates felt more constrained to uphold the positions of their former groups. Neither values, familiarization, nor affectional bonds appears to be varied in the Hermann and Kogan (1968) study, and the explanations based on these variables do not appear to be relevant.

Using the Hermann and Kogan (1968) study as a point of departure, Kogan, Lamm, and Trommsdorff (1969) established similar leader-delegate dyads and attempted to "enhance the aversiveness of leader sanctions over delegates and the salience of 'loss-of-face' considerations that leaders might experience in their relations with delegates" (p. 2). This was accomplished by having delegates negotiate in the physical presence of their leaders and by having leaders negotiate in the physical presence of their delegates.

In contrast to the results reported by Hermann and Kogan (1968), delegates exhibited a risky shift, and the magnitude of the risky shift did not differ significantly between leader and delegate discussants. Kogan, Lamm, and Trommsdorff (1969) suggested that the difference between the findings of these two studies might be explained by the fact that in the Hermann and Kogan (1968) study a "natural status" distinction (age and college class) was utilized in the assignment of roles in the dyads, while in their own study roles were assigned randomly. They assumed that when assigned status coincided with real-life status, delegates were more likely to refrain from deviating from the positions approved

by leaders.

Kogan, Lamm, and Trommsdorff (1969) did find that compared to leaders, delegates consulted more with their former dyadic partner and more often failed to achieve consensus.

Lamm and Kogan (1969) also investigated the effects of discrepancies in status on risk decision making. Unlike the studies by Hermann and Kogan (1968) and Kogan, Lamm, and Trommsdorff (1969) in which status was ascribed by the experimenters, Lamm and Kogan (1969) instructed three-person groups to each elect a representative and an alternate to negotiate with status equivalents from other groups. Elections were held after each group established positions for half the Choice Dilemma items.

For these six "fixed" items and for the remaining six "open" items, nonrepresentatives and alternates manifested risky shifts in their negotiated decisions. As predicted, representatives did not display a risky shift and tended to reach decisions through averaging. The absence of a risky shift by representatives is attributed to the strength of their commitment to their original positions.

Lamm and Kogan (1969) conclude that whereas Brown's value theory may account for risky shifts in "randomly assembled individuals of equal status" (p. 13), the influence of values can be offset by other factors introduced into the risk situation, e.g., role or status discrepancies. As will be evident below, part of the research of the present

dissertation bears a resemblance to the Lamm and Kogan (1969) study. There is also a similarity in the findings and in the explanation of results; but, as will be elaborated upon in the discussion of "locus of control," the present writer argues for the importance of socio-structural factors for explaining the risky shift of even "randomly assembled individuals of equal status."

The findings of Rettig and Turoff (1967) and Kogan and Wallach (1967c) of higher risk levels in those exposed directly to a group discussion than in those exposed to a tape recording of the same discussion seem also to have revealed a significant effect of structural aspects of the social interaction in group decision making. In both experiments, the difference between the two exposure conditions indicates an influence of the physical presence of others over and above the influence of added information provided by the discussion.

Lamm (1967) also found that direct observation (behind a one-way mirror) led to a somewhat greater risky shift than listening to the same discussion via loudspeaker. Unless attention or perceptual causes lie behind the differences between listening-to-only and visually observing a group discussion, these findings indicate clearly that, beyond any effects of information exchange there is an additional effect on group risk taking that derives from some other aspect of the group process.

It should be noted that findings such as those of Mackenzie (1969), Rettig and Turoff (1967), and Lamm (1967) do not necessarily embarrass responsibility diffusion, value, or familiarization theories in the sense that these theories would have predicted results other than those reported. The limitation of each of these theories is that they posit little or no role in group risk taking to social structure. Each theory is formulated loosely enough so that presumably they could, on an ad hoc basis, incorporate such structural variations; but none directly specifies a role for structural determinants.

Locus of Control

Addressing himself to such structural determinants, Rettig (1969a) has recently suggested that an important and hitherto disregarded influence on group risk taking is the transfer of the "locus of control" over an individual's behavior and outcomes from the individual to the group. The social process underlying group risk taking may be understood as an instance of norm formation. The members of the group, through their interaction, arrive at some standard (or range, if consensus is not required) of acceptable or "correct" behavior(s). With the joint establishment of the norm (the acceptable level of riskiness) the members no longer retain purely personal control over their behavior and outcomes. The control now resides to some extent within the established norm.

Since groups are often more likely to be successful than individuals, an individual seeking some goal may join with and permit himself to be influenced by a group in order to increase his chances of success. Rettig (1969a) argues that this "transfer of the locus of control," brought about by each member's experiences with and confidence in the group's superior powers, should usually lead to riskier decisions being made by the group as a whole than by most of its members individually.

It should be noted that the meaning of the words "risk" and "riskier" in the above context are not quite as obvious as they initially appear. For example, a mountain-climbing enthusiast might hesitate to climb a difficult mountain alone, i.e., he might be dissuaded by the probability of failure, and make a non-risky decision. His decision might be altered, though, if he were able to join with or organize an expedition of skilled and similarly interested enthusiasts. Moreover, his concern would then probably center more on the positive aspects of the expedition than on the dangers.

Clearly, from any ordinary perspective, climbing a mountain is typically more risky than the behaviors associated with not climbing a mountain; but, on the other hand, both the subjective and objective estimate of risk is considerably lower when the climb is made by a group. In fact, in many circumstances, the accompaniment of others can transform a risky situation into a fairly sure bet and, consequently,

reorient attention to the positively reinforcing dimensions of the risk situation.

It is therefore necessary to differentiate the various underlying conditions through which group decisions become more "risky" than those of individuals. In some cases this change might be attributable to alterations in the objective or subjective probability of success. At other times the change might result from group reinforcement of risk-encouraging values. As will be discussed more fully below, Rettig (1966) notes four intrinsic or "internal" determinants of risk taking: the reinforcement values of gain and censure (or loss), and the expectancies of gain and censure (or loss). Group induced changes in the levels of any of these variables can lead to a change in risk decisions.

Locus of Control and Direction of Shift

Utilizing the notion of locus of control does not invariably demand a prediction of greater risk taking following group interaction. As Brown (1965) has proposed, sometimes the group may reinforce cautionary values and sometimes the accompaniment of others may increase rather than decrease the negative potential of an outcome. It is also important to emphasize that, in some cases, members may refuse to relinquish control to a particular group, and if the situation permits such avoidance of normative control (e.g., consensus is not required), we should expect little difference between individual and group decisions.

For example, Wallach, Kogan, and Burt (1967) found that groups made up of all field-independent subjects required significantly more time to reach consensus on risk taking decisions that did groups of field-dependent subjects. Members of the former groups attempted to resist group pressure (i.e., refused to yield control), and displayed "stubborn clinging" to their own positions. Presumably, if consensus had not been required, little convergence would have occurred.

In some cases, members may accept group control, but may, for any of various reasons, lack confidence in the group's goal attaining capabilities. Here again a risky shift should not be expected. Under some conditions, negative consequences (e.g., detectability of an espionage ring) might even increase with group size and the probability of risky behavior should diminish. Attractiveness of the group or fear of deviating from its standards may underlie adherence to group norms, and these need not imply either an increase in the expectancy of gain or a subsequent shift toward risk.

Rettig's (1969a) application of the "locus of control" notion is consistent with some earlier work on individual risk taking. In a discussion of betting behavior, Cohen (1960) postulated that risk taking was a positive function of perceived control over outcomes. Littig (1962) tested this hypothesis in a betting situation, and found that when outcomes depended on skill (high control), subjects took

greater risks than when these were controlled by chance.

Strickland, Lewicki, and Katz (1966) found betting before the throwing of dice to be riskier than betting after the dice were thrown. Although, objectively, control over outcomes was identical under these two conditions, they suggested that dice players engage in a kind of magical thinking which provides them with a subjective sense of control over the outcome of the throw. This sense of control was eliminated when, in their "sealed fate" condition, bets were made after throws.

Strickland, Lewicki, and Katz (1966) also distinguished subjects in terms of Rotter's (1966) dimension of internal and external control, and found greater risk taking by the internally controlled subjects. In contrast to this, an earlier study of Liverant and Scodel (1960), using a similar betting procedure, reports an opposite finding; Their internally controlled subjects preferred safer bets than those scoring high at the external end of the continuum.

In a more recent study which employed an intergroup conflict game rather than betting, Higbee and Streufert (1969) report that participants who believed they had little control over outcomes attempted more risky strategies than those who believed they had some degree of control. The difficulty in assessing, from the point of view of the subject, the real gains and losses in a simulated intergroup conflict situation, hinders comparison of the Higbee and Streufert study

to those employing betting procedures.

There do not appear to be firm theoretical reasons for making specific predictions as to the relationship between the internal-external control dimension and risk taking. Rotter's (1966) I-E Scale purports to measure feelings about control over outcomes, but in the typical betting situation positive outcomes are determined by chance and objective control is precluded. Assuming that both the internally and the externally controlled subjects have equal understanding of the probabilistic nature of betting situations, it is necessary to question whether feelings about control as measured on the I-E Scale, generalize to such situations where there is no possibility of control.

The relationship between Rotter's (1966) and others use of locus of control as a personality construct (internal versus external control) and locus of control as it is used in the present context is an interesting one. When translated into present usage, the internal-external distinction seems to be differentiating between conditions in which an individual believes his behavior has an effect on his positive outcomes (internal control) from conditions in which variations in behavior are believed not to affect such outcomes (external control). In other words, external control refers to generalized expectancies that the forces controlling positive outcomes are beyond ones control.

The internal-external distinction refers thus to variations in the quantity of control. In contrast to this,

locus of control as presently employed denotes qualitative differences in control. While it has been suggested that in certain kinds of risk situations, group control over positive outcomes is greater than individual control, this would not necessarily be the case for all tasks, in all contexts.

The question of real gains and losses must always be carefully considered when trying to explain "risk taking" on the Choice Dilemma or on Rettig's Behavior Prediction Scale, since on both instruments subjects are dealing with hypothetical stories, the outcomes of which have little consequence for them. The argument that with group membership comes an enhanced opportunity for goal attainment at first glance appears not to be relevant. Similar reasoning can also be utilized for rejecting a "responsibility diffusion" explanation for the risky shift found with the Choice Dilemma. As cited earlier, Lamm (1967) questioned the plausibility of responsibility diffusion theory in explaining responses to hypothetical dilemmas by asking, "For whom, to whom, in which way and to what extent are the group members responsible?" (p. 471).

Closer analysis reveals, though, that while the outcomes of the hypothetical stories appear to have little importance for the group members, there are still other consequences which may, in fact, involve real risk taking decisions. It is in these outcomes that the motivation for transferring control to the group, and perhaps also some deeper understanding of the risky shift might be sought.

As Sherif (1936) has demonstrated with the autokinetic phenomenon, the responses of subjects to ambiguous stimuli reliably converge toward the establishment of some binding and lasting group norm. In order to give a "correct" response in a situation where there is no objectively correct position, individuals provide each other with mutual support and arrive at some acceptable standard. Here, transferring control to the group provides each member with some positive outcome, namely, being "right." Like the autokinetic situation, the hypothetical risk taking stories do not have any objectively correct responses, and accordingly, similar yielding of control to the group (i.e., the formation and adoption of a group norm) should be anticipated.

By recognizing that there are, in fact, real outcomes for subjects responding to the Choice Dilemma or to the Behavior Prediction Scale, the argument that the risky shift may be accounted for by the increased confidence that comes with group (as compared with individual) decision making takes on a new relevance. It seems reasonable to assert that taking what seems like an extreme stand--whether it be for extreme risk or extreme caution--is itself, for many people, risky. It places the individual in a potentially vulnerable position, particularly when both the stimuli to be judged and the scale of judgment lack familiar anchors.

Faced with a series of problems, but without guidelines for "good" or "correct" solutions, individuals responding alone, in order to avoid appearing foolish or

(on the Behavior Prediction Scale) unethical, may inhibit tendencies to give relatively extreme responses. More extreme (e.g., riskier) responses might be displayed when, through group interaction, (at least some) members openly encourage or reward behaviors which more fully support values engaged by the risk situation. By joining with and transferring control to the group, the burden of advocating an extreme position is removed from the individual to be shouldered by the group as a whole.

With regard to the direction of shift, in unstructured peer groups, this would seem to depend on the values of the members. In groups comprised of status unequals (cf. Mackenzie, 1969), control may be distributed unequally among members and power may override values, leading to a shift toward the position of the member of highest status.

In the light of the locus of control notion, the previously made distinction between intrinsic and extrinsic contingencies may be usefully applied to the Mackenzie (1969) data. If the high status member was considered to have some special skill or wisdom in such risk taking situations, this would, of course, have increased his potential contribution toward the control over the intrinsic outcome of choosing a correct alternative. The lower status members would then have moved toward his position in order to increase their chances of being right.

It seems more likely, though, that the movement of the lower status members toward the position of the higher status

member was an instance of ingratiation (Jones, 1964) and, accordingly, a function of the high status member's control over extrinsic outcomes related to the subjects' real-life occupational roles. When such control over extrinsic contingencies provides the only reason for transferring control to others, as when control is considered illegitimate or is exerted through force, it would be expected that the individual thus controlled would seek to remove such extrinsic influence.

While the present explanation in terms of locus of control is similar to Brown's (1965) value theory, in that it too acknowledges that members' values can determine the direction of shift, unlike Brown's approach, social (e.g., structural and not just informational influences of group interaction are recognized. (Although for the purposes of the present paper the term "values" will be employed, its meaning is actually far too elusive for explaining individual differences in risk taking. As a cause of behavior or as an independent variable its operational characteristics are not sufficiently specifiable. In accounting for the direction of shift, it would be advantageous to replace this term with precise descriptions of the relevant conditioning histories of individuals.)

The notion of locus of control also bears a resemblance to responsibility diffusion theory, in that it too asserts that there may be safety in numbers. But in contrast to responsibility diffusion theory, locus of control does

not imply that this added safety holds for all situations. More importantly, by focusing on the real rather than the fictitious contingencies of the risk situations, locus of control theory leads only to the prediction of more extreme responses by groups; not necessarily riskier ones.

The argument that subjects inhibit the extremeness of their responses under certain conditions (e.g., when responding individually or perhaps also when responding with relatively unfriendly others) is supported by data revealing other conditions under which similar constraining of responses appeared to occur. For example, Rettig (1966) found risk levels to be significantly greater on the impersonal than on the personal form of the BPS. On the impersonal form, subjects are asked to predict how a hypothetical other would act. On the personal form, subjects predict how they themselves would act. The ethical implications of the BPS were presumably heightened on the personal form, and responses were subsequently less extreme.

More direct evidence for the "inhibition" of responses is supplied in the above mentioned study by Levinger and Schneider (1969). Using the Choice Dilemma, these authors found not only that subjects believed their own responses to be more risky than "fellow students," but also that they most admired a choice more risky than their own. Levinger and Schneider (1969) propose a Choice-shift" model which bears some resemblance to the locus of control notion. They suggest that a choice-shift will occur:

> whenever (a) a group member has an ideal preference that is discrepant from what he believes to be the group standard, (b) his own choice concerning real behavior lies between his ideal and his assumed group standard, and (c) a group discussion (or some other information) reveals that the group standard is substantially closer to (or farther from) his ideal than he had earlier believed (p. 168).

In contrast to what seems to be an implication of Levinger and Schneider's (1969) choice-shift model, it should be made clear that the word "inhibition" in the present discussion by no means implies that when subjects respond alone they fake their responses, or that there is some active suppression of latent values. The present position holds only that, as a function of the reinforcement histories of individuals, in different situations different responses will appear appropriate or "feel" correct. On the basis of the contingencies associated with the stimulus materials in the typical risky shift experiment, a response which appears correct when responding alone, will appear overly cautious when responding in a group.

Implications of Locus of Control

It should be noticed that with regard to risky shifts on the Choice Dilemma or BPS, by utilizing the notion of locus of control and by focusing on the real contingencies associated with decisions, the risk content of the hypothetical stories is relegated to only a particular instance of a more general phenomenon. Group responses should be more extreme than those of individuals regardless of the specific content

being judged, as long as judgments are made of ambiguous or nonobjective stimuli (e.g., the scaling of attitude statements). Research by Moscovici and Zavalloni (1969) and Doise (1969) supports this conclusion. These studies report that attitudes and opinions of groups were more extreme than those of individuals.

The locus of control notion suggests a number of manipulations which, by affecting locus of control, should alter or even preclude the risky shift. Just as Sherif found that providing discrediting information about the other members of the group reduced the convergence of responses to the autokinetic stimulus, so too might similar or other manipulations (e.g., the assignment of special roles, the introduction of status differences, or varying the homogeneity of values in groups) induce the individual to give priority either to his own judgment or to that of some other group. For example, in a recently completed study, Rettig (1969b) found that the magnitude of the risky shift varied directly with the trustworthiness of the other group members.

The above mentioned study by Hermann and Kogan (1968) on differences in leader and delegate discussion groups may also be understood in terms of locus of control. As is implicit in Hermann and Kogan's (1968) own explanation, lower status delegates were less able to transfer control to their new groups, and in their later groups more often arrived at compromise decisions which were close to the

average of their original positions. On the other hand, the higher status leadership role seemed to permit greater freedom from the constraints of earlier decisions and allowed control to be shifted to the new groups. In contrast to the conservative pressures in the all-delegate groups, in the all-leader groups the processes underlying the risky shift were able to operate.

Locus of control also suggests an explanation of Wallach, Kogan, and Burt's (1967) finding that field-independents took considerably more time than field-dependents to reach consensus. Since field-independents are characterized by greater self-reliance, it would be expected that they should manifest greater resistance to yielding control.

The reports of greater risk taking in the direct, as compared to the taped, exposure condition (Rettig and Turoff, 1967; Kogan and Wallach, 1967c), is also explainable in terms of locus of control if it is assumed that transfer of control is generally facilitated by direct, personal interaction. For example, in the taped exposure condition, group pressure on those who tend to deviate from the majority norm is diminished. Also, for subjects who prefer to avoid advocating an extreme stand alone, the direct exposure condition should arouse greater confidence in the reality of the social support provided by the group.

Internal Components and Locus of Control

Risk situations involve both gain (or reward) and cost aspects. In Rettig's research with the Behavior

Prediction Scale, the relative effects of these internal (or intrinsic) components on decision making have been analyzed separately. The four components are defined by Rettig (1966, p. 631) as the expectancy of gain (Egn), the reinforcement value of gain (RVgn), the expectancy of censure (Ecens), and the reinforcement value of censure (RVcens). Each component is represented in the BPS by a high and low level, and the component scores are based on the differentiations between these levels.

Rettig has found differences in the patterns of component scores under different experimental conditions. For example, in a number of studies in which subjects were tested individually (Rettig, 1964; Rettig and Pasamanick, 1964; Rettig and Rawson, 1963), he found that RVcens "explained more variance in predictive judgments than the remaining built in determinants" (Rettig, 1966, p. 630). On the other hand, when decisions followed group discussion, the RVgn was found to be the most important component.

In his recent paper on locus of control, Rettig (1969a) attempted to apply this notion to explain the increased "emphasis" on the gain component of risk taking in the group decision making condition. He suggested that, "Shifting the locus of control from the self to the group should increase the stress on reward components as opposed to cost components of outcomes, since such shift is usually accompanied by the expectation of a more favorable outcome" (p. 425).

Rettig appears to be saying that in making potentially costly decisions, a single individual is in a less efficient position than someone performing in concert with others. Therefore, for the person responding alone, pursuit of positive goals (as they are represented in the RVgn component) may be comparatively less critical than the avoidance of negative consequences (as these are represented in the RVcens component). Thus, the high RVcens scores of individuals would be explained by the supposition that it is more important for the individual risk taker to clearly differentiate the possible negative consequences of his decisions, i.e., the high from the low levels of RVcens. The increases in RVgn found in group conditions could then be explained by supposing that with the comparatively improved outlooks for success and safety provided by social support, greater attention may be given to differences in the opportunities for gain.

This explanation, while accounting well for Rettig's findings, is not tested directly in the usual administration of the BPS since the hypothesized within-component comparisons are not actually observed. The component scores are derived indirectly through a mathematical procedure, and no explicit within-component comparisons are made. Additional support for Rettig's explanation might be obtained through the use of a more direct scaling procedure, whereby subjects, under individual and group conditions, would be asked to scale the high and low levels of each component along their

respective dimensions. Comparisons of the distances between scale positions assigned to the high and low levels of each component could then serve as supplementary, and more direct, indicants of degree of differentiation within components.

Summary of Locus of Control Theory

It may be seen that the notion of locus of control is not incompatible with the earlier mentioned approaches to group risk taking, since it recognizes and incorporates many of the very same independent variables as controlling risk responses as these other theories, e.g., the contents of group discussions, the size of groups, the emotional relationships between group members. But, in contrast to these other positions, locus of control also attempts to account for the effects of additional independent variables, particularly group structure.

Unlike these other theories, which tend to emphasize variations in one or another intervening variable, locus of control, by focusing directly on the different contingencies associated with individual and group risk taking, translates readily into operational specifications. Unlike all but value theory, the application of locus of control does not necessarily predetermine the direction of shift. Of primary importance, locus of control does not posit any single independent variable as the sole determinant of the difference between individual and group risk decision making.

In summary, then, by using Rettig's (1969a) notion of locus of control, it may be proposed that group--in contrast

to individual--risk taking is often characterized by an increase in members' power to secure some positive outcome and/or avoid some negative outcome. This increased power enables the members to exhibit more extreme responses than they would exhibit if acting individually. Collections of individuals that do not transfer control to the group or who transfer control to an unequal degree (cf., Mackenzie, 1969), should perform differently in risk taking than collections of individuals that do transfer control. In the absence of this relinquishing of control, decisions should remain closer to those made by individuals independently.

CHAPTER III

HYPOTHESES

General Statement of Primary Hypotheses: Structural Variables

Hypothesis 1. The risky shift is a function of locus of control (defined in terms of variations in role prescriptions and group or normative controls).

If locus of control is relevant to group risk taking, manipulation of variables that are assumed to alter locus of control should have an effect on risk taking behavior. The present research proposed to test this prediction. Specifically, it was assumed that variations in both representative control and direct group control constitute variations in locus of control. That is, each of these variations operationally defines one of many possible kinds of independent variations in locus of control. Since such variations in locus of control are assumed to affect the contingencies controlling decision making, it was hypothesized that these manipulations would affect risk taking decisions as measured by risky shift and internal component scores. (Since the present experiment required consensus decisions in all group conditions, variations in convergence were precluded.)

The basic design called for each subject to receive two administrations of the BPS. For all four experimental conditions, first BPS encounter took place in similar three-person groups. The second BPS administration also took place in groups. These groups were newly formed and their

precise conditions varied across the four treatments.

With respect to representative control as an independent variable, the study compared the responses of newly formed groups, comprised of subjects who were instructed to represent the risk positions of their earlier groups (i.e., Representative groups) to responses of other newly formed groups whose members had not received any such role assignment (i.e., Independent groups).

This part of the study, thus, compared the decision making of groups comprised of "representatives," each of whom represented a different fixed set of positions on the BPS, to groups comprised of an equal number of independent discussants. It was assumed that the behaviors required to produce positive outcomes would differ for members in each condition. The Representative condition was designed to induce a degree of intergroup conflict (the group represented versus the new group joined), and the resolution of this conflict through compromise was expected to be the primary goal of subjects in this condition. The Independent condition was not expected to generate such intergroup conflict. Instead, the new groups were expected to provide an opportunity for continued exploration of the positive aspects of riskiness. The change in riskiness from the Pre-Representative to Representative conditions was thus predicted to be smaller than the change from the Pre-Independent to Independent conditions.

Hypothesis 1a. Pre-Independent to Independent risky shift scores will be larger than Pre-Representative to Representative risky shift scores.

With respect to direct group controls as an independent variable, the second part of the study compared the decisions of groups comprised of three intact subgroups, each with a somewhat different fixed set of previously established positions on the BPS, to an equal sized group of (9) independent participants whose earlier three-person groups had been disbanded.

It was predicted that the risky shift from the Pre-Disbanded to the Disbanded Subgroups conditions would be greater than the shift from the Pre-Intact to the Intact Sub-groups conditions. The reasoning behind this prediction runs parallel to the arguments concerned with the Representative and Independent conditions. Given the likelihood in the Intact Subgroups condition of within-subgroup support for original positions and the subsequent generation of intergroup conflict, it was expected that continued exploration of the risk situations would be at least partially preempted by the behaviors focused on achieving the required consensus. Subjects in the Disbanded Subgroups condition were not bound to earlier decisions, and were not expected to engage in conflicts like those predicted for the Intact Subgroups condition. Hence, it was assumed that the group processes which ordinarily produce the risky shift would continue to operate.

Hypothesis 1b. Pre-Disbanded Subgroups to Disbanded Subgroups risky shift scores will be larger than Pre-Intact Subgroups to Intact Subgroups risky shift scores.

Hypothesis 2. Absolute deviation scores will be a function of locus of control.

The methods used to bring about differences in locus of control in both experiments was predicted to have another influence on members' decision making. Members in the Representative and Intact Subgroups condition--in each case representing already controlled positions--were expected to deviate as little as possible from their original positions, regardless of direction, in arriving at a group consensus. Minimum deviation for each representative in a group or for each intact subgroup in a larger group is best accomplished if the consensus position arrived at is identical with the mean of each of the interactor's (Representative's or Intact Subgroup's) original positions. Therefore it was predicted that in the Representative condition and in the Intact Subgroups condition, the absolute deviation of the new group consensus from the mean of the participants' original positions would be smaller than in the Independent and Disbanded Subgroups conditions.

Since deviation scores were derived from the same numerical values as risky shift scores, it follows that if risky shift scores are in the same direction in all experimental conditions then deviation scores become automatically predictable from a knowledge of risky shift scores.

Hypothesis 2a. Pre-Independent to Independent

deviation scores will be larger than Pre-Representative to Representative deviation scores.

Hypothesis 2b. Pre-Disbanded Subgroups to Disbanded Subgroups deviation scores will be larger than Pre-Intact Subgroups to Intact Subgroups deviation scores.

The experimental design also allowed for comparisons between the Representative and Intact Subgroups conditions, and the Independent and Disbanded Subgroups conditions. The latter conditions differed essentially in terms of group size. Groups in the Independent condition contained three members. Groups in the Disbanded Subgroups condition were made of of nine members. There is evidence that with groups of up to five persons the risky shift increases with group size (Teger and Pruitt, 1967; Rettig, 1969a). A positive relationship between group size and risk level would be explained in locus of control theory by positing an analogous relationship between size and control over outcomes. On the other hand, recalling Asch's (1956) finding that control is transferred to groups of three as readily as to groups of fifteen, there did not seem to be an adequate theoretical basis for predicting a difference between these conditions.

Directional predictions also did not appear feasible in the comparison between the Representative and Intact Subgroups conditions. In the Representative condition, control presumably resided largely with the former group; but this group was not available for consultation or decision reassessment. Acquiescence to pressure from the

new group to adopt new positions might therefore have brought with it the likelihood of forfeiture of positive outcomes provided by the group being represented.

In contrast to this, in the Intact Subgroup condition, decisions in the new large group were arrived at with the participation of the entire subgroup. This participation could conceivably have had more than one effect. Intra-subgroup support of old positions might have increased resistance to change in the larger groups. On the other hand, the opportunity of the assembled subgroups to actually reassess their earlier position (a possibility not available in the Representative condition) could have provided sufficient freedom in the new large groups to be influenced by such pressures as new value-engaging arguments.

There did not appear to be clear theoretical grounds for predicting which of the possible effects of within-subgroup support would be more likely. As such, prediction of differences between the Representative and Intact Subgroup conditions were not specified.

Hypothesis 3. Internal component scores are a function of locus of control.

Since the predicted increase in risk scores in the Independent and Disbanded Subgroups conditions was presumed to come about as a result of the relatively greater focus on the positive aspects of the risky alternatives under these conditions, and since this greater focus on gain was expected to lead to increased differentiation between the

high and low levels of RVgn, it was also predicted that these conditions would, respectively, exhibit higher RVgn scores than the Representative and Intact Subgroups conditions.

Hypothesis 3a. RVgn will increase more in the Pre-Independent to Independent comparison than in the Pre-Representative to Representative comparison.

Hypothesis 3b. RVgn will increase more in the Pre-Disbanded Subgroups to Disbanded Subgroups comparison than in the Pre-Intact Subgroups to Intact Subgroups comparison.

Postexperimental Questionnaire. The above manipulations constituted the major conditions and prompted the major hypotheses of the experiment. The predictions were based on theoretical variations in locus of control. Locus of control was varied primarily through differences in written instructions and in the arrangements of groups. The efficacy of these independent variables was measured on a brief postexperimental questionnaire.

The first question was specifically concerned with locus of control, and was introduced as a check on whether subjects complied with instructions. It asked each subject to judge whether their responses in their second group were influenced more by the discussions of that group or of their earlier group. It was expected that if the experimental manipulations were effective, there would be differences between the Representative and Independent conditions and between the Intact and Disbanded Subgroups conditions in the

attribution of influence (or control). It was predicted that subjects in the Representative and Intact Subgroups conditions would be more likely to attribute influence to their earlier groups.

The three other questionnaire items dealt essentially with the distributions of influence within a group. These questions were added primarily for exploratory purposes--to determine if any relationship existed between subjects' awareness of intergroup and intragroup influence patterns. Specific predictions were not made.

General Statement of Subsidiary Hypotheses

Group Size. To test for the presence of an individual to group risk shift--what was a partail replication of Rettig's (1966) original work on this phenomenon--mean risk levels of the original three-person groups were compared to the mean risk level of subjects who responded to the BPS individually. This replication was carried out primarily to evaluate the relative degree of riskiness of the original groups. If these groups were forced to be more risky than the individuals--confirming Rettig's finding and indicating that in these groups a risky shift had already occurred--it could help in understanding any shifts taking place between the original and the later recombined groups. Any such additional shifting in the new groups would come on top of a "shift" that had already occurred. (A ceiling effect in the direction of greater risk should not occur since even after the risky shift Rettig, found that subjects rarely used

the most risky choices on the BPS.)

The present replication differed from Rettig's (1966) study in that Rettig had subjects make individual judgments after group discussion, while the present design called for group consensus judgments. Also, Rettig did not place a time limitation on discussion. Wallach and Kogan (1965) report little difference between consensus and nonconsensus postdiscussion decisions on the Choice Dilemma.

Both Teger and Pruitt (1967) and Rettig (1969a) reported increasing riskiness with increased group size. Rettig (1969a) also found an increase in the importance of the RVgn component with increasing group size, and attributed this to an increased shift in the locus of control to the group as group size increased (up to some limit perhaps). Compared to smaller groups, the support derived from larger groups should permit the chancing of more extreme responses and allow for increased focus on the gain aspects of the BPS.

In order to evaluate the contribution of group size in the present study, an additional control condition was employed. This consisted of nine-person groups receiving only one BPS administration. While there are theoretical reasons for predicting a positive relationship between size and both the level of risk and RVgn scores, it would also be expected that as size increased beyond some number, this relationship would change (cf., Asch, 1956). The limits of the relationships between size and risk responses need

to be determined empirically. Taking first exposure BPS scores only, this relationship between group size (groups of one, three and nine members) and both risk and internal component scores was examined.

Admire Responses. The risky shift as originally defined refers to greater riskiness in group than in individual decision making. In the major manipulations of this experiment, subjects responded in groups to two exposures of the BPS risk situations, and first-to-second exposure shifts in risk levels were compared across a number of conditions. On the basis of prior group risk taking research, even on the first BPS exposure, group responses should be fairly extreme in comparison to individual responses. As discussed earlier, locus of control theory attributes the greater extremeness of group responses to the capability of groups to more fully support values engaged by the risk situation without fear of negative consequences. It was reasoned that differences in conditions in first-to-second exposure shifts might, therefore, be precluded by the possibility that in their original responses groups already upheld the relevant values to capacity.

In a test of value theory, Levinger and Schneider (1969) asked subjects which positions on the Choice Dilemma risk items they "most admired," and found these positions to be riskier than the positions chosen in response to the original instructions. These admired positions were taken to be indicants of underlying values; and since the risky shift and admire shift were both in the same positive

direction, the hypothesis that the risky shift is mediated by subjects' values seemed to be supported.

Adopting this conclusion as an assumption in the design of the present study, it was supposed that after ordinary first exposure responses, a measure of most admired positions would indicate the degree to which group responses upheld the engaged values; and whether, upon a second exposure to the risk situations, further change would be possible. Thus, another control condition was created. As in the experimental conditions, subjects received their initial BPS administration in three-person groups. These groups were then disbanded and individual subjects were given their second copy of the BPS. They worked on these alone, and the instructions for this second administration called for responding in terms of most admired positions.

One additional control condition was set up since it was thought advisable to check the validity of the "admire" procedure for use with the BPS. A question about most admired position may be a satisfactory index of values when the values concerned are, say, economic or achievement values, and the admiration of riskiness is fairly acceptable. But the same question might not adequately reveal actual values when expression of these values calls for public admiration of stealing or other behavior that is usually considered unethical. Therefore, measures of most admired positions on the BPS should not be accepted as an index of values, unless the replies of subjects responding individually

predict--as it appears to on the Choice Dilemma (Levinger and Schneider, 1969)--the direction of group induced risk shift.

As mentioned above, in order to replicate Rettig's (1966) original risky shift study, a control condition was established in which subjects responded to the BPS alone. These same subjects served in the present control condition. After completing their initial BPS responses, they received a second copy of the BPS with instructions to indicate positions they most admired. As in the Levinger and Schneider (1969) study, these admire responses were compared to their original responses, and the direction of the "admire shift" was compared to the usual direction of the individual to group risky shift.

Primary Hypotheses

Hypothesis 1. The risky shift is a function of locus of control (defined in terms of variations in role prescriptions and group or normative controls).

1a. Pre-Independent to Independent risky shift scores will be larger than Pre-Representative to Representative risky shift scores. (Independent variable: representative controls.)

1b. Pre-Disbanded Subgroups to Disbanded Subgroups risky shift scores will be larger than Pre-Intact Subgroups to Intact Subgroups risky shift scores. (Independent variable: direct group controls.)

Hypothesis 2. Absolute deviation scores will be a function of locus of control.

2a. Pre-Independent to Independent deviation scores will be larger than Pre-Representative to Representative deviation scores.

2b. Pre-Disbanded Subgroups to Disbanded Subgroups deviation scores will be larger than Pre-Intact Subgroups to Intact Subgroups deviation scores.

Hypothesis 3. Internal component scores are a function of locus of control.

3a. RVgn will increase more in the Pre-Independent to Independent comparison than in the Pre-Representative to Representative comparison.

3b. RVgn will increase more in the Pre-Disbanded Subgroups to Disbanded Subgroups comparison than in the Pre-Intact Subgroups to Intact Subgroups comparison.

(No differences between the shifts to the Independent and Disbanded Subgroups conditions and between the shifts to the Representative and Intact Subgroups conditions were predicted. Neither were any differences between these conditions predicted for component scores.)

Postexperimental Questionnaire

In answering the postexperimental questionnaire, subjects in the Representative and Intact Subgroups conditions will be more likely than subjects in the Independent and Disbanded Subgroups conditions to attribute influence over their decisions in their second groups to the

discussions of their original groups. No specific predictions were made regarding the other questions.

Subsidiary Hypotheses

Hypothesis 4. Group risk scores will be higher than those of individuals. No specific prediction was made for the comparison between three-and nine-person groups.

Hypothesis 5. Group RVgn scores will be larger than those of individuals. No specific prediction was made for the comparison between three- and nine-person groups.

Hypothesis 6. The measurements of individuals' admire responses after both individual and group BPS administrations with the regular BPS instructions were employed primarily as control conditions to aid in interpreting the results of the primary experimental manipulations. Accordingly, specific predictions were not made.

CHAPTER IV

METHOD

Subjects

Students at Newark State College served as subjects. Samples were drawn randomly from volunteers available for each testing session. Experimental conditions were also assigned randomly to each testing session, with one exception. Whenever at least twenty-seven subjects were available for an experimental session, priority was given to the Disbanded Subgroups condition. This condition required multiples of twenty-seven at each administration. Since the school contained comparatively few males, and since large numbers of subjects were needed to fill all conditions, only females were utilized as subjects. In all, 558 individuals served as subjects.

Materials: The BPS

Risk taking was measured on the impersonal form of the BPS (Rettig, 1966). Rettig describes the scale as follows:

> ...the scale consists of a series of stimulus items, each portraying a person (either hypothetical or the subject himself) in conflict about stealing money from a bank. Each item presents four determinants (the expectancy and reinforcement value of gain, and the expectancy and reinforcement value of censure) in the same sequence, randomly varying the levels of any one determinant (high or low) from item to item. This combination of determinants and levels requires 16 (2^4) stimulus items. Subjects were requested to predict on a scale ranging from 0 (definitely not) to 6 (definitely yes) whether or not the money would be taken (p. 631).

The following is a sample item:

> A bank employee was in urgent need of a large sum of money for a crucial medical operation he needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure his illness. The employee was certain that his theft would be detected sooner or later. However, the employee was convinced that if he was caught he would settle the matter privately with the bank president (Rettig, 1966, p. 631).

Level of risk on the BPS is defined in terms of predictive decisions to steal money. The higher the probability of stealing indicated by subjects in their responses on the 0-6 scale, the higher the level of risk. Rettig refers to this as "ethical risk." Of course, there is implicit in any risk situation a second type of risk, the risk related to the value foregone if the "risky" alternative is not taken. For example, in the BPS items which refer to a "crucial medical operation," this second source of risk is the possibly dire consequence of not receiving the operation. In discussing risk on the BPS, the present paper will adopt Rettig's usage, and focus on "ethical risk."

Since only females were used as subjects, the sex of the stories' protagonists was changed to a girl. The dependent variable or manner of measuring level of risk was identical to that used by Rettig (1966). Within each condition, the sum of each group's responses on the BPS was averaged. Since the BPS scale runs from zero to six on each item, the highest or most risky score any group could

have received was 96 (6 times 16 items). In fact, though, scores are typically distributed toward the lower end of the scale. Rettig (1966) found average scores ranging from 24 to 41. A copy of the BPS will be found in Appendix A.

The BPS varies the four internal components or determinants of risk taking: reinforcement value and expectancy of gain, and negative reinforcement value and expectancy of censure. Each of these determinants has a high and a low level varied across the stories:

1. Reinforcement value of gain (RVgn): high--the money is needed for a crucial medical operation; low--the money is needed by other people.

2. Expectancy of gain (Egn): high--the medical operation was guaranteed to cure the illness, the money obtainable would help many people; low--the success of the operation was not guaranteed, the money obtainable would help only very few people.

3. Negative reinforcement value of censure (RVcens): high--the theft would result in expulsion from the bank and charge of criminal conduct; low--the theft would be settled in private with the bank president.

4. Expectancy of censure (Ecens): high--the theft would be detected; low--the theft would go unnoticed (Rettig, 1966, p. 631).

Scores on a component are obtained by "summing the differences in...judgments across the eight postexperimentally obtained pairs of items representing that component" (Rettig, 1969a, p. 425). For BPS administration, subjects working alone and concurrently run groups were both seated in separate cubicles.

Procedure and Experimental Design

Structural Variables. The effects of locus of control and group structure on risk shift and deviation scores were evaluated in separate two by two factorial analyses of variance (see Figure 1). Risk shift and deviation scores were both measured by subtracting from the overall risk level of each of the new group the average of the risk scores of members' former groups. Whereas risk shift scores take direction of shift (i.e., sign) into account, as described previously, sign is disregarded in computing deviation scores.

Independent Variable: Representative Controls.--The BPS was given to 36 three person groups for group discussion and evaluation to consensus. Each subject kept her own record of group responses. These were recorded on IBM answer sheets. Written instructions requested that subjects read and discuss each item, and as a group predict the probability of stealing by the story's protagonist (see Appendix B, p. 130). Subjects were asked not to respond in terms of judgments about how right or wrong they felt this behavior was. In all conditions of the experiment, a maximum of two minutes was alloted per item, though subjects were free to work at a faster pace. An experimental assistant reported the elapse of two minute intervals. All instructions in the experiment were written, except when the experimenter responded to questions from subjects. Copies of all written instructions are provided in Appendix B.

Group Structure	Locus of Control	
	Not Transferred	Transferred
Representative Control (3 person)	Representatives	Independents
Direct Group Control (9 person)	Intact Subgroups	Disbanded Subgroups

FIGURE 1. EXPERIMENTAL DESIGN FOR RISK SHIFT AND DEVIATION SCORES ANALYSES OF VARIANCE.

After group risk levels were recorded, half the groups (18) were randomly assigned to the Representative role condition and half to the Independent condition. Both of these conditions were comprised of new three-person groups. Within each testing session, subjects in both conditions were assigned to their new groups on a random basis, except for the constraint that no two members from any of the earlier groups were assigned to the same new group. Subjects kept the answer sheets from their original groups for reference in their new groups.

New instructions provided to subjects were different for each condition. Members of the Representative groups were asked to act as representatives of their initial groups and to argue for the positions taken by these groups (see p. 134). The preservation of control by these former groups was sought by giving these subjects the fictitious information that their initial group would subsequently be reassembled, and that any deviation from its positions would have to be defended. Subjects in the newly formed Independent groups received instructions that in order to gain additional insight into the BPS they were to rediscuss and reappraise the items with the other members of their new groups (see p.133). All groups were instructed to reach unanimous decisions within the two minutes allowed for each item, and new answer sheets were provided.

After BPS responses were recorded in the new groups and all materials were collected, subjects were separated and given questionnaires to answer.

Independent Variable: Direct Group Controls.-- Subjects were divided into 108 three-person groups. Half the groups were destined to eventually function as subgroups in the Intact Subgroups condition. The other half were disbanded after their initial BPS encounter, and members participated in the Disbanded Subgroups condition. Except for a slight alteration in instructions given to subjects in the Pre-Intact Subgroups condition (see p. 132), subjects in all initial three-person groups, regardless of destination, received the same instructions (see p. 131). These were also the same as those provided the Pre-Independent and Pre-Representative groups.

As in the Pre-Independent and Pre-Representative conditions, each subject in the Pre-Disbanded Subgroups condition kept her own record of group responses; and this record was retained for reference when subjects entered their new groups. In the Pre-Intact Subgroups condition, to foster subgroup identification, only one answer sheet was provided per group. The slight rewording of instructions to this group was due to this modification in group record keeping.

After initial BPS responses were recorded, those groups whose members entered the Disbanded Subgroups condition were disbanded. Eighteen new nine-person groups were then formed. Subjects were assigned to these in such a manner that no two persons from the same earlier group entered the same new large group. The Intact Subgroups

condition was also comprised of 18 newly formed nine-person groups. Each of these was made up of three former groups which had remained intact after completing their initial BPS responses.

New instruction sheets and answer sheets were provided; one per group. Members of the Intact Subgroups condition were instructed to argue for the positions of their own subgroups in arriving at new BPS consensus decisions (see p. 135). Disbanded Subgroups subjects were also required to come to unanimous decisions, but were simply told that further discussion in these new groups was provided for them to gain additional insight into the BPS items (see p. 133). As before, two minute intervals were noted by an assistant.

When this second round with the sixteen BPS items was completed, materials were collected and subjects were separated for work on their questionnaires.

Postexperimental Questionnaires. After recording of second exposure BPS responses, each subject in the Representative, Independent, Intact Subgroups, and Disbanded Subgroups conditions received a copy of the postexperimental questionnaire to work on individually. The questionnaire contained four multiple choice questions pertaining to subjects feelings about influence over their decisions.

The first question was concerned with differences between the influences of first and second exposure groups on subjects' BPS responses in their second groups. In the

Representative and Intact Subgroups conditions instructions to arrive at new unanimous decisions in the second exposure groups were opposed by instructions to uphold the positions of earlier groups. In the Independent and Disbanded Subgroups conditions, no such commitment to earlier positions was required. It was expected that the locus of control over decisions in the new groups would vary with these instructions about the fate of the earlier groups (e.g., intact or disbanded), and that these variations in control would affect questionnaire choices.

The other questions asked about intragroup influence within the second exposure groups. These three questions were provided for exploratory purposes in order to assess the possibility of an experimental effect on intragroup influence. Difference between conditions in the frequencies of questionnaire choices were evaluated with a chi-square test. A copy of the postexperimental questionnaire will be found in Appendix C.

Group Size. The BPS was also administered to 18 individuals responding alone, and to 9 nine-person groups. Participants in these nine-person groups received only a single encounter with the BPS. Their responses were compared to those of individuals and three-person groups. Differences were evaluated on a simple randomized analysis of variance.

While a monotonic relationship between group size and risk scores was not specifically predicted, it was

expected that individuals would differ significantly from three-person groups. Accordingly, a separate comparison between these two conditions was carried out and evaluated with a t-test.

Admire Responses. The 18 subjects in the Individual condition, upon completing their initial set of BPS responses, received new instructions and a new answer sheet (see p. 137). These instructions called for responding to the BPS stories in terms of admire choices. That is, in contrast to the usual BPS instructions, subjects in this Individual Admire condition were requested to indicate how right or wrong they felt stealing would be in the situations described.

To test the assumptions that subjects' values determine the direction of the risk shift, and that admire choices are an indicant of values (Levinger and Schneider, 1969), the direction of the difference between the Individual and Individual Admire conditions (i.e., the admire shift) was compared to the direction of the individual-to-group risk shift. If both assumptions are correct, the directions should be the same. If they are found to be different, at least one of the assumptions becomes doubtful.

If the directions are the same and the value assumptions are supported, then the recording of admire choices after initial group responses might reveal whether it is possible to provide still further support for the values engaged on the BPS. Such post-group admire choices were

measured on an additional control group. Twenty-seven subjects were first arranged into 9 three-person Pre-Admire groups and received the same instructions as the other "pre" three-person groups (see p. 131). After initial responses were recorded, these groups were disbanded and subjects were separated. New instructions called for individuals to work alone in reevaluating the BPS stories; but this time responses were to be in terms of admire choices rather than behavior predictions (see p. 138). These Post-group Admire responses were compared to the regular responses of three-person groups (actually, to the Pre-Admire control groups).

The various comparisons between individuals and groups in the "admire" conditions were arranged into a two by two factorial analysis of variance employing Lindquist's (1953) Type I "mixed" design (p. 266). See Figure 2 for an outline of the design.

Instructions	Group Discussion	
	No Discussion	Discussion
Predict	Individuals	Pre-Admire Groups
Admire	Individual Admire	Postgroup Admire

FIGURE 2. EXPERIMENTAL DESIGN FOR ANALYSIS OF VARIANCE FOR ADMIRE CONDITIONS

CHAPTER V

RESULTS

Primary (Structural) Variables

Hypothesis 1. The risky shift is a function of locus of control.

Average risky shift scores for each of the four experimental conditions are presented in Table 1. Risky shift was measured by subtracting from the overall risk level of each of the new groups the average of the overall risk scores of members' former groups. (See Appendix D for raw data and computations of risky shift scores for each condition.)

Two way factorial analysis of variance indicates a significant effect for locus of control only. As predicted, mean shift was significantly greater when control was transferred to the new groups than when it was retained primarily by the original groups ($F=6.76$; $p < .025$ with 1 and 68 degrees of freedom). The null hypothesis of Hypothesis 1 was, therefore, rejected. Neither group structure alone, nor the structure by control interaction was significant (see Table 2).

It should be pointed out that, while the present analysis of the risky shift did reveal significant differences between conditions, the magnitudes of these shifts were small relative to the size of the range of potential shift scores. Table 5 gives mean BPS scores for each of the first and second exposure conditions that comprised the major experimental treatments. The four first exposure

TABLE 1

MEAN RISKY SHIFT SCORES FOR REPRESENTATIVE, INDEPENDENT, INTACT SUBGROUPS, AND DISBANDED SUBGROUPS CONDITIONS

Group Structure	Locus of Control					
	Not Transferred			Transferred		
Representative	N	X	SD	N	X	SD
Control	Representatives			Independents		
(3 person groups)	18	0.59	3.88	18	3.90	8.91
Direct Group	Intact Subgroups			Disbanded Subgroups		
Control (9 person groups)	18	1.81	3.49	18	5.63	4.58

TABLE 1

MEAN RISKY SHIFT SCORES FOR REPRESENTATIVE, INDEPENDENT, INTACT SUBGROUPS, AND DISBANDED SUBGROUPS CONDITIONS

Group Structure	Locus of Control					
	Not Transferred			Transferred		
Representative	N	X	SD	N	X	SD
Control	Representatives			Independents		
(3 person groups)	18	0.59	3.88	18	3.90	8.91
Direct Group	Intact Subgroups			Disbanded Subgroups		
Control (9 person groups)	18	1.81	3.49	18	5.63	4.58

TABLE 2

ANALYSIS OF VARIANCE FOR RISKY SHIFT SCORES IN REPRESENTATIVE, INDEPENDENT, INTACT SUBGROUPS, AND DISBANDED SUBGROUPS CONDITIONS

Source	SS	df	MS	F
Total	2565.83	71	-	-
Structure (A)	39.02	1	39.02	1.15
Locus of Control (B)	228.65	1	228.65	6.76*
A x B	1.13	1	1.13	0.03
Error	2297.01	68	33.77	-

* $P < .025$

("pre") conditions had identical group experiences and were expected to produce highly similar BPS scores. By checking Table 5 it may seem that this expectancy was confirmed.

Hypothesis 1a. Pre-Independent to Independent shift scores will be larger than Pre-Representative to Representative shift scores.

Hypothesis 1b. Pre-Disbanded Subgroups to Disbanded Subgroups shift scores will be larger than Pre-Intact Subgroups to Intact Subgroup shift scores.

The simple effects of locus of control for each of the structural variables was tested via a t-test for differences among several means (Bruning and Kintz, 1968, p. 112). In order to achieve significance at the .05 level (one-tailed), a difference between conditions had to reach or exceed a critical difference of 3.24 (df=68). The difference between the Independent and Representative conditions was 3.32. The difference between the Disbanded and Intact Subgroups conditions was 3.82. Both differences were, thus, significant at the .05 level, and in the predicted direction. The null hypotheses associated with Hypotheses 1a and 1b could thus be rejected.

Hypothesis 2. Absolute deviation scores will be a function of locus of control.

Deviation scores were computed by subtracting from the overall BPS scores of each of the newly formed groups, the average of the risk scores of members' former groups. As described previously, the signs of these differences were disregarded in computing the average deviation scores for

each condition.

The findings substantiate the prediction that in the newly formed groups the absolute deviations from the means of the members' initial positions would be a function of locus of control. Mean absolute deviation was higher for the conditions in which control was transferred to the newly formed groups (see Table 3). As summarized in Table 4, the null hypothesis may be rejected. Two way factorial analysis of variance reveals the effect of locus of control to be significant beyond the .005 level with 1 and 68 degrees of freedom.

As in the above analysis of risky shift scores, it should be noticed that the magnitudes of the deviation scores obtained comprise only a small segment of the potential range of such scores.

Hypothesis 2a. Pre-Independent to Independent deviation scores will be larger than Pre-Representative to Representative deviation scores.

Hypothesis 2b. Pre-Disbanded Subgroups to Disbanded Subgroups deviation scores will be larger than Pre-Intact Subgroups to Intact Subgroups deviation scores.

The simple effects of locus of control on deviation scores within each structural variable was assessed with a t-test for differences among several means (Bruning and Kintz, 1968, p. 112). Critical differences for significance at the .05 and .01 levels (both one-tailed) were, respectively, 2.52 and 3.61 with 68 degrees of freedom.

TABLE 3

MEAN ABSOLUTE DEVIATION SCORES FOR THE REPRESENTATIVE, INDEPENDENT, INTACT SUBGROUPS, AND DISBANDED SUBGROUPS CONDITIONS

Group Structure	Locus of Control					
	Not transferred			Transferred		
Representative Control (3 person groups)	N	X	SD	N	X	SD
	Representatives			Independents		
	18	3.25	2.18	18	7.12	6.62
Direct Group Control (9 person groups)	Intact Subgroups			Disbanded Subgroups		
	18	2.66	2.89	18	5.64	4.56

TABLE 4

ANALYSIS OF VARIANCE FOR DEVIATION SCORES IN THE REPRESENTATIVE, INDEPENDENT, INTACT SUBGROUPS, AND DISBANDED SUBGROUPS CONDITIONS

Source	SS	df	MS	F
Total	1634.94	71	-	-
Structure (A)	19.43	1	19.43	0.94
Locus of Control	210.98	1	210.98	10.24*
A x B	3.59	1	3.59	0.17
Error	1400.93	68	20.60	-

*$p < .005$

The difference between the Independent and Representative conditions was 3.87, exceeding the requirements for significance at the .01 level. The difference of 2.97 between the Intact and Disbanded Subgroups conditions attained significance beyond the .05 level. Accordingly, the null hypotheses of both Hypothesis 2a and 2b were rejected.

Hypothesis 3. Internal component scores are a function of locus of control.

With respect to the internal components, little difference was found between any of the group conditions in the pattern of component scores (see Table 6). As such, the null hypothesis of Hypothesis 3 could not be rejected.

Hypothesis 3a. RVgn will increase more in the Pre-Independent to Independent comparison than in the Pre-Representative to Representative comparison.

Hypothesis 3b. RVgn will increase more in the Pre-Disbanded Subgroups to Disbanded Subgroups comparison than in the Pre-Intact Subgroups to Intact Subgroups comparison.

With regard to the specific predictions of differences in the comparisons on the RVgn component, the data did not support the hypotheses. From Table 6 it may be seen that the size of the difference between the Pre-Representative and Representative conditions (0.72) was almost identical to the difference between the Pre-Independent and Independent conditions (0.78).

TABLE 5

BPS MEANS AND STANDARD DEVIATIONS FOR MAJOR EXPERIMENTAL CONDITIONS, AND INDIVIDUAL AND NINE-MAN GROUPS CONDITIONS

Condition	First Exposure "Pre" Conditions				Second Exposure Conditions			
	N	Group Size	Mean	SD	N	Group Size	Mean	SD
Representatives	18	3	52.78	14.07	18	3	53.72	9.80
Independents	18	3	50.50	10.30	18	3	54.06	12.17
Intact Subgrps.	54	3	50.00	12.04	18	9	51.88	8.98
Disbanded Sub.	54	3	50.65	9.92	18	9	56.28	6.37
Individuals*	18	1	45.17	21.87				
Nine-Person Grp.	9	9	47.11	7.50				

*Subjects in these conditions received only one administration of the BPS.

The difference between the RVgn scores of the Pre-Disbanded Subgroups and the Disbanded Subgroups conditions was equal to 1.74; and that between the Pre-Intact Subgroups and the Intact Subgroups conditions equaled 1.22. While Hypothesis 3b predicted that the Pre-Disbanded Subgroups to Disbanded Subgroups change in RVgn would be larger than the comparable Pre-Intact Subgroups to Intact Subgroups change, the difference between these difference scores was small (0.52), and failed to attain statistical significance on a *t*-test ($t = .20$; $df = 140$). In summary, the null hypothesis could not be rejected for Hypothesis 3, 3a, or 3b.

There did appear to be an effect of exposures on the internal components. There are 16 possible comparisons based on exposures (e.g., Pre-Representative to Representative on all four components; Pre-Independent to Independent on all four components; etc.). Fourteen of these comparisons reveal larger scores for the second exposure groups. The differences between the observed and expected frequencies of such positive change is significant beyond the .01 level ($\chi^2 = 9$; $df = 1$). In other words, differentiation between the high and low levels of the components was greater in the second exposure groups than in the first exposure groups. Component scores are broken down into high and low levels in Appendix E.

Postexperimental Questionnaire

It was predicted that in answering the postexperimental questionnaire, subjects in the Representative and Intact Subgroups conditions would be more likely than subjects in

TABLE 6

INTERNAL COMPONENT SCORES FOR THE MAJOR EXPERIMENTAL CONDITIONS

AND THE INDIVIDUAL AND NINE-PERSON GROUPS CONDITIONS

Condition	N	Group Size	Egn	SD Egn	RVgn	SD RVgn	Ecens	SD Ecens	RVcens	SD RVcens
Individuals	18	1	7.73	4.67	11.50	11.33	4.84	7.46	8.39	7.66
Pre-Representatives	18	3	9.12	4.39	17.56	9.54	6.56	4.96	14.45	6.67
Representatives	18	3	10.62	3.73	18.28	8.18	8.73	2.21	14.50	3.10
Pre-Independents	18	3	11.73	4.76	12.95	6.23	9.28	4.27	14.17	5.76
Independents	18	3	12.50	4.99	13.73	4.26	8.17	2.30	13.95	5.12
Pre-Intact Subgrps.	54	3	11.89	4.48	11.34	8.00	9.41	5.25	14.82	6.94
Intact Subgroups	18	9	12.00	3.81	12.56	6.61	10.12	3.44	15.12	3.67
Pre-Disbanded Subg.	54	3	12.69	5.59	10.32	6.14	8.76	5.01	17.54	5.46
Disbanded Subg.	18	9	13.62	3.98	12.06	4.19	9.28	2.24	18.73	3.61
Nine-Person Groups	9	9	10.89	3.45	17.78	9.79	8.89	3.11	16.00	4.97

the Independent and Disbanded Subgroups conditions to attribute influence over their decisions in their second groups to the discussions of their original groups. No specific predictions were made regarding the other questions.

Analysis of the results of the questionnaire revealed that differences between conditions occurred on the first question only. This was the question concerned with locus of control. Table 7 provides the frequency distributions of choices for each of the four experimental conditions. As predicted, in both the Intact Subgroups and Representative conditions control over choices did not transfer as readily to the second exposure groups as they did in either the Disbanded Subgroups or Independent conditions. Comparison between the Independent and Representative conditions yielded a chi-square of 11.40 which is significant beyond the .005 level (df=2). The difference between the Intact and Disbanded Subgroups conditions is significant beyond the .05 level (χ^2=6.38, with 2 degree of freedom).

Table 8 presents data on the relationships between responses to Question 1 of the questionnaire and both risky shift and deviation scores. Subjects within each condition were grouped (on paper) according to their responses to Question 1, and the risky shift and deviation scores of each of these groups were compared.

For deviation scores, the pattern is consistent. In all four conditions, those who selected answer (b) for Question 1 had higher deviation scores than those who chose either of

the other alternative. Separate one-way analyses of variance were computed for each condition and significant differences were found for deviation scores in the Intact Subgroups condition ($F = 3.32$; $df = 2$ and 159; $p<.05$), the Independent condition ($F=5.31$; $df = 2$ and 51; $p<.01$), and the Representative condition ($F = 3.28$; $df = 2$ and 51, $p<.05$).

With regard to risky shift scores, as Table 8 indicates, a clear pattern did not emerge. In the Independent and Intact Subgroups conditions, those who responded to Question 1 with answer (b) had higher risky shift scores than those who chose (a) or (c). In the Representative and Disbanded Subgroups conditions, the differences in risky shift scores between subjects who gave different responses to Question 1 were small, but those who chose (a) had somewhat larger risky shift scores than those who chose (b). A one-way analysis of variance was carried out within each condition to evaluate these difference in risky shift scores. Significant F ratios were obtained only in the Independent condition ($F = 5.31$; $df = 2$ and 51; $p < .01$) and in the Intact Subgroups condition ($F = 5.56$; $df = 2$ and 159; $p < .005$).

Although responses to questions 2, 3 and 4 did not yield significant differences between conditions, within each condition an assessment was made of the relationship between responses to the first and second question. This was accomplished by computing a separate chi-square for each condition. For Question 2, to compensate for the small

TABLE 7

DISTRIBUTION OF RESPONSES ON POSTEXPERIMENTAL QUESTIONNAIRE

Questions	Condition			
	Independent	Representative	Disbanded Subgroups	Intact Subgroups
1. Most influence				
(a) earlier groups	7	22	36	43
(b) second groups	24	13	73	51
(c) both equal	23	19	53	68
2. Own influence				
(a) least	1	0	2	2
(b) little	2	3	20	27
(c) moderate	34	29	98	86
(d) considerable	16	17	41	47
(e) most	1	5	1	0
3. Decision process				
(a) compromise	45	46	125	122
(b) unequal influence	9	8	37	40
4. Own influence more in				
(a) first groups	17	16	63	75
(b) second groups	13	11	23	8
(c) about equal	24	27	76	79

TABLE 8

RISKY SHIFT AND DEVIATION SCORES DIVIDED

ACCORDING TO RESPONSES TO QUESTION 1

	Condition							
	Independent		Representative		Disbanded Subgroups		Intact Subgroups	
Question 1	Risky Shift	Dev.	Risky Shift	Dev.	Risky Shift	Dev.	Risky Shift	Dev.
(a)	-3.71	10.00	1.27	5.36	6.61	9.00	0.18	6.48
(b)	9.04	12.71	-2.92	9.85	5.66	9.82	4.94	9.37
(c)	1.26	6.22	2.21	9.79	4.85	8.17	-0.65	7.15

expected frequencies in the end categories, the obtained frequencies of (a) and (b) were combined, as were those of (d) and (e). Thus each chi-square was computed from a three by three contingency table and tests of significance were based on 4 degrees of freedom. Only in the Representative condition was a significant chi-square obtained (χ^2=9.72; $p < .05$); but since three of the nine cells had expected frequencies of less than 5, the applicability of the chi-square test for this data is questionable. Chi-squares for the other conditions were 5.83, 5.50, 3.56, respectively, for the Independent, Disbanded Subgroups, and Intact Subgroups conditions.

Subsidiary Hypotheses

Hypothesis 4. Group risk scores will be higher than those of individuals. No specific prediction was made for the comparison between three- and nine-person groups.

Table 5 depicts risk levels of the various individual and group conditions. Risk scores of both three- and nine-person groups were larger than those of individuals. Taking first exposure groups only, analysis of variance comparing Individual, three-person "Pre" group, and Nine-Person group conditions failed to show a significant relationship between group size and risk level (see Table 9 for Summary Table).

A separate comparison of the Individual and three-person "Pre" group conditions was carried out as a replication of Rettig's (1966) original "risky shift" study. The mean and

standard deviation of Individual scores were, respectively, 45.17 and 21.87. For all the "Pre" groups combined these values were 50.68 and 11.30. The difference between means was 5.51 which compares closely with Rettig's (1966) finding of a difference of 5.27. While the present finding paralled Rettig's in that three-person groups predicted greater riskiness than Individuals, the size of this differences in the present study, when evaluated on a t-test corrected for heterogeneity of variance (Edwards, 1960, pp. 106-107), fell short of acceptable significance levels ($t = 1.05$; critical $t_{.05} = 1.73$; df=17 and 143).

Hypothesis 5. Group RVgn scores will be larger than those of individuals. No specific prediction was made for the comparison between three- and nine-person groups.

Table 6 indicates that this prediction was not substantiated. In the Individual condition RVgn was the largest component. With the exception of the Pre-Representative and Representative conditions, the largest component in the various three-person conditions was RVcens. In general, the pattern of individual component scores differed from the general pattern of group scores. Egn, Ecens, and RVcens scores were considerably lower for individuals than for groups. Only RVgn was similar in individual and group conditions.

Hypothesis 6. The measurements of individuals' admire responses after both individual and group BPS administrations with the regular BPS instructions were employed primarily as

TABLE 9

ANALYSIS OF VARIANCE FOR THE EFFECT OF GROUP SIZE ON RISK SCORES

Source	SS	df	MS	F
Total	61,580	170	-	-
Between Conditions	554	2	277	< 1
Within Conditions	61,026	168	363	-

control conditions to aid in interpreting the results of the primary experimental manipulations. Accordingly, specific predictions were not made.

Table 10 presents mean BPS scores for the four experimental conditions. Rather than finding a similarity in the directions of the admire and risky shifts, it was observed that individuals, when responding to the BPS in terms of most admired positions, chose far lower positions than they did when making behavior predictions.

Analysis of variance (Table 11) revealed a significant effect of instructions ($p < .005$), as well as a significant interaction effect ($p < .025$); that is, the shift toward caution was significantly more pronounced in the individual (No dicussion) condition than in the group (Discussion) condition. The main effect of group discussion, i.e., having versus not having initial BPS encounter in a discussion group, fell short of accepted statistical significance levels ($p < .20$).

Individual BPS scores declined from prediction to admiration responses. Under instructions to indicate most admired positions, subjects chose far less risky (or more ethical) alternatives. This difference between the Individual and Individual Admire conditions was found to be significant beyond the .001 level on a two-tailed t-test for differences among several means (critical difference = 15.58; $df = 43$). While this decline from prediction to admiration choices was sizable, a significant correlation was found between these

TABLE 10

MEAN BPS AND COMPONENT SCORES FOR ADMIRE CONDITIONS

Instructions	Group Discussion									
	No Discussion					Discussion				
	BPS	Egn	RVgn	Ecens	RVcens	BPS	Egn	RVgn	Ecens	RVcens
	Individuals					Pre-Admire Groups				
Predict	45.17	7.73	11.50	4.84	8.39	46.33	11.56	11.56	10.89	14.23
	Individual Admire					Postgroup Admire				
Admire	27.55	3.56	8.00	1.56	3.78	40.55	10.41	7.60	5.52	10.12

two sets of scores ($r = +.51$; $df = 16$; $p < .05$).

In the group discussion condition, where subjects arrived at their initial BPS predictions through group discussion, the effect of the admire instructions was far less potent. Scores declined somewhat, but this difference did not attain statistical significance on a *t*-test. In other words, choosing initial positions through group discussion and consensual decisions apparently prevented the sharp cautious shift that occured when individuals responded to the admire instructions without having had this group experience.

TABLE 11

ANALYSIS OF VARIANCE FOR BPS COMPARISONS

IN ADMIRE CONDITIONS

Source	SS	df	MS	F
Between Subjects	26,428	44		
Conditions (A)	1,083	1	1,083	1.84
$error_b$	25,345	43	589	
Within subjects	12,351	45		
Instructions (B)	2,485	1	2,485	12.24*
A x B	1,128	1	1,128	5.56**
$error_w$	8,738	43	203	

* $p < .005$

** $p < .025$

CHAPTER VI

DISCUSSION

Structural Variables. The notion of locus of control proved useful for predicting the differences between the various group conditions in risk taking scores and questionnaire responses. Other theoretical positions do not seem to be formulated in a manner that would have led to similar predictions.

Responses to the first question of the postexperimental questionnaire indicate the effectiveness of the various instructions in inducing differences in subjects' feelings about the loci of control over their decisions. Subjects who enacted the role of representative or who maintained identification with their subgroup were more likely to attribute influence over their choices to their original groups. As expected, this retention of control by the original groups was manifested in a conservative effect on responses in the new groups. That is, choices in the Representative and Intact Subgroups conditions remained closer to choices in the earlier groups than did those of the Independent and Disbanded Subgroups conditions.

Comparison of the Representative and Intact subgroups conditions on the distribution of answers to Question 1 concerning the relative influence of the earlier and later groups, points up an interesting difference between these conditions. Groups in the Intact Subgroups condition were

made up of nine members, all of whom were present and divided into three subgroups. In a sense, groups in the representative condition were also made up of nine members divided into three subgroups; but in this case, only three members were present, the three representatives.

While the difference between these two conditions in the distribution of responses to Question 1 failed to reach statistical significance ($\chi^2 = 4.0$; $\underline{df} = 2$), it should be noticed from Table 7 that 40% of those in the Representative condition attributed primary influence to their original groups; whereas only 26% of those in the Intact Subgroups condition made a similar attribution. Thus, in the Intact Subgroups condition, with the entire subgroup present and able to reevaluate earlier positions, subjects appeared somewhat more likely to attribute their final compromise decisions to the events in their later groups than were subjects acting alone in their second groups as representatives of their earlier groups.

In both the Independent and Disbanded Subgroups conditions, the primary source of influence was most frequently located in the discussions in the second groups. Consistent with this finding, the risky shift and absolute deviation scores of these groups did not exhibit the same conservative tendencies found in the Representative and Intact Subgroups conditions. Not being so strongly bound to their earlier positions, subjects in the Independent and Disbanded Subgroups conditions were more readily affected by the risk inducing aspects of the discussions in their new

groups.

Similarly, on the basis of the relative strengths of ties to earlier group decisions, absolute deviation scores in the Independent and Disbanded Subgroups conditions were predicted to be larger than those in the Representative and Intact subgroups conditions. In other words, regardless of direction of shift, in the Independent and Disbanded Subgroups conditions the absence of obligations to uphold earlier positions was expected to produce--in contrast to the Representative and Intact Subgroups conditions--fewer decisions which approximated mathematical compromises (i.e., averages) of former positions. The Independent and Disbanded Subgroups conditions seemed to offer greater opportunities for actual reevaluation of the content of the BPS items. The data confirm this prediction.

As noted in Table 8, there was also evidence of a within treatments relationship between Question 1 responses and both risky shift and deviation scores. As would be expected, those who selected answer (b), attributing primary influence on decisions in their new groups to the discussions of those groups, had consistently larger deviation scores (i.e., moved further from the positions of their original groups) than those who attributed primary influence to their initial groups.

The relationship between responses to Question 1 and risky shift scores was not as consistent; but in the two conditions where a significant relationship was found

(the Independent and Intact Subgroups conditions), it was the subjects who selected answer (b) who had the larger risky shift scores.

While confirmation of the major hypotheses concerning differential movement toward more extreme responses was obtained, attention must be paid to the fact that no movements (or shifts) were particularly large. These small changes are typical of findings with both the BPS (Rettig, 1966) and the Choice Dilemma (Teger and Pruitt, 1967). As explained inthe introductory chapter, the BPS is employed in the present study essentially as an indicant of subjects' willingness to advocate relatively extreme positions. Thus, it may be concluded that this willingness was affected differently by the different experimental conditions (i.e., by locus of control), but that when considered alone none of these conditions had a very marked affect on choices.

It should also be pointed out that even though predictions concerning risky shift and deviation scores were confirmed and the applicability of locus of control theory was supported, in the comparison between the Intact and Disbanded Subgroups conditions two variables--both of which were designed to affect locus of control--were manipulated simultaneously: (1) Subjects in the Intact Subgroups condition participated in their second groups with two subjects from their original groups while subjects in the Disbanded Subgroups condition went into their new groups alone. (2) Subjects in the Intact Subgroups condition received instructions to argue for their earlier positions while

subjects in the Disbanded Subgroups condition were told only to reassess the BPS problems. These variables were thus confounded and it is therefore not possible to determine how each of these contributed to the differences between conditions. While the concern of the present study was to evaluate the applicability of locus of control theory, future research might profitably explore the relative and interactive effects of the various variables subsumed under the notion of locus of control.

The overall patterns of component scores were similar for all the group conditions, and were unaffected by either exposures or instructions. The size of an internal component reflects the degree of differentiation between the high and the low levels of that component. The pattern of component scores is based on the differentiation of the levels of each component relative to the differentiation of the levels of the others. Thus, while the different conditions did lead to differences in overall BPS scores, the relative degrees of differentiation between the patterns of component scores were negligible.

The reason for the failure to find differences between group conditions in the pattern of component scores is not clear. According to Rettig (1969a; 1969b), overall BPS scores and component scores are <u>both</u> mediated by the orientations of emphases of subjects in contemplation or discussion of the BPS items(with these emphases, in turn, determined by locus of control). Thus, the problem of

explaining these negative results is complicated further by the positive findings with the overall BPS scores.

If this theoretical position is assumed to be correct, then some extraneous experimental factor may have precluded obtaining the predicted result. There were certain manipulations employed in the present design which are not typical of work with the BPS, and while these apparently did not prevent differences between conditions in overall BPS scores, they might have had an effect on component scores. For example, the present design employed a consensus requirement and imposed a time limitation on discussions. Although there are no explicit theoretical reasons for excluding such variations from the more general explanation (Rettig, 1969a), further research is required to determine whether they did, in fact, reduce component score differences between group conditions.

While the patterns of component scores were highly similar for all group conditions, the levels of component scores were generally higher for second exposure groups than for first exposure groups. In other words, with increased exposure to the BPS and with increased familiarity with the items, the degree of differentiation of levels within components increased.

Group Size. The difference between individuals and first exposure three-person groups did not achieve statistical significance, but the direction of the difference was as predicted: group responses were riskier than those of individuals. Since the size of this difference (5.51)

compares closely with Rettig's (1966) finding of a significant difference of 5.27 between similar conditions, the present failure to reject the null hypothesis may be related to the unusually large discrepancy between the variances of the Individual and group conditions. The correction for heterogeneity of variance required in the statistical analysis of the present study was not necessary for Rettig's data.

The finding of much greater variability of risk responses across individuals than across groups--a finding which contrasts with the data reported by Rettig (1966)--may be related to the present stipulation that group responses be made unanimously. Rettig's (1966) subjects made post-discussion responses on an individual basis. It is apparent that even though group BPS scores were on the average higher than the scores of individuals, within a group a subject's tendencies toward unusually high or low responses were likely to be checked by the necessity to arrive at unanimous decisions. Many such extreme responses were probably eliminated through compromise.

Individual-to-group risky shifts have been found with the Choice Dilemma both when postdiscussion responses were arrived at through the group's unanimous choice and when choices were made by individuals responding alone. In his research with the BPS, Rettig has not employed a consensus requirement. The present hypothesis that a risky shift on the BPS would also be found with a group consensus requirement

has not been confirmed by the present study. On the other hand, considering the size of the difference between individual and group scores and the statistical implications of an heterogeneity of variance, it would appear worthwhile to confirm the present finding before concluding that risky shifts on the BPS are limited to procedures which call for postdiscussion decisions to be made on an individual basis.

Mean BPS score of the Nine-person groups condition was higher than that for Individuals, but the size of this difference did not approach statistical significance. As Table 5 indicates, the comparison of individual, three-person, and nine-person groups failed to replicate Teger and Pruitt's (1967) finding of a positive relationship between risk level on the Choice Dilemma and group size, and Rettig's (1969a) report of a similar trend with the BPS.

The largest groups in the Teger and Pruitt study consisted of five members. Rettig's research compared individuals, dyads, and triads. Research with groups as large as nine members has not yet been reported. In both the Teger and Pruitt and Rettig studies no time limit was imposed on the discussions, while in the present procedure a maximum of two minutes was alloted for each item. If group discussion and the development of justifications for risky decisions play a mediating role in the risky shift (Rettig and Turoff, 1967), then it might be speculated that two minutes was not sufficient for adequate discussion (e.g., voicing of opinions, attempts at persuasion) in the Nine-

person groups. Consistent with this interpretation is the fact that in both the Teger and Pruitt (1967) and Rettig (1969a) studies, when discussion of the risk items was not permitted the linear relationship between group size and risk level did not occur.

It is also worth pointing out that BPS scores were significantly lower in the single exposure Nine-person groups than in the Disbanded Subgroups condition. The latter was also composed of nine-member groups, but their members had each had an earlier BPS exposure in three-person groups ($\underline{t} = 3.19$; $\underline{p} < .01$ on a two-tailed test; $\underline{df} = 25$).

The pattern of individual component scores differed substantially from the patterns of group component scores. Except for RVgn, individual component scores were considerably smaller than group component scores; and whereas RVcens was generally the largest component in the group components, RVgn was the largest component in the individual condition. That is, subjects in the individual condition did not differentiate as clearly between the high and low levels of Egn, Ecens, and RVcens as did subjects responding in groups. (In the Pre-Representative and Representative conditions, while RVcens was relatively large, it was exceeded by RVgn. This was probably due to chance rather than treatment factors, since in terms of subject selection and experimental procedures the Pre-Representative groups did not differ from any of the other "Pre" groups.)

The present findings on the differences between

individual and group scores on the internal components differ from those reported by Rettig (1966, 1969a). In his earlier study, the results were opposite to those presented here; RVcens was the largest component in the individual condition and RVgn was largest in the group condition. In Rettig's more recent study, RVcens was the largest component in both individual and group conditions, but there was a noticeable increase in RVgn from individuals to dyads to triads.

It is not clear how to account for the differences between the present findings and those of Rettig. It is worth noting, though, that in his earlier study, Rettig (1966) manipulated a number of independent variables, and his data on individual and group component scores were actually averages calculated from the scores of a number of different treatment conditions. Inspection of the pattern of the component scores of Rettig's group condition which most closely resembles the present group conditions finds a fair degree of similarity between the two, with RVcens larger than RVgn.

By considering the ethical implications of BPS responses and speculating on how these might relate to the component scores, it may be possible to offer some understanding of the differences between individual and group component scores. According to locus of control theory, subjects working alone should be more cautious than those who work in groups. Without group support, tendencies to avoid

appearing unethical should be maximized. In common sense or conventional terms, the ethical quality of an act depends primarily on the intentions of the actor or on the goal for which the act is undertaken, i.e., on the levels of the reinforcement value of gain (or RVgn). Other considerations such as the likelihoods of success or failure (Egn or Ecens), or the possibility of unpleasant consequences (RVcens) are more likely to be thought of as matters of practicality rather than ethics. On the basis of some such conventional understanding of ethics, if responses on the BPS were intended to be (or appear to be) as ethical as possible, decisions would be determined solely or primarily by the levels of RVgn. Practical considerations should not make much difference.

Thus, in responding to the BPS, an attempt onthe part of individuals to appear ethical should be reflected in maximal differentiation among the high and low levels of RVgn, and much less differentiation among the levels of the other components. In contrast to this, social support in group decision making should permit the participants to take greater account of the more practical aspects of the stories, i.e., Egn, Ecens, and RVcens.

According to the present interpretation, as concern with the morality of judgments increases, the sizes of the Egn, Ecens, and RVcens components should decrease. It seems reasonable to suppose that the ethical implications of judgments are augmented by instructing subjects to respond

in terms of admire choices. By checking the admire conditions of Table 10 it may seem that in comparison to the prediction responses in the Individual condition, Egn, Ecens, and RVcens were markedly reduced in the Individual Admire condition. RVgn was less affected by the change in instructions.

While these findings in the Individual Admire condition support the present argument, it should be mentioned that a similar effect of admire instructions was not found in the internal component scores of individuals who participated in the group discussion conditions of Table 10. This may have resulted from the possibility that groups in the Pre-Admire condition were more likely than individuals to emphasize the practical aspects of the risk situations. (Note, for example, the high RVcens score of the Pre-Admire groups.) If group standards endured into the Postgroup Admire condition--as overall BPS responses indicate they did--then the change to admire responses should not have reduced the Egn, Ecens, and RVcens components to the same low levels as found in the Individual Admire condition. Table 10 shows that these component scores were, in fact, markedly higher in the Postgroup Admire condition than in the Individual Admire condition.

The above speculation does not address itself to explaining the differences between the present findings on component scores and those reported by Rettig. Clarification of the differences between the findings of Rettig and those of the present study requires additional research in which

variations in procedures (e.g., the consensus requirement, the presence of a time limitation, the sex of subjects, etc.) are carefully controlled and studied.

Admire Responses. The major finding with admire responses--that the admiration of risk was far less pronounced than the prediction of risk--seems to be incompatible with a value theory explanation of the risky shift. At the least, it seems to exclude certain kinds of decision making materials from those to which value theory might apply.

The admire shift found on the BPS (i.e., the difference between subjects' prediction and admiration responses) was in the opposite direction from the positive admire shift found by Levinger and Schneider (1969) with the Choice Dilemma. According to Levinger and Schneider (1969), both the risky shift and the admire shift are direct functions of a third (intervening) variable, subjects values; but the present results found these two dependent variables to be inversely related to each other. In the light of this finding it might be argued that the usefulness of value theory might be limited to only those situations where the risky alternative is socially valued, i.e., where the riskier positions are also the positions which evoke greater degrees of admiration. Risky shifts with socially disvalued behaviors would then require some other explanation. This limitation is not likely to be accepted by proponents of value theory since one of this

theory's primary virtues is its claim to account for the occurrence of cautious shifts when the risky alternative is socially disvalued. Such cautious shifts have not been found on the BPS.

A second possibility might be to try to retain value theory as a general explanation of the risky shift phenomenon, including shifts on the BPS, and to seek some other explanation of why subjects chose cautious positions for their BPS admire responses. The BPS deals with what is ordinarily considered socially undesirable behavior. Subjects may therefore have hesitated to openly indicate admiration of risk since they may have feared that such behavior would be interpreted as unethical. The implications of such an explanation would seem, though, to lead toward responsibility diffusion theory (Kogan and Wallach, 1967a), rather than value theory. That is, it seems to be saying that subjects will take the risk of justifying and being identified with positions which others may label unethical if they acquire some social support. The risky shift on the BPS would thus occur because of the diffusion of responsibility among group members in the selection of a seemingly unethical alternative.

Furthermore, the absence of any substantial decline in the admiration choices in the Postgroup Admire condition could be similarly explained. These subjects made their initial (prediction) responses after group discussion. On ambiguous stimuli such as contained in the BPS (or Choice

Dilemma), the group sets the standard for acceptable responses. With the responsibility for responses deferred to such group standards, it is not nearly so threatening to make risky admire responses, as long as they do not differ greatly from previous group prediction scores. Unfortunately, as described earlier, responsibility diffusion theory has conceptual and empirical problems of its own.

A third possibility would be to substitute a strictly operational analysis for value theory, responsibility diffusion theory, or any such mediational theory, and to concentrate on the question of what reinforcing stimuli the risky shift (and risk taking in general) is a function. Risk taking situations, whether they involve groups or individuals, are characterized by the presence of both positive and negative consequences contingent upon some particular behavior. Rettig's (1966) reference to the internal determinants of risk taking expresses a similar notion. The theoretical model of Zajonc, Wolosin, Wolosin, and Sherman (1969), based on the probabilities and sizes of payoffs (in a betting situation), also seems to emphasize these same directly observable determinants of risk taking.

From the perspective of an operant analysis, the answers to questions about differences in group and individual risk taking would be sought in an analysis of, for example, changes in reinforcement schedules (or expectancies or payoff probabilities) as a function of group

characteristics. These variables are presumed to change with changes in locus of control over outcomes.

With regard to the admire conditions, the present findings might be understood by considering the different contingencies likely to be associated with predicting, as opposed to expressing admiration for, unethical behavior. Under ordinary circumstances, the latter should be more likely to produce negative consequences and would, thus, be avoided. The fact that risky admiration responses were not avoided in the Postgroup Admire condition, may have been due to the development of justifications for the unethical choices in prior group discussions (Rettig and Turoff, 1967). With responses under the control of such group standards, the negative consequences of advocating risky admire positions would have been largely neutralized.

Other Implications. It should be added that the major findings of this study may have implications beyond the area of risk taking research and have relevance for questions concerned with intergroup bargaining. As already noted, representatives and intact subgroups displayed smaller average changes of positions than subjects in the Independent and Disbanded Subgroups conditions. It seems reasonable to suggest that since the representative role and the maintenance of subgroups both involve the constraint of previously fixed positions, if consensus had not been required, such change would have been even smaller.

A number of experiments on intergroup negotiations support this suggestion. Mouton and Blake (1962) found that negotiators who represented positions established in earlier groups were more likely to come to a deadlock than negotiators without such prearranged commitments. Druckman (1967) also found an increased resistance to compromise in an intergroup bargaining situation when bargainers experienced a prenegotiation period of strategy planning which focused only on their own goals and ignored the positions of their opponents. On a somewhat broader level, Sawyer and Guetzkow (1965) have noted the constraints imposed on negotiators by strong "public opinion" (pp. 506-507). Apparently, the structural variables which have been found here to affect risk decision making, also affect decision making in a variety of other contexts.

The present study makes extensive use of Rettig's (1969a) notion of locus of control. Unlike other explanations of group risk taking or the risk shift, this notion permits fairly explicit predictions about the effects of structural components of the group on the decisions that are made. As structural components have been ignored in theory, so have they been largely omitted from experimental designs. The present experiment attempted to introduce these components through the manipulation of representative control and direct group control. Many other manipulations are possible. Rettig (1969a) mentions credibility of other group members and the amount or quality of relevant infor-

mation possessed by these other members. Other possible variations include relative social status of members, attractiveness of the group, and heterogeneity of values and need achievement of members.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Risk taking was suggested to be a function of the intrinsic and extrinsic contingencies associated with the risk situation. The intrinsic contingencies are those inherent in the particular alternatives of the risk situation. The extrinsic contingencies refer to outside influences affecting responses, e.g., social rewards for generally risky or cautious behavior.

Rettig's (1969a) notion of locus of control posits that for individuals and groups engaged in risky behavior there are differences in the contingencies associated with outcomes. Locus of control is essentially a structural variable, and the present research attempted to explore the implications of this notion for two kinds of structural variations: representative control and direct group control.

It was predicted that decision making groups comprised of subjects assigned the role of representative--each with a different set of previously established positions--would choose risk positions which were less risky and more closely approximating the average of former positions than a comparable set of groups whose members were not obliged to uphold earlier decisions. It was also predicted that groups comprised of subgroups--each having established previously, a different set of risk positions--would choose risk positions which were less risky and more closely approximating the

average of former positions than a comparable group whose members were no longer associated with subgroups. Both predictions were substantiated, and the results were explained in terms of differences in the probabilities of subjects transferring control to their new decision making groups.

It was assumed that locus of control would be more readily transferred to the new groups under conditions where subjects were not explicitely bound to the decisions of their earlier groups; and that in groups made up of these independent members, the processes underlying the risky shift could continue to operate. A postexperimental questionnaire verified the assumptions about the effects of the experimental conditions on locus of control.

The present study also compared groups of different sizes. Three-person groups chose riskier positions than individuals, but the size of the difference failed to reach an acceptable significance level. Since the difference between the means of the individual and group conditions compares closely to similar data which was found significant in Rettig's (1966) study, this failure may have been related to the heterogeneity of variance apparently brought about by the consensus requirement placed upon group decision making in the present comparison.

Nine-person groups were only slightly more risky than individuals and it was conjectured that the two minute time limit per item was not sufficient for nine-person groups

to develop justifications for riskiness.

Levinger and Schneider's (1969) technique of querying subjects about most admired positions was applied to the BPS. On the basis of Levinger and Schneider's research in support of value theory, the admire shift and risky shift should have been in the same direction. Contrary to such expectations, admire scores were less risky than ordinary risk scores; and yet, both individual-to-group and group first exposure-to-second exposure risky shifts were in a positive direction. Accordingly, the validity of accepting admire scores as an indicant of values, and also the utility of value theory itself, is called into question. The choice of less risky alternatives when individuals were instructed to indicate most admired positions was explained in terms of a higher probability of negative consequences for advocating admiration of presumably unethical choices than for marking the same choices on a behavior prediction scale.

In contract to Rettig's (1966) findings with the internal component scores, the present study did not find that groups made larger RVgn scores than individuals. The reverse was found. Moreover, the RVcens scores of groups were consistently higher than those of individuals, and the predicted differences between group conditions were not found. It was suggested that the ethical implications of the risk situations were more compelling for individuals than for groups, and that for individuals to respond in an

ethical manner the levels of the RVgn component required maximum differentiation. The other components are less concerned with matters of ethics and more concerned with practicality.

It may be seen that the notion of locus of control is not incompatible with either value or responsibility diffusion theories since it recognizes the very same independent variables as controlling risk decision making, e.g., the contents of group discussions, the size of groups, the relationship between group members. Unlike these theories, its analysis remains on an operational level, and it does not posit any single variable as the sole determinant of risk decision making.

APPENDIX A

BEHAVIOR PREDICTION SCALE

1. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would be enough to help a great number of people. The employee was sure that her theft would go unnoticed by the bank. However, the employee knew that if she were caught, she would be expelled from the bank and charged with criminal conduct.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

2. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure the illness. The employee was sure that her theft would go unnoticed by the bank. However, the employee knew that if she were caught, she would be expelled from the bank and charged with criminal conduct.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

3. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would be enough to help a great number of people. The employee was sure that her theft would go unnoticed by the bank. Furthermore, the employee was convinced that if she were caught, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

4. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure the illness. The employee was sure that her theft would be detected sooner or later. However, the employee was convinced that if she was caught, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

5. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure the illness. The employee was sure that her theft would go unnoticed by the bank. Furthermore, the employee was convinced that if she were cuaght, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

6. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would be enough to help a great number of people. However, the employee was sure that her theft would be detected sooner or later. However, the employee was convinced that if she was caught, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

7. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure the illness. The employee was sure that her theft would go unnoticed by the bank. However, the employee knew that if she were caught, she would be expelled from the bank and charged with criminal conduct.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

8. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure her illness. However, the employee was sure that her theft would be detected sooner or later. Furthermore, the employee knew that if she was caught, she would be expelled from the bank and charged with criminal conduct.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

9. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would only be enough to help a very few people. The employee was sure that her theft would go unnoticed by the bank. However, the employee knew that if she were caught, she would be expelled from the bank and charged with criminal conduct.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

10. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would only be enough to help a very few people. However, the employee was convinced that her theft would be detected sooner or later. Furthermore, the employee knew that if she was caught, she would be expelled from the bank and charged with criminal conduct.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

11. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure her illness. The employee was sure that her theft would be detected sooner or later. However, the employee was convinced that if she was caught, she could settle the matter privately with the bank president.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

12. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would only be enough to help a very few people. The employee was sure that her theft would go unnoticed by the bank. Furthermore, she was also certain that if she were caught, she could settle the matter privately with the bank president.

definitely no — fifty-fifty — definitely yes

0 1 2 3 4 5 6

13. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would only be enough to help a very few people. The employee was sure that her theft would be detected by the bank sooner or later. However, the employee was convinced that if she was caught, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

14. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon could not give the employee any guarantee that the operation would cure the illness. The employee was sure that her theft would be detected sooner or later. Furthermore, the employee knew that if she was caught, she would be expelled from the bank and charged with criminal conduct.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

15. A bank employee had to have some money to pay for a crucial medical operation she needed. The employee was thinking of stealing the money from the bank. The operating surgeon had guaranteed the employee that the operation would cure the illness. The employee was sure that her theft would go unnoticed by the bank. Furthermore, the employee was convinced that if she were caught, she could settle the matter privately with the bank president.

definitely no fifty-fifty definitely yes

0 1 2 3 4 5 6

16. A bank employee had to have some money in order to lend it to other people who needed it. The employee was thinking of stealing the money from the bank. The money she could get would be enough to help a great number of people. However, the employee was sure that her theft would be detected sooner or later. Furthermore, the employee knew that if she was caught, she would be expelled from the bank and charged with criminal conduct.

definitely no			fifty-fifty			definitely yes
0	1	2	3	4	5	6

APPENDIX B

INSTRUCTIONS

Behavior Prediction Scale

This questionnaire presents 16 different situations, each situation portraying a person in conflict about taking money which does not belong to him. You are to read each situation carefully and then discuss each situation with the other members of your group. For each situation the group must come to a unanimous decision, predicting whether or not the person would take the money.

Each situation is followed by a set of numbers ranging from 0 to 6. Choose the 0 if you feel that the person will definitely not take the money. Choose the 6 if you feel that the person will definitely yes take the money. Choose the 3 if you feel that the chances are about equal that the person will or will not take the money. Use the in-between numbers for the varying degrees of certainty, 1 or 2 being more on the no side, 4 and 5 being more on the yes side.

All choices must be recorded on your answer sheet only. Do not mark in the booklets. Each item is numbered, 1 through 16. On your answer sheet mark the group's choice for item one in row 1 on the left hand side of the sheet. Use choice positions 0 through 6 only; ignore positions 7, 8 and 9. Mark your choice for item 2 in row 2 on the right hand side of the page. Continue through item 16. Ignore all other scoring spaces on the answer sheet. Since the group must come to a unanimous decision on each item, each member of the group will have identical answers recorded on his answer sheet. New answer sheets may be obtained if necessary.

You will have two minutes to spend on each item, and will be signaled at the end of each two minute time period. If you finish an item before the two minutes have elapsed you may go on to the next item, but do not take longer than the allotted two minutes per item.

Remember, your choice of the numbers is to indicate whether or not the person would take the money; not whether it is right or wrong to take the money. Although the 16 situations may appear to you very much alike at times, each situation differs in some respect from every other situation.

Your group number is indicated in the upper right hand corner of your answer sheet. Place your name at the top of the answer sheet and begin.

Behavior Prediction Scale

This questionnaire presents 16 different situations, each situation portraying a person in conflict about taking money which does not belong to him. You are to read each situation carefully and then discuss each situation with the other members of your group. For each situation the group must come to a unanimous decision, predicting whether or not the person would take the money.

Each situation is followed by a set of numbers ranging from 0 to 5. Choose the 0 if you feel that the person will definitely not take the money. Choose the 6 if you feel that the person will definitely yes take the money. Choose the 3 if you feel that the chances are about equal that the person will or will not take the money. Use the in-between numbers for the varying degrees of certainty, 1 or 2 being more on the no side, 4 and 5 being more on the yes side.

All choices must be recorded on your answer sheet only. Do not mark in the booklets. Each item is numbered, 1 through 16. On your answer sheet mark the group's choice for item one in row 1 on the left hand side of the sheet. Use choice positions 0 through 6 only; ignore positions 7, 8, and 9. Mark your choice for item 2 in row 2 on the right hand side of the page. Continue through item 16. Ignore all other scoring spaces on the answer sheet.

You will have two minutes to spend on each item, and will be signaled at the end of each two minute time period. If you finish an item before the two minutes have elapsed you may go on to the next item, but do not take longer than the allotted two minutes per item.

Remember, your choice of the numbers is to indicate whether or not the person would take the money; not whether it is right or wrong to take the money. Although the 16 situations may appear to you very much alike at times, each situation differs in some respect from every other situation.

Your group number is indicated in the upper right hand corner of your answer sheet. Place your names at the top of the answer sheet and begin.

In order to gain additional insight into the 16 situations of the Behavior Prediction Scale, you have been assigned to a new group. In this group you are to reread and discuss with the other group members each of the 16 situations.

The new group must arrive at a unanimous decision for each item, and, as before, two minutes are allotted per item. You will be signaled every two minutes.

Enter your name on your new answer sheet, and also mark your original group number (e.g., 1a, 1b, 2a, etc.) in the upper right hand corner of this new answer sheet. Then begin.

You have been assigned to a new group. In this group you are to reread and discuss with the other group members the 16 situations of the Behavior Prediction Scale. You are to act as a representative of your original group and to argue for adoption by the new group of the positions of your original group. If necessary, you may refer to your original answer sheet to recall any of these positions.

The new group must arrive at a unanimous decision for each item, and, as before, two minutes are allotted per item. You will be signaled every two minutes.

If you choose, as your group's representative, you may agree to a position which differs from that arrived at in your original group, but later you will have to defend any such changes before the members of your original group.

Enter your name on your new answer sheet, and also mark your original group number (e.g., 1a, 1b, 2a, etc.) in the upper right hand corner of this new answer sheet. Then begin.

Your group has been combined with two other groups into one large group. In this large group you are to reread and discuss with all the other group members the 16 situations of the Behavior Prediction Scale. Your own original subgroup is to work together for the adoption by the large group of your subgroup's original positions. If necessary, you may refer to your original answer sheet to recall any of these positions.

The new group must arrive at a unanimous decision for each item, and, as before, two minutes are allotted per item. You will be signaled every two minutes.

Choose one member to record the group's choices on the new answer sheet. On this new answer sheet, in the upper right hand corner, you will find a roman numeral indicating the number of your new group. After that roman numeral the recorder will enter the numbers of the three subgroups. Then begin.

Behavior Prediction Scale

This questionnaire presents 16 different situations, each situation portraying a person in conflict about taking money which does not belong to him. You are to read each situation carefully. For each situation you must predict whether or not the person would take the money.

Each situation is followed by a set of numbers ranging from 0 to 6. Choose the 0 if you feel that the person will definitely not take the money. Choose the 6 if you feel that the person will definitely yes take the money. Choose the 3 if you feel that the chances are about equal that the person will or will not take the money. Use the in-between numbers for the varying degrees of certainty, 1 or 2 being more on the no side, 4 and 5 being more on the yes side.

All choices must be recorded on your answer sheet only. Do not mark in the booklets. Each item is numbered, 1 through 16. On your answer sheet mark your choice for item one in row 1 on the left hand side of the sheet. Use choice positions 0 through 6 only; ignore positions 7, 8, and 9. Mark your choice for item 2 in row 2 on the right hand side of the page. Continue through item 16. Ignore all other scoring spaces on the answer sheet. New answer sheets may be obtained if necessary.

You will have two minutes to spend on each item, and will be signaled at the end of each two minute time period. If you finish an item before the two minutes have elapsed you may go on to the next item, but do not take longer than the allotted two minutes per item.

Remember, your choice of the numbers is to indicate whether or not the person would take the money; not whether it is right or wrong to take the money. Although the 16 situations may appear to you very much alike at times, each situation differs in some respect from every other situation.

Your number is indicated in the upper right hand corner of your answer sheet. Place your name at the top of the answer sheet and begin.

Your responses to the 16 situations indicated your estimation of the likelihood that the person described in the stories would choose to take the money. Now, reread and reconsider each of the stories. This time your task is not to predict the likelihood of taking the money, but to indicate which decision (or position from 0 to 6) you would most admire. In other words, on your new answer sheet indicate which decision would be the best in each situation. Choose the 0 if you feel certain that the person should definitely not take the money. Choose the 6 if you feel that the person should definitely yes take the money. The other positions are for intermediate degrees of certainty as to which is the best action in the situation.

Your number is indicated in the upper right hand corner of the answer sheet. Enter your name at the top of the answer sheet and begin.

For the next task, you will work alone.

Your responses to the 16 situations indicated your estimation of the likelihood that the person described in the stories would choose to take the money. Now, reread and reconsider each of the stories. This time your task is not to predict the likelihood of taking the money, but to indicate which decision (or position from 0 to 6) you would most admire. In other words, on your new answer sheet indicate which decision would be the best in each situation. Choose the 0 if you feel certain that the person should definitely not take the money. Choose the 6 if you feel that the person should definitely yes take the money. The other positions are for intermediate degrees of certainty as to which is the best action in the situation.

Your number is indicated in the upper right hand corner of the answer sheet. Enter your name at the top of the answer sheet and begin.

APPENDIX C

POSTEXPERIMENTAL QUESTIONNAIRE

PLEASE WRITE YOUR NAME IN THE SPACE PROVIDED, AND ANSWER THE FOLLOWING QUESTIONS CAREFULLY.

NAME_____

1. Which source do you feel had more influence on the choices you made in your second group:

a) the choices made in your earlier group_____

b) the discussions in the second group_____

c) the influence of a and b was about equal_____

2. Compared to others in the group, how much influence do you feel you had on the decisions made in your second group?

(a)_____	(b)_____	(c)_____	(d)_____	(e)_____
least influence	little influence	moderate influence	considerable influence	most influence

3. Check the description that you feel is a better description of the way decisions were made in your second group:

a) Choices were a fairly equal compromise among all members._____

b) Influence on choices did not seem to be equally shared by all members._____

4. Regardless of the other members in your groups, compare your own influence in your second group to your influence in your first group:

a) I was more influential in the first group than I was in the second group._____

b) I was more influential in the second group than I was inthe first group._____

c) I was about equally influential in both groups._____

APPENDIX D

GROUP BPS SCORES

	Independents	Pre-Independents	Mean Pre-Independents	d-Scores
1.	61	64	55.33	+ 5.67
		37		
		65		
2.	72	67	67.67	+ 4.33
		67		
		69		
3.	77	65	67.00	+ 10.00
		67		
		69		
4.	63	37	57.67	+ 5.33
		67		
		69		
5.	52	51	48.33	+ 3.67
		45		
		49		
6.	54	28	37.33	+ 16.67
		39		
		45		
7.	45	49	45.00	0.00
		52		
		34		
8.	42	34	43.00	-1.00
		52		
		43		

	Independents	Pre-Independents	Mean Pre-Independents	d-Scores
9.	44	51	44.33	-0.33
		43		
		39		
10.	35	36	49.00	-14.00
		65		
		46		
11.	47	36	49.00	-2.00
		65		
		46		
12.	50	36	49.00	+ 1.00
		65		
		46		
13.	55	43	46.67	+ 8.33
		40		
		57		
14.	47	43	46.67	+ 0.33
		40		
		57		
15.	35	43	46.67	-11.67
		40		
		57		
16.	65	44	50.00	+ 15.00
		50		
		56		

	Independents	Pre-Independents	Mean Pre-Independents	d-Scores
17.	55	44	50.00	+5.00
		50		
		56		
18.	74	44	50.00	+24.00
		50		
		56		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Score
1.	60	59	59.44	+0.56
		58		
		65		
		60		
		59		
		48		
		60		
		56		
		70		
2.	62	59	59.44	+ 2.56
		58		
		65		
		60		
		59		
		48		
		60		
		56		
		70		
3.	65	59	59.44	+5.56
		58		
		65		
		60		
		59		
		48		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
3.	(cont.)	60		
		56		
		70		
4.	53	60	50.33	+ 2.67
		45		
		45		
		37		
		45		
		44		
		56		
		56		
		65		
5.	54	60	50.33	+ 3.67
		45		
		45		
		37		
		45		
		44		
		56		
		56		
		65		
6.	58	60	50.33	+ 7.67
		45		
		45		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
6. (cont.)		37		
		45		
		44		
		56		
		56		
		65		
7.	54	55	53.67	+ 0.33
		52		
		45		
		52		
		53		
		45		
		45		
		71		
		65		
8.	63	55	53.67	+ 9.33
		52		
		45		
		52		
		53		
		45		
		45		
		71		
		65		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
9.	57	55	53.67	+ 3.33
		52		
		45		
		52		
		53		
		45		
		45		
		71		
		65		
10.	52	52	48.22	+ 3.78
		56		
		46		
		35		
		42		
		57		
		39		
		56		
		51		
11.	54	52	48.22	+ 5.78
		56		
		46		
		35		
		42		
		57		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
11.(cont.)		39		
		56		
		51		
12.	56	52	48.22	+ 7.78
		56		
		46		
		35		
		42		
		57		
		39		
		56		
		51		
13.	43	39	43.11	- 0.11
		54		
		59		
		32		
		32		
		58		
		46		
		29		
		39		
14.	45	39	43.11	+ 1.89
		54		
		59		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
14 (cont.)		32		
		32		
		58		
		46		
		29		
		39		
15.	49	39	43.11	+ 5.89
		54		
		59		
		32		
		32		
		58		
		46		
		29		
		39		
16.	58	65	49.11	+8.89
		58		
		34		
		49		
		44		
		45		
		54		
		40		
		53		

	Disbanded Subgroups	Pre-Disbanded Subgroups	Mean Pre-Disbanded Subgroups	d-Scores
17.	66	65	49.11	+16.89
		58		
		34		
		49		
		44		
		45		
		54		
		40		
		53		
18.	64	65	49.11	+14.89
		58		
		34		
		49		
		44		
		45		
		54		
		40		
		53		
		65		

	Intact Subgroups	Pre-Intact Subgroups	Mean Pre-Intact Subgroups	d-Scores
1.	48	54	48.00	0.00
		54		
		36		
2.	70	54	61.33	+ 8.67
		51		
		79		
3.	52	50	48.33	+ 3.67
		51		
		44		
4.	44	38	44.67	-0.67
		48		
		48		
5.	59	57	53.00	+ 6.00
		52		
		50		
6.	49	44	50.33	-1.33
		50		
		57		
7.	62	41	60.33	+ 1.67
		79		
		61		
8.	44	43	44.33	-0.33
		50		
		40		

	Intact Subgroups	Pre-Intact Subgroups	Mean Pre-Intact Subgroups	d-Scores
9.	50	61	49.67	+ 0.33
		27		
		61		
10.	66	58	56.00	+ 10.00
		64		
		46		
11.	46	51	41.67	+ 4.33
		36		
		38		
12.	52	45	53.33	-1.33
		51		
		64		
13.	60	67	60.00	0.00
		49		
		64		
14.	37	49	32.33	+ 4.67
		33		
		15		
15.	52	43	53.00	-1.00
		59		
		57		
16.	49	53	50.67	-1.67
		47		
		52		

	Intact Subgroups	Pre-Intact Subgroups	Mean Pre-Intact Subgroups	d-Scores
17.	58	60	57.00	+1.00
		56		
		55		
18.	36	53	37.33	-1.33
		36		
		23		

	Representatives	Pre-Representatives	Mean Pre-Representatives	d-Scores
1.	62	50 79 52	60.33	+ 1.67
2.	69	50 79 52	60.33	+ 8.67
3.	54	50 79 52	60.33	-6.33
4.	60	37 67 64	56.00	+ 4.00
5.	60	65 64 67	65.33	-5.33
6.	33	45 39 28	37.33	-4.33
7.	42	49 41 28	39.33	+ 2.67
8.	45	51 43 41	45.00	0.00

	Representatives	Pre-Representatives	Mean Pre-Representatives	d-Scores
9.	41	52	42.33	-1.33
		41		
		34		
10.	60	60	58.00	+2.00
		66		
		48		
11.	54	60	58.00	-4.00
		66		
		48		
12.	61	60	58.00	+3.00
		66		
		48		
13.	66	65	62.33	+3.67
		59		
		63		
14.	61	65	62.33	-1.33
		59		
		63		
15.	61	65	62.33	-1.33
		59		
		63		
16.	49	47	43.00	+6.00
		57		
		25		

	Representatives	Pre-Representatives	Mean Pre-Representatives	d-Scores
17.	44	47	43.00	+ 1.00
		57		
		25		
18.	45	47	43.00	+ 2.00
		57		
		25		

APPENDIX E

SCORES FOR HIGH AND LOW LEVELS OF EACH COMPONENT

Scores for High and Low Levels of Each Component

Condition	Egn		RVgn		Ecens		RVcens	
	High	Low	High	Low	High	Low	High	Low
Individuals	26.44	18.72	28.33	16.82	20.17	25.00	18.39	26.78
Pre-Representatives	30.94	21.83	35.17	17.61	23.11	29.67	19.17	33.61
Representatives	32.17	21.56	36.00	17.72	22.50	31.22	19.61	34.21
Pre-Independents	31.11	19.39	31.72	18.78	20.61	29.89	18.17	32.22
Independents	33.28	20.78	33.89	20.17	22.94	31.11	20.06	34.00
Pre-Intact Subgroups	30.95	19.06	30.66	19.33	20.30	29.70	17.59	32.39
Intact Subgroups	31.94	19.94	32.22	19.66	20.89	31.00	18.39	33.50
Pre-Disbanded Subgroups	31.66	18.98	30.48	20.17	20.95	29.70	16.55	34.09
Disbanded Subgroups	34.83	21.33	34.17	22.11	23.50	32.78	18.78	37.50
Nine-Person Groups	29.00	18.11	32.44	14.67	19.11	28.00	15.55	31.55

APPENDIX F

AVERAGE ITEM RVgn SCORES FOR INDIVIDUALS IN THE MAJOR EXPERIMENTAL CONDITION

S	Pre-Representative	Representative
1	1.00	0.75
2	1.38	0.75
3	1.38	0.75
4	1.38	1.88
5	1.00	1.88
6	1.38	1.88
7	1.38	1.75
8	1.00	1.75
9	1.38	1.75
10	2.13	1.50
11	1.75	1.50
12	2.13	1 50
13	0.75	1.50
14	1.75	1.50
15	1.88	1.50
16	0.75	1.63
17	2.63	1.63
18	2.63	1.63
19	2.63	2.00
20	1.63	2.00
21	0.75	2.00
22	1.63	1.38
23	1.88	1.38
24	1.88	1.38
25	1.63	1.88
26	1.75	1.88
27	2.13	1.88

S	Pre-Representative	Representative
28	3.50	3.00
29	2.25	3.00
30	6.00	3.00
31	3.50	5.00
32	2.25	5.00
33	6.00	5.00
34	3.50	4.38
35	2.25	4.38
36	6.00	4.38
37	0.88	1.75
38	2.13	1.75
39	2.88	1.75
40	0.88	2.13
41	2.13	2.13
42	2.88	2.13
43	0.88	2.38
44	2.13	2.38
45	2.88	2.38
46	3.38	2.88
47	2.13	2.88
48	1.88	2.88
49	3.38	2.75
50	2.13	2.75
51	1.88	2.75
52	3.38	2.63
53	2.13	2.63
54	1.88	2.63

S	Pre-Independent	Independent
1	1.50	1.38
2	3.38	1.38
3	0.38	1.38
4	1.88	1.75
5	0.88	1.75
6	0.38	1.75
7	0.38	1.13
8	1.88	1.13
9	0.88	1.13
10	2.75	0.63
11	0.88	0.63
12	1.88	0.63
13	2.13	2.50
14	1.38	2.50
15	2.75	2.50
16	1.50	2.00
17	1.38	2.00
18	1.00	2.00
19	1.00	2.38
20	2.75	2.38
21	2.13	2.38
22	1.00	1.25
23	1.50	1.25
24	3.38	1.25
25	2.13	1.75
26	1.38	1.75
27	3.38	1.75

S	Pre-Independent	Independent
28	1.50	2.13
29	0.38	2.13
30	1.50	2.13
31	1.50	1.13
32	0.38	1.13
33	1.50	1.13
34	1.50	2.25
35	0.38	2.25
36	1.50	2.25
37	1.13	1.63
38	1.00	1.63
39	2.13	1.63
40	1.13	1.38
41	1.00	1.38
42	2.13	1.38
43	1.13	1.13
44	1.00	1.13
45	2.13	1.13
46	1.50	1.88
47	2.25	1.88
48	2.50	1.88
49	1.50	2.13
50	2.25	2.13
51	2.50	2.13
52	1.50	2.50
53	2.25	2.50
54	2.50	2.50

S	Pre-Disbanded Subgroups	Disbanded Subgroups
1	1.88	1.00
2	1.25	1.00
3	2.38	1.00
4	0.50	1.00
5	0.88	1.00
6	0.75	1.00
7	2.50	1.00
8	1.25	1.00
9	1.00	1.00
10	1.88	1.50
11	1.25	1.50
12	2.38	1.50
13	0.50	1.50
14	0.88	1.50
15	0.75	1.50
16	2.50	1.50
17	1.25	1.50
18	1.00	1.50
19	1.88	1.63
20	1.25	1.63
21	2.38	1.63
22	0.50	1.63
23	0.88	1.63
24	0.75	1.63
25	2.50	1.63
26	1.25	1.63

S	Pre-Disbanded Subgroups	Disbanded Subgroups
27	1.00	1.63
28	3.00	1.13
29	1.13	1.13
30	0.63	1.13
31	1.38	1.13
32	0.13	1.13
33	0.75	1.13
34	1.75	1.13
35	1.75	1.13
36	0.13	1.13
37	3.00	1.50
38	1.13	1.50
39	0.63	1.50
40	1.38	1.50
41	0.13	1.50
42	0.75	1.50
43	1.75	1.50
44	1.75	1.50
45	0.13	1.50
46	3.00	1.00
47	1.13	1.00
48	0.63	1.00
49	1.38	1.00
50	0.13	1.00
51	0.75	1.00
52	1.75	1.00

S	Pre-Disbanded Subgroups	Disbanded Subgroups
53	1.75	1.00
54	0.13	1.00
55	0.63	1.00
56	1.50	1.00
57	2.63	1.00
58	0.50	1.00
59	0.13	1.00
60	1.38	1.00
61	1.63	1.00
62	1.63	1.00
63	1.88	1.00
64	0.63	1.63
65	1.50	1.63
66	2.63	1.63
67	0.50	1.63
68	0.13	1.63
69	1.38	1.63
70	1.63	1.63
71	1.63	1.63
72	1.88	1.63
73	0.63	1.88
74	1.50	1.88
75	2.63	1.88
76	0.50	1.88
77	0.13	1.88
78	1.38	1.88

S	Pre-Disbanded Subgroups	Disbanded Subgroups
79	1.63	1.88
80	1.63	1.88
81	1.88	1.88
82	1.00	1.00
83	1.00	1.00
84	1.25	1.00
85	2.38	1.00
86	0.50	1.00
87	2.38	1.00
88	-0.38	1.00
89	1.50	1.00
90	1.13	1.00
91	1.00	1.25
92	1.00	1.25
93	1.25	1.25
94	2.38	1.25
95	0.50	1.25
96	2.38	1.25
97	-0.38	1.25
98	1.50	1.25
99	1.13	1.25
100	1.00	1.50
101	1.00	1.50
102	1.25	1.50
103	2.38	1.50

S	Pre-Disbanded Subgroups	Disbanded Subgroups
104	0.50	1.50
105	2.38	1.50
106	-0.38	1.50
107	1.50	1.50
108	1.13	1.50
109	0.88	1.38
110	1.25	1.38
111	1.63	1.38
112	2.50	1.38
113	1.00	1.38
114	1.25	1.38
115	1.00	1.38
116	0.88	1.38
117	1.38	1.38
118	0.88	1.63
119	1.25	1.63
120	1.63	1.63
121	2.50	1.63
122	1.00	1.63
123	1.25	1.63
124	1.00	1.63
125	0.88	1.63
126	1.38	1.63
127	0.88	1.63
128	1.25	1.63
129	1.63	1.63

S	Pre-Disbanded Subgroups	Disbanded Subgroups
130	2.50	1.63
131	1.00	1.63
132	1.25	1.63
133	1.00	1.63
134	0.88	1.63
135	1.38	1.63
136	2.13	3.00
137	0.75	3.00
138	1.00	3.00
139	0.38	3.00
140	1.50	3.00
141	3.13	3.00
142	0.25	2.00
143	0.75	3.00
144	2.38	3.00
145	2.13	1.00
146	0.75	1.00
147	1.00	1.00
148	0.38	1.00
149	1.50	1.00
150	3.13	1.00
151	0.25	1.00
152	0.75	1.00
153	2.38	1.00
154	2.13	2.50

S	Pre-Disbanded Subgroups	Disbanded Subgroups
155	0.75	2.50
156	1.00	2.50
157	0.38	2.50
158	1.50	2.50
159	3.13	2.50
160	0.25	2.50
161	0.75	2.50
162	2.38	2.50

S	Pre-Intact Subgroups	Intact Subgroups
1	0.50	1.50
2	0.50	1.50
3	0.50	1.50
4	3.75	1.50
5	3.75	1.50
6	3.75	1.50
7	1.25	1.50
8	1.25	1.50
9	1.25	1.50
10	2.50	2.25
11	2.50	2.25
12	2.50	2.25
13	0.88	2.25
14	0.88	2.25
15	0.88	2.25
16	-0 13	2.25
17	-0.13	2.25
18	-0.13	2.25
19	2.50	1.00
20	2.50	1.00
21	2.50	1.00
22	0.88	1.00
23	0.88	1.00
24	0.88	1.00
25	2.25	1.00

S	Pre-Intact Subgroups	Intact Subgroups
26	2.25	1.00
27	2.25	1.00
28	-0.75	0.50
29	-0.75	0.50
30	-0.75	0.50
31	0.75	0.50
32	0.75	0.50
33	0.75	0.50
34	1.50	0.50
35	1.50	0.50
36	1.50	0.50
37	4.13	3.13
38	4.13	3.13
39	4.13	3.13
40	0.75	3.13
41	0.75	3.13
42	0.75	3.13
43	2.00	3.13
44	2.00	3.13
45	2.00	3.13
46	1.25	1.88
47	1.25	1.88
48	1.25	1.88
49	2.25	1.88
50	2.25	1.88

S	Pre-Intact Subgroups	Intact Subgroups
51	2.25	1.88
52	0.38	1.88
53	0.38	1.88
54	0.38	1.88
55	0.88	1.00
56	0.88	1.00
57	0.88	1.00
58	0.63	1.00
59	0.63	1.00
60	0.63	1.00
61	0.63	1.00
62	0.63	1.00
63	0.63	1.00
64	0.88	1.50
65	0.88	1.50
66	0.88	1.50
67	0.75	1.50
68	0.75	1.50
69	0.75	1.50
70	2.50	1.50
71	2.50	1.50
72	2.50	1.50
73	2.63	1.25
74	2.63	1.25
75	2.63	1.25

S	Pre-Intact Subgroups	Intact Subgroups
76	1.63	1.25
77	1.63	1.25
78	1.63	1.25
79	0.88	1.25
80	0.88	1.25
81	0.88	1.25
82	1.00	1.75
83	1.00	1.75
84	1.00	1.75
85	2.00	1.75
86	2.00	1.75
87	2.00	1.75
88	-0.25	1.75
89	-0.25	1.75
90	-0.25	1.75
91	1.13	0.50
92	1.13	0.50
93	1.13	0.50
94	1.00	0.50
95	1.00	0.50
96	1.00	0.50
97	0.25	0.50
98	0.25	0.50
99	0.25	0.50
100	1.38	1.75

S	Pre-Intact Subgroups	Intact Subgroups
101	1.38	1.75
102	1.38	1.75
103	1.13	1.75
104	1.13	1.75
105	1.13	1.75
106	1.25	1.75
107	1.25	1.75
108	1.25	1.75
109	1.13	1.00
110	1.13	1.00
111	1.13	1.00
112	1.13	1.00
113	1.13	1.00
114	1.13	1.00
115	2.25	1.00
116	2.25	1.00
117	2.25	1.00
118	2.13	2.88
119	2.13	2.88
120	2.13	2.88
121	2.38	2.88
122	2.38	2.88
123	2.38	2.88
124	0.63	2.88
125	0.63	2.88

S	Pre-Intact Subgroups	Intact Subgroups
126	0.63	2.88
127	2.13	3.25
128	2.13	3.25
129	2.13	3.25
130	4.38	3.25
131	4.38	3.25
132	4.38	3.25
133	1.88	3.25
134	1.88	3.25
135	1.88	3.25
136	1.13	1.13
137	1.13	1.13
138	1.13	1.13
139	1.13	1.13
140	1.13	1.13
141	1.13	1.13
142	2.00	1.13
143	2.00	1.13
144	2.00	1.13
145	1.00	1.50
146	1.00	1.50
147	1.00	1.50
148	0.25	1.50
149	0.25	1.50
150	0.25	1.50

S	Pre-Intact Subgroups	Intact Subgroups
151	0.88	1.50
152	0.88	1.50
153	0.88	1.50
154	1.13	0.50
155	1.13	0.50
156	1.13	0.50
157	1.50	0.50
158	1.50	0.50
159	1.50	0.50
160	2.63	0.50
161	2.63	0.50
162	2.63	0.50

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Abstract

GROUP STRUCTURE AND LOCUS OF CONTROL
IN PREDICTIVE RISK JUDGMENTS

by

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Rettig's (1969a) notion of locus of control posits that for individuals and groups engaged in risk decision making there are differences in the contingencies associated with outcomes. Locus of control is essentially a structural variable, and the present research attempted to explore the implications of this notion for two kinds of structural variations: representative control and direct group control.

It was predicted that decision making groups comprised of subjects assigned the role of representative--each with a different set of previously established positions--would choose risk positions which were less risky and more closely approximating the average of former positions than a comparable set of groups whose members were not obliged to uphold earlier decisions. It was also predicted that groups comprised of subgroups--each having established previously a different set of risk positions--would choose risk positions which were less risky and more closely approximating the average of former positions than a

comparable group whose members were no longer associated with subgroups. Both predictions were substantiated, and the results were explained in terms of differences in the probabilities of subjects transferring control to their new decision making groups.

The present study also compared groups of different sizes. Three-person groups chose riskier positions than individuals, but the size of the difference failed to reach an acceptable significance level. Since the difference between the means of the individual and group conditions compares closely to similar data which was found significant in Kettig's (1966) study, this failure may have been related to the heterogeneity of variance apparently brought about by the consensus requirement placed upon group decision making in the present comparison.

Nine-person groups were only slightly more risky than individuals and it was conjectured that the two minute time limit per item was not sufficient for nine-person groups to develop justifications for riskiness.

Levinger and Schneider's (1961) technique of querying subjects about most admired positions was applied to the RFS. On the basis of Levinger and Schneider's research in support of value theory, the admire shift and risky shift should have been in the same direction. Contrary to such expectations, admire scores were less risky than ordinary risk scores; and yet, both individual-to-group and and group first exposure-to-second exposure risky shifts were

in a positive direction. Accordingly, the validity of accepting admire scores as an indicant of values, and also the utility of value theory itself, is called into question. The choice of less risky alternatives when individuals were instructed to indicate most admired positions was explained in terms of a higher probability of negative consequences for advocating admiration of presumably unethical choices than for marking the same choices on a behavior prediction scale.

In contrast to Rettig's (1966) findings with the internal component scores, the present study did not find that groups made larger RVgn scores than individuals. The reverse was found. Moreover, the RVcons scores of groups were consistently higher than those of individuals, and the predicted differences between group conditions were not found. It was suggested that the ethical implications of the risk situations were more compelling for individuals than for groups, and that for individuals to respond in an ethical manner the levels of the RVgn component required maximum differentiation. The other components are less concerned with matters of ethics and more concerned with practicality.