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CHARACTERISTICS TO GROUP BEHAVIOR IN TWO
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THE RELATIONSHIP OF SELECTED INDIVIDUAL CHARACTERISTICS
TO GROUP BEHAVIOR IN TWO RISK TAKING SITUATIONS

DISSERTATION
Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

by
Stephen Michael Stillman, B.S., M.Ed.

The Ohio State University
1971

Approved by
W. Bruce Walsh
Adviser
Department of Psychology
PLEASE NOTE:

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And, to Renee, my wife, for her support and encouragement throughout my graduate career, I am eternally grateful.
VITA

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Fields of Study

Major Field: Counseling Psychology

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CHAPTER I
Introduction

Decisions involving risk are often made by small groups of people. Juries, faculty committees, boards of directors, and members of training groups often face such tasks. While there have been many studies on group decision making where risk is involved, there has been only a very limited variety of such situations investigated. Few studies have been concerned with determining whether the nature of the specific risk taking situation is an important variable in group risk taking behavior. Further, very few investigations have considered the role of individual characteristics of group members in the risk taking behavior of the group to which they belong. The present study is concerned with these two aspects of group risk taking behavior.

Kogan and Wallach (1967) discussed three possible relations that might exist between individual and group decisions involving risk: (1) the group decision may represent the mean risk level assumed by group members in individual decisions, (2) the group decision may represent a more prudent decision than the individual decisions, or (3) the group decision may entail more risk than the individual decisions.

Schacter (1951) and Cartwright and Zander (1960) suggested that group risks represent an averaging effect, or a compromise
between all the prediscussion individual decisions of the group members. Whyte (1956), on the other hand, observed that group discussion leads to increased conservatism relative to the average prior individual decisions. He suggested that this conservatism may be the result of two possible influences: (1) group members fear appearing foolhardy to others and (2) conservative group members are more influential and tend to become the leaders. Thus, it was surprising when Stoner (1961), in his empirical comparison of individual and group decisions involving risk, found that a group consensus regarding degree of risk to be taken deviated from the average of individual prediscussion in the direction of greater risk.

Stoner's (1961) investigation, which was one of the pioneer studies in the area of group risk taking, involved having subjects respond to the "Choice Dilemmas Procedure" developed by Wallach and Kogan (Kogan & Wallach, 1964). Each of the 12 items on this instrument "represents a choice dilemma between a risky and a safe course of action....The instrument is of a semi-projective nature, the subject being asked how he would advise others in the situation described. It is assumed....that an individual's advice to others reflects his own regard for the desirability of success relative to the disutility of failure. Probability levels are 1 in 10, 3 in 10, 5 in 10, 7 in 10, and 9 in 10. A subject may also refuse to gamble on the risky alternative, no matter what the probabilities. In that case, a score of 10 in 10 is assigned
the item....Higher scores are associated with greater consen-
vatism (Kogan & Wallach, 1964, pp. 25-26)."

Several studies which utilized the Choice Dilemmas Procedure followed Stoner's, including those by Nordby (1962), Wallach, Kogan, and Bem (1962, 1964), Kogan and Wallach (1967), Wallach, Kogan, and Burt (1968), Bateson (1966), Flanders and Thistlethwaite (1967), Hoyt and Stoner (1968), and Rim (1963, 1964). All supported Stoner's (1961) finding of a shift in the risky direction when subjects made decisions involving risk individually, and then in groups. This change to increased risk has come to be called the "risky shift phenomenon."

Other studies which utilized a variety of group risk tasks produced varying results. Hunt and Rowe (1960) reported no significant difference between three-person groups and individuals in riskiness of investment decisions. Lonegran and McClintock (1961) had individuals and groups take part in a betting task involving monetary gain or loss as a measure of risk taking. They failed to find a significant difference in risk taking between group and individual conditions. Hinds (1962) also failed to find a difference in risk levels selected by individuals and groups in a gambling situation. However, Pruitt and Tegor (1969) did find a risky shift in a group betting situation.

Bem, Wallach, and Kogan (1965) found that a risky shift occurred even when subjects believed that failure of a risky choice would result in psychologically aversive consequences.
Zajonc, et al. (1968) found that groups showed consistent and significant shifts in the conservative direction, while individuals remaining alone did not shift, when subjects were paid for correctly predicting which of two differentially probable stimulus events would occur. Flanders (1970), however, found no shift in level of risk when groups made decisions in the same two-choice task.

Thus, it would seem, that experiments which have utilized the Choice Dilemmas Procedure produced risky shifts consistently. However, the use of investment, wagering, and two-choice tasks resulted in varying and unpredictable levels of group risk taking.

To this point, several explanations for the level of risk chosen by groups have been proposed. Wallach and Kogan (1965) concluded that group discussion is both necessary and sufficient to produce a risky shift on the Choice Dilemmas Procedure. It was not necessary that group members reach consensus regarding the level of risk they all wish to assume. Bateson (1966) and Flander and Thistlethwaite (1967) suggested that familiarization with the risk alternatives occurred during discussion, and that this familiarization produced the risky shift. Bateson (1966) demonstrated a risky shift in individual subjects' decisions when they became familiar with the risk alternatives alone rather than through discussion. However, Miller and Dion (1970) were unable to replicate a risky shift based on familiarization.

The possibility that those group members who prefer riskier
alternatives also tend to be more influential in the group has been suggested by Marquis (1962) and Wallach, Kogan, and Bem (1962). However, Hoyt and Stoner (1968) and Wallach, Kogan, and Burt (1968) demonstrated that the risky shift was not attributable to high persuasiveness in group members who preferred riskier choices.

Wallach, Kogan, and Bem (1964) contended that the risky shift effect was caused by a diffusion of responsibility among group members. Group activity tends to reduce the responsibility felt by any group member; the group shares the responsibility since the decision was a group product. However, studies such as those by Zajonc, et al. (1968) and Atthowe (1961) in which opportunities for diffusion of responsibility were provided, produced conservative shifts. Thus, the diffusion of responsibility theory seems doubtful as an adequate explanation.

Perhaps the most appealing explanation for the way in which groups decide on the level of risk they wish to assume is Brown's (1965) theory of the cultural value of risk. Brown suggested that riskiness is an American cultural value. When members of a group observe through discussion, that others are riskier than they themselves are, they make shifts in the risky direction. However, absence of a shift and conservative shifts can also be explained by Brown's theory because of the cultural value of conservatism and moderate risk that exists for certain kinds of situations. Thus, groups tend to shift in a conservative direction when the
stake involves the vital interests of others. Madaras and Bem (1968) and Stoner (1968) induced both risky and conservative shifts depending upon the nature of the risk situation, and concluded that the cultural value of risk and conservatism theory seemed to be the best explanation.

Pruitt (1969) discussed group risk taking in terms of cultural values and called his explanation the "Walter Mitty" effect. In making decisions, people are impelled by two competing motives: (1) an ideal or value of risk and (2) a fear of getting too far out on a limb. The initial individual decision is presumably a compromise between these two motives. Discussion may make it impossible for most people to maintain the illusion that they are being risky since they see that others in their group are equally or more risky than they. Thus, discussion may provide social support for risky behavior and hence free people from the fear of getting too far out on a limb.

In summary, several explanations exist for the way in which groups select the level of risk they will take. The one that has received the most consistent support has been Brown's (1965) cultural value of risk theory, with the modification that certain situations implicitly have a cultural value of conservatism associated with them.

Atkinson (1957) has developed a model of risk taking or goal setting behavior which has proven to be most useful in understanding and predicting the level of risk individuals will assume
in the selection of a skilled task to perform. According to this model, two motives are activated when an individual must choose from several skilled tasks of varying difficulties and payoffs: (1) the motive to achieve success and (2) the motive to avoid failure. Individuals who are primarily motivated to achieve success tend to take moderate risks, that is, they tend to select tasks having moderate difficulty and moderate rewards for successful performance. Individuals who are primarily motivated to avoid failure, on the other hand, tend to take either extremely high or extremely low risks.

Atkinson's (1957) model has been supported in several studies including those by McClelland (1958), Mahone (1960), Brody (1963), and Isaacson (1964). In his review of the literature in this area, Heckhausen (1967) concluded that the moderate degree of risk chosen by achievement motivated subjects did not typically coincide with the 50 percent probability of success hypothesized by Atkinson (1957). Rather, achievement motivated subjects tend to prefer lower to moderate probabilities of success of about one in three. Studies by McClelland (1958), Atkinson (1958), and DeCharms and Daveé (1965) were cited in support of this 33 percent probability of success figure.

Only one study has dealt with the impact of individuals' motivations to achieve success and avoid failure upon the level of risk chosen by a group comprised of these individuals. Rim (1963) found that subjects scoring highest on need achievement tended to
make riskier decisions on an abbreviated version of the Choice Dilemmas Procedure than did subjects motivated by fear of failure. When the subjects were put into groups and asked to achieve unanimity on each of the Choice Dilemmas items, Rim found that subjects who were high on need achievement changed their level of risk very little, while subjects motivated by the need to avoid failure tend to shift considerably in the risky direction. It was concluded that high need achievers tended to prefer higher levels of risk, assume leadership within decision making groups, and influence others in the group to endorse decisions involving greater risk.

It is likely that the way groups choose the amount of risk they are willing to take depends, in part, upon the nature of the situation confronting them. In studies of individuals rather than groups, Atkinson, Bastian, Earl, and Litwin (1960) and Littig (1962) found that the relationship between need achievement and risk taking was stronger when the risks involved questions of skill rather than chance. Such information is not yet available in regard to risks taken by groups.

The present study is concerned with the nature of group decision making when the decision involves the selection of a skilled task from several skilled tasks of varying difficulty levels. Selection of an easier task would more likely lead to successful performance, but would entail only a small payoff for success. Selection of a more difficult task would less likely
lead to successful performance, but, should success be achieved, the payoff would be greater.

The situation is analogous to a team of researchers trying to select a problem to investigate. It could select a simpler project which would be quite easy to do, but which may not be totally satisfactory in terms of the amount and value of scientific knowledge gained. It could, on the other hand, select a difficult project which would involve a considerable amount of time, money, skill, and hard work to complete. This choice could have high payoff value in terms of scientific contribution, esteem of colleagues, and prospects of obtaining grants for future projects.

It would seem reasonable that achievement motivation and the need to be more or less dominant in group activities will influence the level of risk selected by individuals in a group. In addition, the individual's appraisal of his ability in tasks similar to the skilled task confronting him may be an influencing factor in the selection of risk level.

Thus, selection by a group of which task it will perform involves taking a risk. The individual personality characteristics that determine whether the group will make conservative, moderate, or risky decisions are of primary interest in the present investigation. Specific hypotheses regarding these factors will be stated in the following chapter.
CHAPTER II

Method

This chapter describes and discusses the subjects, instruments, procedure, hypotheses, and statistical tests used in the present investigation.

Sample

Subjects were enlisted from the undergraduate introductory psychology course at The Ohio State University during spring quarter, 1971. There were 120 subjects, 60 males and 60 females. Male subjects had a mean age of 19.6 years while females had a mean age of 20.4 years. Both males and females had mean grade point averages of about 2.75.

Instruments

All subjects completed each of the following instruments.

Personal Data Sheet: Each subject provided personal information about himself including name, age, sex, college, major, and grade point average on the Personal Data Sheet (see Appendix A).

Success-Failure Inventory (SFI): The SFI (McReynolds & Guevara, 1967) is a 22-item, true-false instrument which assesses attitudes toward success attainment and failure avoidance. It is included in Appendix B and is entitled "Attitude Inventory." The primary score from the SFI was the difference (D-score) in the number of items answered in a way indicative of a motivation to attain
success (Ms) and the number answered in a way indicative of a 
motivation to avoid failure (Mfa), (D = Ms - Mfa).

McReynolds and Guevara (1967) emphasized that Ms and Mfa 
scores cannot be compared in a direct and absolute sense. The 
scales have not been calibrated in any way which would permit a 
conclusion that equal Ms and Mfa scores indicate motives of equal 
strength. However, of two subjects, one having a higher D-score 
than the other, the first, as compared with the second, is rela-
tively more influenced by success than by failure motivation.

McReynolds and Guevara (1967) reported a reliability (inter-

cal consistency) coefficient of .76. While this coefficient is 
not particularly high, it seems to be adequate in view of the 
brevity of the SFI. Some construct validity for the SFI was 
provided by McReynolds and Guevara (1967) when they found mentally 
ill subjects to be higher on Mfa than were normal subjects.

Choice Dilemmas Procedure (CDP): Rim's (1964) abbreviated version 
of the Wallach and Kogan CDP (Kogan & Wallach, 1964) is included in 
Appendix C and is entitled "Opinion Questionnaire." The short form 
of the CDP contains six of the original 12 items developed by 
Wallach and Kogan. Rim (1963, 1964) was able to replicate the 
risky shift phenomenon when he utilized the abbreviated form. The 
CDP is considered a semiprojective measure of risk taking behavior.

Test Difficulty Selection Procedure (TDSP): The TDSP is a form which 
describes five different multiple choice tests and the difficulty 
associated with each. The easiest test, it is explained, carries
a high probability that college students will get most of the items on it correct. However, each correct answer carries a payoff of only two points. Successively more difficult tests, subjects are told, have progressively lower probabilities of successful performance, but simultaneously have progressively larger point payoffs for each correct answer. The expected value of point production for each of the five tests is constant, so that subjects would find no logical reason for the selection of one test over another.

It is assumed that selection of the easiest test (Test 1) indicates a cautious or conservative level of risk, while selection of the most difficult test (Test 5) indicates a bold or risky decision. Choice of Tests 2, 3, or 4, of course, indicates the selection of more moderate levels of risk. The TESP is considered a nonprojective or direct measure of risk taking when skilled tasks are involved (see "Test Selection" in Appendix D).

A-S Reaction Study: The A-S (ascendance-submission) Reaction Study (Allport & Allport, 1939) is a questionnaire designed to measure the disposition of respondents to dominate, or be dominated by others. Separate men's and women's forms present 33 social situations to which each subject is asked to indicate which of several responses would be his most typical behavior. Because the instrument was originally developed in 1928, a few words and phrases have since become obsolete. Therefore, a few minor changes in wording were made in order to help subjects understand the
various situations and responses. Appendix E includes the revised men's forms of the A-S Reaction Study.

Allport and Allport (1939) reported split-half reliabilities for .85 for the men's form and .90 for the women's form. Test-retest reliabilities for both forms averaged .78. With regard to the validity of the instrument, the authors reported correlations with ratings of dominance and ascendance ranging from .29 to .79.

The situations and responses presented in the A-S Reaction Study seem to be guided by a definition of dominance which is similar to the definition provided by Edwards (1959):

To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs (p. 11).

Procedure

The experiment was run in six evenings with 20 male subjects participating on each of three evenings and 20 female subjects participating on each of the other three evenings. Subjects first met in a large room and the experiment was introduced as an investigation into decision making. Subjects were given the Personal Data Sheet, the SFI, the A-S Reaction Study, the CDP, and the TDSP, in the order just listed. They were encouraged to work independently and at a comfortable pace.

Upon completion of the five instruments, subjects were told that they were given the CDP and the TDSP in order to familiarize
them with the tasks. Actually, they were to fill out these instruments as group projects in which each group was to achieve unanimous agreement. Subjects were randomly divided into five groups having four members in each. They were told that following the completion of the CDP and the TDSP, they would actually take the test they selected on the TDSP as a team, and that team scores would be rank-ordered from highest to lowest, and displayed for all to see. They were also told that successful performance would indicate three things: (1) ability to work together cooperatively, (2) the intellectual ability present in the group, and (3) success in a competitive team situation. Conversations with some subjects, following their participation in the experiment, suggested that this information provided motivation for team members to do their best in the selection of the test they would take. Groups were then separated into five small rooms. Each group took about 15 minutes to come to unanimous agreement on the six items in the CDP and on which of the five TDSP tests the group would attempt.

At the end of about 15 minutes subjects were called back to the first room and all completed instruments were collected by the experimenter. Subjects were then told that it would not be necessary to take the tests they had selected on the TDSP. The experiment was then explained to them and they were asked to promise not to divulge information about the experiment to others.

Hypotheses and Statistical Tests

The following hypotheses were tested:
Hypothesis 1: Groups will demonstrate a significant risky shift on the CDP.

Amount of shift in risk was determined as follows: the risk level of each response on the CDP is equal to the number of chances out of 10 chosen by the subject as his preferred probability of success on each item. Let \( x \) equal this number. Lower \( x \) values represented higher levels of risk. Each subject's risk score on the CDP was equal to the sum of his six \( x \) values. A risky shift occurred when the risk score (the sum of the six \( x \) values) from the group's responses to the CDP was less than the mean of the risk scores of each of the four subjects in the group.

A t-test was used to determine the significance of the difference between the mean of the risk scores for all groups and the grand mean of the risk scores of the four subjects in all groups. This hypothesis was intended only as a basis for replication of earlier studies.

Hypothesis 2: Groups will demonstrate a significant risky shift on the TDSP.

Amount of shift in risk on the TDSP was determined as follows: the number of the test chosen by each subject represented his individual TDSP or risk score. Higher scores represented higher levels of risk. A risky shift occurred when the test selected by a group had a higher number than the mean of the test numbers previously selected by the four group members.

Because the assumptions of normality of distribution and
homogeneity of variance were not met, the t-test could not be used. In addition, chi-square could not be used because of the small number of cases that fell into some cells in the chi-square table. For this reason, the sign test was used to determine whether more risky than conservative shifts occurred.

**Hypothesis 3**: Significantly more risky shifts will occur on the TDSP than on the CDP.

It was predicted that this would occur because the group's estimation of its ability to answer aptitude test questions as described in the TDSP would become a salient factor not present in group responses to the CDP. The group's ability to answer such questions would depend more upon the ability of the most capable subject in the group. This would be true only if each group somehow appraised the ability of each of its members, perhaps by checking on each other's grade point averages. It was assumed that this appraisal would occur in most groups. Therefore, it was predicted that groups would shift to a higher risk test on the TDSP. Thus, while both the CDP and the TDSP situations were expected to produce risky shifts, it seemed that subjects would have an additional reason to shift in the risky direction on the TDSP.

Proportions of risky shifts to conservative shifts were compared for the TDSP and the CDP by use of critical Z values (Walker & Lev, 1958).

**Hypothesis 4**: For each subject, cumulative grade point average (GPA) will be inversely related to amount of individual to group
shift in risk on the TDSP.

Subjects with higher academic ability were expected to individually select fairly difficult (high risk) tests, while subjects with lower academic ability were expected to select easier (low risk) tests. Since each group's goal was to earn the greatest possible number of points, it was expected that subjects with lower academic ability would depend upon the ability and judgment of the more able subjects in the group. Thus, lower ability subjects would shift more than would higher ability subjects.

The coefficient of contingency was used to test this hypothesis.

**Hypothesis 5:** There will be a positive relationship between dominance and achievement motivation.

It was predicted that both achieving and dominant individuals share a need to assume positions of authority in task-oriented group situations. Edwards (1959) found a positive, but small, correlation between the Dominance and Achievement scales on the Edwards Personal Preference Schedule.

The Pearson r was used to test this hypothesis.

**Hypothesis 6:** For each subject, achievement motivation will be inversely related to amount of individual to group risk shift on the TDSP.

It was expected that high need achievers would initially select moderately high risk levels, while low need achievers would initially select low risk levels. Thus, if the risky shift
were to occur, low need achievers would shift more on the TDSP than would high need achievers. Rim (1963) found this relationship to exist for subjects who responded to the CDP.

Chi-square was used to test this hypothesis.

**Hypothesis 7:** For each subject, achievement motivation will be inversely related to amount of individual to group risk shift on the CDP.

This hypothesis was tested by use of the eta coefficient in order to replicate Rim's (1963) finding.

**Hypothesis 8:** For each subject, dominance will be inversely related to amount of individual to group risk shift on the TDSP.

Edwards (1959) suggested that the dominant individual tends to argue for his point of view and be a leader in groups. If this is true, it would be expected that a dominant group member would tend to shift less than more submissive group members from individual to group test selection on the TDSP.

The analysis of variance and the t-test were used to test this hypothesis.

**Hypothesis 9:** For each subject, dominance will be inversely related to amount of individual to group risk shift on the CDP.

Dominant individuals were expected to shift less from individual to group risk advocated on the CDP.

The eta coefficient was used to test this hypothesis.
CHAPTER III
Results and Discussion

This chapter presents the results of the testing of each of the hypotheses and then discusses these results.

Results

Hypothesis 1 was not supported by the data. Groups did not demonstrate a significant risky shift on the CDP. The grand mean of individual CDP scores for the four subjects in each of the 30 groups was 33.33 (SD= 4.09) while the mean of the 30 group CDP scores was 31.84 (SD= 4.55). This represents a nonsignificant (p > .05) shift in the risky direction. Similar nonsignificant risky shifts were found when the data from male and female subjects were analyzed separately. Individual males had a grand mean of 34.72 (SD= 4.41) while male groups had a mean of 33.40 (SD= 5.01) on the CDP. Individual females had a grand mean of 31.93 (SD= 3.92) while female groups had a mean of 30.27 (SD= 4.22). Table 1 summarizes these data.

Further analyses showed that males and females differed significantly (p < .05) on the CDP taken individually. This difference indicated that females (Mean= 31.93; SD= 7.26) tended to take greater risks on the CDP than males (Mean= 34.72; SD= 7.09). Male and female groups, however, did not differ significantly (p > .05) on the CDP. Table 2 summarizes these data.
TABLE 1
COMPARISON OF INDIVIDUAL AND GROUP CDP SCORES

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TABLE 2
COMPARISON OF MALES AND FEMALES ON RISK ASSESSMENT INSTRUMENTS

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<td>&gt;.05</td>
</tr>
</tbody>
</table>

Hypothesis 2 was partially supported by the data. Groups did not clearly demonstrate a significant risky shift on the TDSP. The data, however, was suggestive of such a shift. Because the assumptions of normality of distribution and homogeneity of variance were not met, the t-test could not be utilized. Thus, the traditional method of determining the occurrence of a risky shift, by comparing individual and group means, had to be abandoned.
Another unforeseen result was the failure of 17 of the 30 groups to demonstrate a shift in risk in either the conservative or the risky direction. It was assumed that shifts of less than 0.50 did not represent shifts in actual risk level. This was because the four individuals in the group frequently produced an average individual risk score that was a mixed number rather than a whole number. Since each group had to unanimously select a test labeled by a whole number, some groups were forced to shift somewhat from the averages of the individuals within the group. A shift of less than 0.50 was considered trivial since the group decision would be closer to the average of the individual decisions than to some other risk level. Thus, with only 13 of the 30 groups demonstrating a shift in risk, it was apparent that the risky shift phenomenon was not operating as dramatically as has been reported in the literature.

A post hoc analysis of the 13 groups that did shift from individual to group TDSP choices indicated that more groups shifted in the risky direction than in the conservative direction. Table 3 shows these data.

Thus, 76.92 percent of those groups that demonstrated a shift from the average of the individual TDSP scores, shifted in the risky direction. A sign test revealed that this percent was significant at the .05 level which required a critical percent of 76.71.

In summary, the data indicated that while most groups did not
shift (57%), of those that did shift, a significant proportion (77%) shifted in the risky direction.

**TABLE 3**

**TYPE OF TDSP SHIFT IN MALE AND IN FEMALE GROUPS**

<table>
<thead>
<tr>
<th>Male Subjects</th>
<th>Female Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual</strong></td>
<td><strong>Individual</strong></td>
</tr>
<tr>
<td>TDSP Means for Groups</td>
<td>TDSP Means for Groups</td>
</tr>
<tr>
<td>4.25</td>
<td>5</td>
</tr>
<tr>
<td>3.25</td>
<td>4</td>
</tr>
<tr>
<td>3.75</td>
<td>4</td>
</tr>
<tr>
<td>4.25</td>
<td>4</td>
</tr>
<tr>
<td>3.25</td>
<td>3</td>
</tr>
<tr>
<td>3.50</td>
<td>3</td>
</tr>
<tr>
<td>3.50</td>
<td>4</td>
</tr>
<tr>
<td>3.25</td>
<td>4</td>
</tr>
<tr>
<td>3.75</td>
<td>4</td>
</tr>
<tr>
<td>3.25</td>
<td>4</td>
</tr>
<tr>
<td>3.50</td>
<td>3</td>
</tr>
<tr>
<td>3.25</td>
<td>3</td>
</tr>
<tr>
<td>4.00</td>
<td>4</td>
</tr>
<tr>
<td>4.00</td>
<td>4</td>
</tr>
<tr>
<td>3.75</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional analyses indicated that individual males (Mean= 3.63; SD= .86) took significantly (p < .01) greater risk than did individual females (Mean= 3.05; SD= .77) on the TDSP. Male groups did not significantly (p > .05) differ from female groups on the TDSP. Table 2 summarizes these data.

A comparison between the proportions of risky shifts that occurred on the TDSP and on the CDP failed to support hypothesis 3 which predicted that the risky shift phenomenon would occur with
greater frequency on the TDSP. Table 4 presents these data. The comparison of the two proportions yielded a Z value of 0.053 when a Z greater than 1.96 or smaller than -1.96 would have been necessary for the difference to be significant at the .05 level.

TABLE 4

<table>
<thead>
<tr>
<th>Type of Shift</th>
<th>Number of TDSP Shifts</th>
<th>Number of CDP Shifts</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Risky Shifts</td>
<td>10</td>
<td>19</td>
<td>29</td>
</tr>
<tr>
<td>Number of Consen Shifts</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Sum</td>
<td>13</td>
<td>27</td>
<td>40</td>
</tr>
</tbody>
</table>

To test hypothesis 4 which predicted that grade point average (GPA) would be inversely related to the amount of individual to group risk shift on the TDSP, the coefficient of contingency was used. Table 5 shows the distribution of the 114 subjects who reported their grade averages in the contingency table. The significance of the resulting coefficient of 0.365 was tested with chi-square and was found not to be significant at the .05 level ($X^2= 17.556; df= 20$).

The hypothesized (hypothesis 5) relationship between dominance and achievement motivation was supported for all subjects by a Pearson r of 0.531 which was significant at the .01 level. Significant correlations ($p < .01$) were also found for males ($r = .429$).
and females ($r = .645$) independently. Table 6 summarizes these results.

TABLE 5
CONTINGENCY TABLE: GPA AND TDSP SHIFT

<table>
<thead>
<tr>
<th>GPA</th>
<th>TDSP Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-2</td>
</tr>
<tr>
<td>1.50- 1.99</td>
<td>0</td>
</tr>
<tr>
<td>2.00- 2.49</td>
<td>1</td>
</tr>
<tr>
<td>2.50- 2.99</td>
<td>0</td>
</tr>
<tr>
<td>3.00- 3.49</td>
<td>0</td>
</tr>
<tr>
<td>3.50- 4.00</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td>1</td>
</tr>
</tbody>
</table>

TABLE 6
PEARSON R: DOMINANCE AND ACHIEVEMENT MOTIVATION

<table>
<thead>
<tr>
<th>Subjects</th>
<th>r</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males and Females</td>
<td>.531</td>
<td>45.98</td>
<td>118, 1</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Males</td>
<td>.429</td>
<td>13.03</td>
<td>58, 1</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Females</td>
<td>.645</td>
<td>41.35</td>
<td>58, 1</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

No relationship (hypothesis 6) was found between achievement motivation and risk shift on the TDSP. Because it had been determined that the risky shift phenomenon did not occur on the TDSP, attention was turned to a comparison of those subjects who did not
shift and those who did shift, regardless of direction (risky or conservative). SPI scores were divided into high, moderate, and low categories so that each group would contain approximately equal numbers of subjects. A chi-square analysis indicated no significant relationship (p > .05) between achievement motivation and shifting or not shifting on the TDSP. Similar distributions of data for males and females separately, resulted in nonsignificant (p > .05) chi-squares. Table 7 shows the distribution of these data while table 8 summarizes the results.

**TABLE 7**

<table>
<thead>
<tr>
<th>TYPE OF TDSP SHIFT AND LEVEL OF ACHIEVEMENT MOTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Motivation</td>
</tr>
<tr>
<td>Shift/No-Shift</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Shift</td>
</tr>
<tr>
<td>No-Shift</td>
</tr>
<tr>
<td>Sum</td>
</tr>
</tbody>
</table>

In testing hypothesis 7, a significant (p < .01) correlation (eta) of .536 was found between amount of individual to group shift in risk on the CDP and achievement motivation. This indicated a curvilinear relationship in which higher achievement motivation scores were associated with smaller shifts in risk while lower achievement motivation scores were associated with CDP shifts.
TABLE 8

CHI-SQUARE ANALYSES: TDSP SHIFT OR NO-SHIFT AND ACHIEVEMENT MOTIVATION

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males and Females</td>
<td>2.38</td>
<td>4</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Males</td>
<td>3.94</td>
<td>4</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Females</td>
<td>1.56</td>
<td>4</td>
<td>&gt;.05</td>
</tr>
</tbody>
</table>

that were either at the conservative or the risky end of the continuum. Similar etas were found when males (eta = .545) were examined independently. Table 9 summarizes these results.

TABLE 9

ETA COEFFICIENTS: CDPS SHIFTS AND ACHIEVEMENT MOTIVATION

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Eta</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males and Females</td>
<td>.536</td>
<td>274.93</td>
<td>238, 1</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Males</td>
<td>.545</td>
<td>141.34</td>
<td>118, 1</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Females</td>
<td>.528</td>
<td>132.00</td>
<td>118, 1</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

The t-test was used to determine whether those subjects who shifted on the TDSP (N = 61) differed from those subjects who did not shift on the TDSP (N = 59) with respect to their dominance scores (hypothesis 8). The resulting t of 1.96 was not significant (p > .05; df = 118) indicating no difference in dominance between the two groups. A one-way analysis of variance (see table 10) showed
that there were no significant differences ($p > .05$) in dominance scores between those who shifted in the risky direction, those who shifted in the conservative direction, and those who did not shift.

**TABLE 10**

**ANALYSIS OF VARIANCE: TDSP SHIFT AND DOMINANCE**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1,556.53</td>
<td>2</td>
<td>778.27</td>
<td>2.193*</td>
</tr>
<tr>
<td>Error (within groups)</td>
<td>41,519.84</td>
<td>117</td>
<td>354.87</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>43,076.37</td>
<td>119</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p > .05$

To investigate the hypothesized (hypothesis 9) relationship between amount of individual to group risk shift on the CDP and dominance scores, eta was used. The resulting eta of $.227$ was significant ($p < .01$) indicating a curvilinear relationship between amount of risk shift and dominance. The curvilinear nature of the relationship suggested that highly dominant subjects tended to shift more, either in the conservative or the risky direction, than did those subjects low in dominance. Correlations calculated separately for males and females yielded an eta of $.143$ for males which was not significant ($p > .05$) and an eta of $.306$ for females which was significant ($p < .01$). Table 11 summarizes these results.
TABLE 11

ETA COEFFICIENTS: CDP SHIFTS AND DOMINANCE

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Eta</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males and Females</td>
<td>.22</td>
<td>12.98</td>
<td>238, 1</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Males</td>
<td>.14</td>
<td>2.47</td>
<td>118, 1</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Females</td>
<td>.30</td>
<td>12.15</td>
<td>118, 1</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>

Discussion

This study investigated the risk taking behavior of groups by examining certain characteristics of group members. It was hypothesized that each subject's grade point average, achievement motivation, and dominance would be related to his individual and group risk taking behavior.

Two risk taking situations were investigated. The first was the Choice Dilemmas Procedure (CDP) (Kogan & Wallach, 1964), which has traditionally been used to study the risk taking behavior of groups. The second was the Test Difficulty Selection Procedure (TDSP), an instrument developed especially for the present study. The TDSP was designed to measure risk taking behavior by confronting respondents with descriptions of five academic aptitude tests of varying difficulty levels, and requiring them to choose which they will attempt in a competitive situation.

Results relating to the TDSP were of primary interest in the present study. This was because previous studies, which have
rather consistently demonstrated that group decisions tend to be riskier than the average of the individual prediscussion decisions, have used only the CDP. While this "risky shift phenomenon" has occurred with regularity in the CDP situation, it is still not known whether it would occur in other kinds of group risk taking situations. The TDSP clearly provided a different kind of situation. The CDP asks respondents to give advice regarding the level of risk they recommend that fictitious persons should take in making life decisions. In contrast, the TDSP asks respondents to decide how much risk they will take in order to win, or avoid losing, at a skilled game in which they believe they will compete.

While the results were mixed, they were predominantly negative in that most hypotheses were not supported. The following discussion will deal with the results of the various hypotheses investigated in this study.

The risky shift phenomenon: The results failed to support the hypotheses that predicted significant risky shifts on both the CDP and the TDSP. That a significant risky shift did not occur on the CDP indicated that something atypical was happening in this experiment. The subjects seemed to be similar to most subjects used in past studies reported in the literature in that they were undergraduate students who were enrolled in an introductory psychology course. The abbreviated version of the CDP contained the six CDP items empirically found to produce the greatest shifts in risk from individual to group decisions. This shorter form was used by
Rim (1963) to successfully replicate the risky shift phenomenon. The procedure used to present and explain the task was almost identical to the one used and described by Kogan and Wallach (1964).

The only apparent difference in the procedure seemed to be the administration of the SFI, A-S Reaction Study, and the TDSP in close temporal proximity to the CDP administration. The effect that this might have had is unknown. One might also question the number of group risk taking experiments that have used the CDP, failed to support the risky shift hypothesis, and thus failed to find their way into the literature.

If the risky shift on the CDP occurs as consistently as indicated in the literature, then its failure to occur in the present study must be viewed as an atypical event. This may have been a response to a stimulus which had not been controlled. For this reason, it is difficult to know whether the failure of groups to demonstrate a risky shift on the TDSP was typical or not. Perhaps circumstances and/or subjects which would promote a risky shift on the CDP would also promote a risky shift on the TDSP.

For the present study, all that can be concluded is that neither the CDP nor the TDSP produced significant risky shifts. Both procedures, however, did produce approximately equal proportions (an average of 74%) of risky shifts to total shifts.

In addition, post hoc analyses showed that men differed significantly from women in individual risk taking but not in group risk taking. Women took greater risks on the CDP which suggested
that women advocate greater risk than men do in life decision situations. Men took greater risks on the TDSP which indicated that men prefer greater risk in skilled, competitive situations. Ability was probably not a factor in this difference since men and women had approximately equal mean grade point averages. These findings seem to be consistent with Brown's (1965) cultural value of risk theory. In the American culture, taking bolder personal risks may well be more representative of men than of women. Perhaps the CDP, because of its semiprojective nature, allows women to vicariously take greater risk without actually experiencing the very real jeopardy present in the TDSP.

**Ability and TDSP risk shift:** It had been hypothesized that for each subject, GPA would be inversely related to amount of individual to group risk shift on the TDSP. This was not supported by the data. A possible explanation may have to do with the assumption made that group members would assess the abilities of each member of the group. While moderate correlations between aptitude tests and academic performance have been well documented, there is no reason to expect students to know about these correlations or to believe that grade point average can be reasonably well predicted from aptitude tests. Thus, predictors of performance on aptitude tests, such as grade point average, may not have been used by subjects in selecting the difficulty level of either individual or group tests. If the ability of the group members did not contribute to the group decision regarding which test it would attempt,
it would still be reasonable that other characteristics such as dominance or achievement motivation might play such a role.

Achievement motivation and dominance: The significant correlations between achievement motivation and dominance suggest that dominance, or being in a position of authority is a characteristic of achievement oriented people. This result is consistent with Rim's (1963) conclusion that high need achievers tended to assume leadership within decision making groups. In the American society, which is characterized by a strong achievement orientation, it would not be surprising to find achievement oriented people being elevated to leadership positions.

Achievement motivation and risk shift: The hypothesized relationship between achievement motivation and amount of shift in risk was supported for the CDP but not for the TDSP. The significant curvilinear relationship between achievement motivation and risk shift on the CDP suggested that larger shifts in either the conservative or risky directions were associated with fear of failure while smaller shifts were associated with need for achievement. This seems to be congruent with Atkinson's (1957) model which stated that individuals motivated by avoidance of failure tend to select either conservative or risky choices rather than moderate choices. In order to attain the compromise necessary for a unanimous group decision, subjects whose individual decisions were at the conservative or risky extremes had to make sizable shifts. Thus, these larger shifts in risk were related to extreme individual risk
choices, which Atkinson (1957) suggested should be related to motivation to avoid failure.

This result also seems consistent with, although not identical to, Rim's (1963) finding that subjects motivated by the need for achievement tended to demonstrate smaller shifts in individual to group CDP scores, while subjects motivated by failure avoidance tended to produce larger shifts which were consistently in the risky direction. It should be emphasized that Rim (1963) found a significant risky shift for the entire sample in his study. The present study did not find a significant risky shift. Stated in more general terms, however, Rim's finding and the present result seem to be identical: subjects motivated by failure avoidance tended to demonstrate the largest shifts in risk from individual to group CDP scores.

Achievement motivation was not related to amount of individual to group shift in risk on the TDSP. However, the interpretation of this result is complicated by two psychometric limitations of the TDSP. First, the small range of possible TDSP responses resulted in shifts to a maximum of only three points. It is doubtful that such a small range of responses could adequately distinguish between those subjects motivated by the hope of success and those subjects motivated by the fear of failure. Second, the failure of the TDSP data to produce homogeneous variances and normal distributions made the use of appropriate correlational statistics impossible. Thus, the chi-square statistic was used even though it was
a less desirable alternative. For these reasons, the absence of a significant relationship between achievement motivation and amount of individual to group shift in risk on the TDSP must be viewed as tentative at best.

**Dominance and risk shift:** A small, but significant, curvilinear relationship was found between amount of individual to group risk shift on the CDP and dominance. This suggests that highly dominant subjects tended to shift more than did more submissive subjects. This was contrary to the hypothesized result, and does not seem to be consistent with the findings that (1) dominance and achievement motivation are directly related and (2) high achievement motivation is associated with smaller individual to group CDP shifts. However, the sizes of these correlations clearly allow ample unaccounted variance for these seemingly incompatible results to occur. At this point, in view of the small correlation and the unexpected nature of the result, the relationship should be considered tentative until a replication can be completed.

For the TDSP data, those who shifted did not differ from those who did not shift with respect to their dominance scores. In addition, it was found that subjects who shifted in the risky direction, subjects who shifted in the conservative direction, and subjects who did not shift at all, did not differ from each other with respect to their dominance scores. These data show that dominant individuals did not shift less from individual to group risk scores on the TDSP as was hypothesized. Thus, it could not
be concluded that dominant subjects were especially influential or persuasive in the group decision making process.

The small range of shifts in risk makes this result difficult to interpret. It is impossible to know if highly dominant subjects were not especially influential, or if they did not have an opportunity to persuade others because of the small differences from one subject to another in individual TDSP scores.

Discussion summary: The risky shift phenomenon, which has usually been replicated in studies on group risk taking, was not obtained for either the CDP or the TDSP. This suggested that either there was something atypical about the subjects and/or the procedure or that the literature does not accurately represent the results of past group risk taking research.

Individual to group shifts in risk on the TDSP were not significantly related to GPA, achievement motivation, and dominance. It is not clear, at this time, whether this was due to no real relationship between these variables, or to the psychometric limitations of the TDSP.

Individual to group shifts in risk on the CDP were significantly related to achievement motivation and to dominance. The correlation with dominance was small and seemed to go contrary to the hypothesized direction. For this reason, it was accepted only on a tentative basis. The correlation between CDP risk shift and achievement motivation was large and perhaps the most dramatic result of the study. This correlation indicated that subjects who
were motivated by the need for achievement tended to take moderate to slightly greater than moderate risks, while subjects who were motivated by the need to avoid failure tended to take extremely risky or extremely conservative risks. As a result, when group members were asked to achieve unanimity in their risk decisions, failure avoiders tended to shift greater distances than need achievers. This result lends support to Atkinson's (1957) original theoretical formulation, as well as to Rim's (1963) finding. However, it runs contrary to a more recent finding by Myers, Murdoch, and Smith (1970).

The CDP, because of its range of scores, normality of distribution, and homogeneity of variances, was a better instrument than the TDSP for the purposes of this study. With some improvements, the TDSP seems to have potential as a measure of risk taking in a different kind of situation where subjects take risks in the selection of skilled, competitive tasks that they expect to perform. That the TDSP and the CDP are measures of different kinds of risk taking behaviors was supported by significant differences between individual men and women, with men taking greater risks on the TDSP and women taking greater risks on the CDP.
CHAPTER IV
Summary, Conclusions, and Implications

Summary

Previous research has demonstrated that group consensus regarding the degree of risk to be taken tends to deviate from the average of individual prediscussion decisions in the direction of greater risk. This "risky shift phenomenon" has been demonstrated repeatedly through the use of the Choice Dilemmas Procedure (CDP), a semiprojective measure of risk taking. While there has been a plethora of explanations for the phenomenon, all have been social psychological in nature. That is, all explanations have focussed upon group dynamics, without considering the individual characteristics of group members.

This study investigated two aspects of group risk taking behavior. The first had to do with the possibility that risk taking behavior depends, in part, upon the nature of the risk taking situation. This might have meant, for example, that while the risky shift phenomenon is common to the CDP situation, it might not occur in other group risk taking situations. The second related to the possibility that the risk taking behavior of the group may partly depend upon the individual characteristics of its members.

To investigate the relationship between selected individual
characteristics and group behavior in two risk taking situations, 120 subjects, 60 male and 60 female, were enlisted from the undergraduate introductory psychology course at The Ohio State University. All subjects responded to the following instruments: (1) Personal Data Sheet, through which subjects' grade point averages and other demographic data were obtained, (2) Success-Failure Inventory, a measure of achievement motivation, (3) A-S Reaction Study, a measure of dominance, (4) Choice Dilemmas Procedure, a semiprojective measure of risk taking behavior, and (5) Test Difficulty Selection Procedure (TDSP), a direct measure of risk taking behavior in the selection of skilled tasks to perform.

Following the individual administration of the above mentioned instruments, subjects were divided into groups having four members in each. This resulted in 15 groups of males and 15 groups of females. These groups then responded to both the CDP and the TDSP again, this time as group projects.

Briefly, it was hypothesized that shifts from individual to group responses for both the CDP and the TDSP would be in the risky direction, and that the effect would be more pronounced for the TDSP. In addition, it was hypothesized that individual to group shift in risk for both the CDP and the TDSP would be inversely related to achievement motivation and dominance, and that TDSP shift in risk would be inversely related to GPA.

Conclusions

The results failed to support the hypotheses that predicted
significant risky shifts on both the CDP and the TDSP. In addition, it was found that both the CDP and the TDSP produced approximately equal proportions of risky shifts to total shifts.

Post hoc analyses suggested that males differed from females in their individual responses to the two risk taking situations. Males took greater risks than females on the TDSP, while females took greater risks than males on the CDP. From this, it can be tentatively concluded that individual risk taking styles are situation dependent. This possibility has been practically ignored in the literature on risk taking behavior.

Grade point average was found not to be related to amount of individual to group shift in risk on the TDSP. It was concluded that group risk taking in the selection of skilled, competitive tasks, is not dependent upon the appraisal by the group of its members' ability.

A strong inverse relationship between achievement motivation and individual to group shift in risk on the CDP gave support to Atkinson's (1957) motivational theory of risk taking behavior. In addition, it helped tie together the personality theory approach and social psychological approach to the study of risk taking behavior. It was concluded that large individual to group shifts in risk on the CDP were characteristic of subjects who were motivated to avoid failure than to approach success. Individuals who were more motivated to approach success than to avoid failure tended to demonstrate smaller individual to group shifts in risk on the CDP.
The highly significant relationship found between amount of individual to group shift in risk on the CDP and achievement motivation was not found for TDSP shifts and achievement motivation. However, no definite conclusion was drawn from this result because of the statistical difficulties that resulted from the psychometric limitations of the TDSP.

A small, but significant, relationship between individual to group shift in risk on the CDP and dominance, suggested a conclusion that was contrary to the hypothesis. It was found that more dominant subjects tended to demonstrate larger CDP shifts than did more submissive subjects. From this result, it might be concluded that dominant individuals were most willing to give up their individual risk choices in order to facilitate the arrival at a unanimous group decision. But, this behavior is not congruent with the definition of dominance provided by Edwards (1959) which included the concept of arguing for one's point of view. Thus, this conclusion must be stated most tentatively.

The data indicated that dominant subjects did not shift less from individual to group risk scores on the TDSP than did more submissive subjects. As was the case with the data pertaining to TDSP shifts and achievement motivation, a definite conclusion could not be drawn because of statistical difficulties that resulted from the psychometric limitations of the TDSP.

In general, the results of this study indicated that the risky shift phenomenon does not occur in all group risk taking
situations. A more detailed investigation of shift in risk behavior, whether risky or conservative, suggested that achievement motivation and perhaps dominance, are related to the amount of shift in risk in at least the CDP situation.

Limitations

The major limitation of this study was the small range of possible TDSP responses. This resulted in shifts to a maximum of only three points. It is doubtful that such a small range of responses could lead to significant relationships with other variables.

One way in which future studies might solve this problem would be to expand the number of test choices in the TDSP from five to nine. A better approach might be to use five or six test selections in a battery. The battery might include the academic aptitude test selection presently used in the TDSP, selection from five puzzles of varying difficulties, selection from five reading speed and comprehension tests of varying difficulties, and so on. The risk score would then be the sum of the risks taken in all of the test selections. This would result in a much wider range of risk scores whose distribution would probably approach normality. As a result, a greater variety of statistical methods could be appropriately used, with an increased chance of obtaining meaningful results.

A further limitation of the study was the use of a sample of only college students. This limited the possibility of the
generalization of results to non-college populations. For example, the TDSP, which involves selecting from five academic aptitude tests of varying difficulties, may have had a totally different impact upon non-students.

Further investigations should utilize a longer, more diverse instrument than the TDSP. Also, samples should be drawn from several populations in order to improve generalizability. These modifications would help to rectify the limitations described above. In addition, efforts should be made to replicate those results that had to be considered tentative, through the use of inferential statistics. Unlike the correlational methods used to test some of the hypotheses in the present study, such statistics would provide an opportunity to make inferences about causality.

Implications

This study ties together Atkinson's (1957) motivational theory of risk taking with the social psychological theory of group risk taking of Kogan and Wallach (1964). The major finding relating to these two areas was that the amount of individual to group shift in risk on the CDP was strongly related to achievement motivation. Thus, while social psychological theories such as Brown's (1965) cultural value of risk theory may be used to understand the risky shift phenomenon, individual factors such as need achievement and failure avoidance can be used to understand the behavior of group members within the group context.

The significant differences found between men and women in
their individual risk responses to both the CDP and the TDSP suggest an important implication for research in the field of risk taking behavior. It may no longer be appropriate to refer simply to risk taking styles of behavior. Rather, one should refer to risk taking in specific situations by specific people. Perhaps societal norms for men and women, children and adults, students and non-students, and professionals and laborers require that these groups respond differentially to various kinds of risk taking situations. What seems like high risk to one person in a particular situation, may be seen as a conservative risk to another person in the same situation.

Generally, this study suggests the need to look at motivational, social psychological, and situational factors in order to understand group risk taking behavior.
APPENDIX A

Personal Data Sheet
Personal Data Sheet

Name _____________________________________

Age __________________________

Sex: Female ____ Male _____

College __________________________________

Major ____________________________________

Year and quarter entered O.S.U. ____________

Cumulative grade point average (check one):

____ 0.00 to 0.99
____ 1.00 to 1.49
____ 1.50 to 1.99
____ 2.00 to 2.49
____ 2.50 to 2.99
____ 3.00 to 3.49
____ 3.50 to 4.00
APPENDIX B

Success-Failure Inventory
and Scoring Keys
Attitude Inventory

Answer "true" or "false." When a statement is mostly "true" as applied to you, circle the "T" beside the statement. When a statement is mostly "false" as applied to you, circle the "F" beside the statement.

1. T F I have a tendency to give up easily when I meet difficult problems.

2. T F I like to fool around with new ideas even if they turn out later to have been a total waste of time.

3. T F I am ambitious.

4. T F It's better to stick by what you have than try new things you don't really know about.

5. T F Failure is not a disgrace when one has tried his best.

6. T F It is better to be an observer than a participant because one learns more and gets into less trouble.

7. T F Success is too transient an experience for a person to sacrifice much to obtain it.

8. T F One of my primary or major aims in life is to accomplish something that would make people proud of me.

9. T F Any man who is able and willing to work hard has a good chance of succeeding.

10. T F I would rather remain free from commitments to others than risk serious disappointment or failure later.

11. T F When I am in a group or organization, I like to be appointed or selected for office.

12. T F I have a very strong desire to be a success in the world.

13. T F I like to follow routines and avoid risks.

14. T F Great ambitiousness usually brings great accomplishments.
15. T F I don't like to work on a problem unless there is a possibility of coming out with a clear cut and unambiguous answer.

16. T F I dislike failure so much that I abstain from participating in competitive situations.

17. T F I sometimes keep on at a thing until others lose patience with me.

18. T F I used to like it very much when one of my papers was read to the class in school.

19. T F I keep out of trouble at all costs.

20. T F I enjoy competitive sports.

21. T F It is better never to expect much; in that way you are rarely disappointed.

22. T F I like to avoid responsibilities and obligations.
### Scoring Keys for Success-Failure Inventory

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<th>Success Motivation Scale</th>
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<th>Keyed Response</th>
<th>Failure-Avoidance Scale</th>
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<th>Keyed Response</th>
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APPENDIX C

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

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

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

1. Mr. A, an electrical engineer, who is married and has one child, has been working for a large electronics corporation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate, salary, and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires.

While attending a convention, Mr. A is offered a job with a small, newly founded company which has a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survived the competition of the larger firms.

Imagine that you are advising Mr. A. Listed below are several probabilities or odds of the new company's proving financially sound.

Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. A to take the new job.

____ The chances are 1 in 10 that the company will prove financially sound.
____ The chances are 3 in 10 that the company will prove financially sound.
____ The chances are 5 in 10 that the company will prove financially sound.
____ The chances are 7 in 10 that the company will prove financially sound.
____ Place a check here if you think Mr. A should not take the new job no matter what the probabilities.
2. Mr. B, a 45-year-old accountant, has recently been informed by his physician that he has developed a severe heart ailment. The disease would be sufficiently serious to force Mr. B to change many of his strongest life habits—reducing his work load, drastically changing his diet, giving up favorite leisure-time pursuits. The physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the heart condition. But its success could not be assured, and in fact, the operation might prove fatal.

Imagine that you are advising Mr. B. Listed below are several probabilities or odds that the operation will prove successful. Please check the lowest probability that you would consider acceptable for the operation to be performed.

Place a check here if you think Mr. B should not have the operation no matter what the probabilities.

___ The chances are 9 in 10 that the operation will be a success.
___ The chances are 7 in 10 that the operation will be a success.
___ The chances are 5 in 10 that the operation will be a success.
___ The chances are 3 in 10 that the operation will be a success.
___ The chances are 1 in 10 that the operation will be a success.

3. Mr. C, a married man with two children, has a steady job that pays him about $6000 per year. He can easily afford the necessities of life, but few of the luxuries. Mr. C's father, who died recently, carried a $4000 life insurance policy. Mr. C would like to invest this money in stocks. He is well aware of the secure "blue-chip" stocks and bonds that would pay approximately 6% on his investment. On the other hand, Mr. C has heard that the stocks of a relatively unknown Company X might double their present value if a new product currently in production is favorably received by the buying public. However, if the product is unfavorably received, the stocks would decline in value.

Imagine that you are advising Mr. C. Listed below are several probabilities or odds that Company X stocks will double their value.

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

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

Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. F to enroll in University X rather than University Y.

____ Place a check here if you think Mr. F should not enroll in University X, no matter what the probabilities.
____ The chances are 9 in 10 that Mr. F would receive a degree from University X.
____ The chances are 7 in 10 that Mr. F would receive a degree from University X.
____ The chances are 5 in 10 that Mr. F would receive a degree from University X.
____ The chances are 3 in 10 that Mr. F would receive a degree from University X.
____ The chances are 1 in 10 that Mr. F would receive a degree from University X.
5. Mr. G, a competent chess player, is participating in a national chess tournament. In an early match he draws the top-favored player in the tournament as his opponent. Mr. G has been given a relatively low ranking in view of his performance in previous tournaments. During the course of his play with the top-favored man, Mr. G notes the possibility of a deceptive though risky maneuver which might bring him a quick victory. At the same time if the attempted maneuver should fail, Mr. G would be left in an exposed position and defeat would almost certainly follow.

Imagine that you are advising Mr. G. Listed below are several probabilities or odds that Mr. G's deceptive play would succeed.

Please check the lowest probability that you would consider acceptable for the risky play in question to be attempted.

- The chances are 1 in 10 that the play would succeed.
- The chances are 3 in 10 that the play would succeed.
- The chances are 5 in 10 that the play would succeed.
- The chances are 7 in 10 that the play would succeed.
- The chances are 9 in 10 that the play would succeed.

Place a check here if you think Mr. G should not attempt the risky play no matter what the probabilities.

6. Mr. L, a married 30-year-old research physicist, has been given a five-year appointment by a major university laboratory. As he contemplates the next five years, he realizes that he might work on a difficult, long-term problem which, if a solution could be found, would resolve basic scientific issues in the field and bring high scientific honors. If no solution were found, however, Mr. L would have little to show for his five years in the laboratory, and this would make it hard for him to get a good job afterwards. On the other hand, he could, as most of his professional associates are doing work on a series of short-term problems where solutions would be easier to find, but where the problems are of lesser scientific importance.

Imagine that you are advising Mr. L. Listed below are several probabilities or odds that a solution would be found to the difficult, long-term problem that Mr. L has in mind.

Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. L to work on the more difficult long-term problem.
The chances are 1 in 10 that Mr. L would solve the long-term problem.
The chances are 3 in 10 that Mr. L would solve the long-term problem.
The chances are 5 in 10 that Mr. L would solve the long-term problem.
The chances are 7 in 10 that Mr. L would solve the long-term problem.
The chances are 9 in 10 that Mr. L would solve the long-term problem.
Place a check here if you think Mr. L should not choose the long-term difficult problem, no matter what the probabilities.
APPENDIX D

Test Difficulty Selection Procedure
Test Selection

Below are descriptions of five different multiple choice tests. These tests are all measures of intelligence or academic aptitude. You will be taking one of them, but the choice of which one you will take is up to you.

Each successive test gets progressively more difficult. That is, Test 2 is harder than Test 1, Test 3 is harder than Test 2, and so on. However, each correct answer on Test 2 is worth more points than each correct answer on Test 1, and each correct answer on Test 3 is worth more points than each correct answer on Test 2, and so on.

Your task is to try to select the test on which you can accumulate the most points. You should view this test as both a competition and as an indication of your own ability. Following the test, you will learn where you and the others taking the test stand in relation to one another. This will give you an indication of your intelligence or academic aptitude.

Test 1: This test consists of 30 multiple choice questions taken from an aptitude test used in several large city school systems to help junior high school students decide whether to enter a pre-college or a vocational curriculum in high school. When these 30 questions were given to a large sample of Ohio State students, it was found that the average OSU student answered 90% of the questions correctly. For each correct answer you will get 2 points.

Test 2: This test consists of 30 multiple choice questions taken from an intelligence test designed for high school age people. When these 30 questions were given to a large sample of Ohio State students, it was found that the average OSU student answered 67% of the questions correctly. For each correct answer you will get 2.7 points.

Test 3: This test consists of 30 multiple choice questions taken from a college entrance examination designed to measure aptitude for college. When these 30 questions were given to a large sample of Ohio State students, it was found that the average OSU student answered 50% of the questions correctly. For each correct answer you will get 3.6 points.

Test 4: This test consists of 30 multiple choice questions taken from an intelligence test designed for very bright college students, and is commonly given to students at highly selective colleges and universities. When these 30 questions were given to a large sample of Ohio State students, it was found that the average OSU student answered 37% of the questions correctly. For each correct answer you will get 4.9 points.
Test 5: This test consists of 30 multiple choice questions taken from an aptitude test designed to help students who have a master's degree to decide whether or not to pursue a Ph.D. degree. When these 30 questions were given to a large sample of Ohio State students, it was found that the average OSU student answered 17% of the questions correctly. For each correct answer you will get 10.8 points.

PLACE A CHECK (√) NEXT TO THE TEST YOU HAVE DECIDED TO TRY:

Test 1
Test 2
Test 3
Test 4
Test 5
APPENDIX E

A-S Reaction Study--Men's Form
and Scoring Key

A-S Reaction Study--Women's Form
and Scoring Key
A-S Reaction Study

(For Men)

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Score</th>
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**Directions:** Most of these situations will represent to you your own actual experiences. Reply to the questions spontaneously and truthfully by checking the answer which most nearly represents your usual reaction. If the situation has not been experienced, try to feel yourself into it and respond on the basis of what you believe your reaction would be. If a situation seems totally unreal or impossible to respond to, you may omit it.

1. In watching a game of football or baseball in a crowd, have you intentionally made remarks (witty, encouraging, disparaging, or otherwise) which were clearly audible to those around you?

   - (+2)* frequently
   - (0) occasionally
   - (-4) never

2. a) At a reception or party do you seek to meet the important person present?

   - (+1) usually
   - (-1) occasionally
   - (-1) never

   b) Do you feel reluctant to meet him?

   - (-1) yes, usually
   - (-1) sometimes
   - (+2) no

3. At church, a lecture, or an entertainment, if you arrive after the program has begun and find that there are people standing, but also that there are front seats available which might be secured without "piggishness" or discourtesy, but with considerable conspicuousness, do you take the seats?

   - (+1) habitually
   - (0) occasionally
   - (-1) never

4. A salesman takes the trouble to show you a quantity of merchandise; you are not entirely suited; do you find it difficult to say "no"?

   - (-1) yes, as a rule
   - (0) sometimes
   - (+1) no

*Numbers in parentheses are the scores assigned for each response. These numbers do not appear on the actual instrument.
5. a) Have you solicited funds for a cause in which you are interested?

(+) yes
(-2) no

b) Do you feel reluctant to do such soliciting?

(-1) yes
(0) no

6. a) A professor or lecturer asks any one in the audience, say of 20 or more people, to volunteer an idea to start discussion. You have what appears to be a good idea, do you speak out?

(+4) habitually
(+2) occasionally
(-1) rarely
(-2) never

b) Do you feel self-conscious when you speak under such circumstances?

(-2) very
(0) moderately
(+4) not at all

7. You have heard indirectly that an acquaintance has been spreading rumors about you which, though not likely to be serious in consequence, are nevertheless unjustified and distinctly uncomplimentary. The acquaintance is an equal of yours in every way. Do you usually (Go to top of next column).

8. Someone tries to push ahead of you in line. You have been waiting for some time, and can't wait much longer. Suppose the intruder is the same sex as yourself, do you usually

(+2) "have it out" with the person
(-2) let it pass without any feeling
(-2) take revenge indirectly
(-1) feel disturbed but let it pass

9. Do you feel self-conscious in the presence of superiors in the academic or business world?

(-4) markedly
(0) somewhat
(-2) not at all

10. Some possession of yours is being worked upon at a repair shop. You call for it at the time appointed, but the repair man informs you that he has "only just begun work on it." Is your stomach reaction

(+4) to criticize him
(-1) to express dissatisfaction mildly
(0) to smother your feelings entirely
11. After a very tiring day you decide to keep your seat in a crowded bus even though ladies have to stand. You overhear one of the ladies refer to the situation in some remark to her companion. Do you

(-1) rise and offer your seat
(-2) remain in your seat feeling ill at ease
(+1) remain in your seat without embarrassment

12. You are at a mixed party where about half the people are friends of yours. The affair becomes very dull, and something should be done to enliven it. You have an idea. Do you usually

(+2) take the initiative in carrying it out
(-2) tell someone else to suggest it
(-1) say nothing about it

13. When you are served a tough steak, a piece of unripe melon, or any other inferior dish at a good restaurant, do you complain about it to the waiter?

(+1) occasionally
(+1) seldom
(-1) never

14. Have you crossed the street to avoid meeting some person?

(-2) frequently
(-2) occasionally
(+2) never

15. Have you haggled over prices with tradesmen or salesmen?

(+2) frequently
(0) occasionally
(-1) never

16. In tennis or any similar competition when you are pitted against some one considerably superior to you in this particular ability, are you as a rule

(+1) determined to win in spite of his advantage
(-1) not especially hopeful, but unwilling to concede defeat at the start
(-1) inclined to admit to yourself defeat at the outset, hoping only to make a presentable score

17. You desire to board a boat or train to see a friend off, or to enter an exhibition or park; the guard forbids you on what seem to be entirely unnecessary technicalities, do you argue with him and bluff your way past?

(+3) habitually
(0) occasionally
(-1) never

18. When you were 10 or 12 years of age were you the "goat" for your playmates? (e.g., in playing war would they force you to fight on the unpopular side?)

(-3) usually, yes
(-1) occasionally
(+1) never
19. Suppose you have recently become a salesman and are trying to sell life insurance to a middle-aged financier of great note. He says, "Young man, I don't know how long you have been in this game, but you will never succeed unless you acquire more experience and confidence in yourself." What will be your reaction?

(+2) to persist in the attempt to sell insurance
(-1) to agree and seek further advice from him
(0) to become emotionally disturbed in your reply, angry, embarrassed, or condescending
(0) simply to leave

20. You are with a group of people in the woods, and although not certain of the path, you probably know as much about it as anyone present. Do you take responsibility of guiding the group?

(+2) take the full responsibility
(-1) make suggestions or agree to share the responsibility
(-6) let another take the lead according to his judgment

21. a) If you feel a person is dictatorial and domineering, do you as a rule make it a point to avoid him?

(-1) yes
(0) no

b) If unavoidably thrown with him at a gathering, do you feel annoyed?

(-1) yes
(+1) no

c) Do you usually

(+1) try to treat him the same way he treats you
(-1) behave normally, but wish either you or he had not come
(+2) feel and behave normally

22. a) When you see someone in a public place or crowd whom you think you have met or known, do you inquire of him whether you have met before?

(+1) sometimes
(0) rarely
(-1) never

b) Are you embarrassed if you have greeted a stranger whom you have mistaken for an acquaintance?

(-1) very much
(-1) somewhat
(+3) not at all
23. a) Have you ever been made to feel antagonistic or irritated on account of the "bossy" way a chairman conducts a meeting?

(+1) frequently
(0) occasionally
(-1) never

b) Do you take the initiative in opposing such a person.

(+7) usually
(+1) sometimes
(-2) never

24. If a student in class discussion makes a statement that you think erroneous, do you question it?

(+1) usually
(-1) occasionally
(-1) never

25. If you hold an opinion the reverse of that which the lecturer has expressed in class, do you usually volunteer your opinion

(+3) in class
(-1) after class
(-3) not at all

26. When an accident occurs where many people are present besides yourself do you usually

(+2) take an active part in assisting
(-2) take the part of a spectator
(-2) leave the scene at once

27. When a book-agent or insurance salesman comes to your home or to your room, do you as a rule find it difficult to refuse to listen to him, or to get rid of him as soon as the purpose of his visit becomes clear?

(-4) quite difficult
(-1) moderately difficult
(+1) not at all difficult

28. When the clerk in a store where you have been waiting for some time for service overlooks you and waits on a customer who has come into the store after you, do you as a rule

(+1) call his attention to the fact
(-1) wait silently, though perhaps angry
(0) go out to another store

29. Have you ever felt that a professor talks too much in class and should give you more chance to express your views and conclude points?

(+2) frequently
(0) occasionally
(-1) never
30. a) Have you largely on your own initiative in the past five years organized clubs, teams, or other such groups?

(+3) more than three
(+1) one to three
(-2) none

b) Have you within the past five years been recognized as leader (president, captain, chairman) of groups?

(+6) more than six
(0) one to six
(-6) none

31. In conversing with a person older than yourself whom you respect, on an issue about which you disagree, do you characteristically

(+1) maintain your views in argument
(0) conciliate your opponent by seeming to agree with him, and yet try indirectly to carry your point
(-4) agree with him, at least verbally, and let it go at that

32. You are dining with a young lady whom you are trying to impress. The waiter presents a bill which is slightly larger than you expected it to be. Do you verify the bill before paying it?

(+2) openly
(-1) secretly
(0) not at all

33. A friend with whom you are not particularly intimate has a racquet, skates, skis, or some similar article which you would like very much to borrow for an afternoon. Do you feel a hesitation in asking for it?

(-1) usually
(0) sometimes
(+1) rarely
A-S Reaction Study
(Women)

Name__________________________Age________Sex________Score________

Directions: Most of these situations will represent to you your own actual experiences. Reply to the questions spontaneously and truthfully by checking the answer which most nearly represents your usual reaction. If the situation has not been experienced, try to feel yourself into it and respond on the basis of what you believe your reaction would be. If a situation seems totally unreal or impossible to respond to, you may omit it.

1. At the hairdressers are you persuaded to try new shampoos and new styles?

   (0)* frequently
   (4) occasionally
   (-2) never

2. a) At a reception or party do you seek to meet the important person present?

   (+1) usually
   (0) occasionally
   (-2) never

   b) Do you feel reluctant to meet him?

   (-3) yes, usually
   (0) sometimes
   (+2) no

3. At church, a lecture, or an entertainment, if you arrive after the program has begun and find that there are people standing, but also that there are front seats available which might be secured without "piggishness" but with considerable conspicuousness, do you take the seats?

   (+1) habitually
   (0) occasionally
   (-1) never

4. a) A salesman takes the trouble to show you a quantity of merchandise. You are not entirely suited. Do you find it difficult to say "No"?

   (-1) yes
   (+2) no

   b) Do you mind taking articles that you have bought back to stores?

   (+2) no
   (0) somewhat
   (-2) very much

*Numbers in parentheses are the scores assigned for each response. These numbers do not appear on the actual instrument.
5. Do you feel reluctant to solicit funds for a cause in which you are interested?

(-1) yes
(+1) no

6. a) A professor or lecturer asks any one in the audience, say of 50 people, to volunteer an idea to start discussion. You have what appears to be a good idea, do you speak out?

(+3) usually
(+1) occasionally
(-2) rarely
(-3) never

b) Do you feel self-conscious when you speak under such circumstances?

(-3) very
(+1) moderately
(+5) not at all

7. You have heard indirectly that an acquaintance has been spreading rumors about you which, though not likely to be serious in consequence, are nevertheless unjustified and distinctly uncomplimentary. The acquaintance is an equal of yours in every way. Do you usually

(+1) "have it out" with the person
(0) let it pass without any feeling
(0) feel disturbed but let it pass

8. Beggars solicit you with hard luck stories; do you give them money?

(-1) usually
(0) occasionally
(+1) never

9. Some one tries to push in ahead of you in line. You have been waiting for some time, and can't wait much longer. Suppose the intruder is the same sex as yourself, do you usually

(+2) argue with the intruder
(-1) call the attention of the man at the ticket window
(-1) stare at the intruder or make clearly audible comments to your neighbor
(0) decide not to wait, and go away
(0) do nothing

10. Do you feel self-conscious in the presence of superiors in the academic or business world?

(-3) markedly
(0) somewhat
(+3) not at all
11. Some possession of yours is being worked upon at a repair shop. You call for it at the time appointed, but the repair man informs you that he has "only just begun work on it." Is your customary reaction

(+3) to criticize him
(0) to express dissatisfaction mildly
(-1) to smother your feelings entirely

12. At a stupid party something must be done to inject some life. You have an idea. Do you take the initiative in carrying it out?

(+4) invariably
(-1) occasionally
(-4) never

13. Have you worn some style of dress merely because you wished to, even though you knew that the practice would be commented on, since the innovation you proposed was not according to custom?

(+3) frequently
(0) occasionally
(-2) never

14. Have you crossed the street to avoid meeting some person?

(-2) frequently
(0) occasionally
(+1) never

15. Have you haggled over prices with tradesmen or salesmen?

(+1) frequently
(0) occasionally
(0) never

16. a) Have you appeared as a lecturer or entertainer before gatherings of over ten people?

(+3) frequently
(0) occasionally
(-3) never

b) Have you experienced "stage fright"?

(-1) occasionally
(+1) once or twice
(+1) never

17. If you made purchases at Woolworth's or at the bargain counters would you mind your friends knowing it?

(-2) sometimes
(0) no

18. In playing games when you were young, did you take the lead and decide what the group should play?

(+2) usually
(0) occasionally
(-3) seldom
19. a) If you are sitting between two young men on a crowded street car, and a woman of about fifty-five enters the car, and stands in front of you; and if neither of the young men gets up, will you rise to offer her your seat?

(+1) certainly
(0) perhaps
(-2) no

b) Will you feel any embarrassment in carrying out your decision?

(-3) yes
(+1) no

20. Have you been president or recognized leader of an organized group composed of girls or women?

(+5) more than six times
(0) less than six times but more than once
(-1) only once
(-3) never

21. a) In general, are your most intimate friends

(0) younger than yourself
(+1) older than yourself
(0) about the same age

b) Do you feel more at ease as a rule, in the company of those

(-2) younger than yourself
(+1) older than yourself
(0) about the same age

22. a) If you feel a person is dictatorial and domineering, and if you are unavoidably thrown with him at a gathering, do you feel very annoyed?

(-1) yes
(+1) no

b) Do you usually

(0) try to treat him the same way he treats you
(-1) behave normally, but wish either you or he had not come
(0) feel and behave normally

23. a) When you see some one in a public place or crowd whom you think you have met or have known, do you inquire of him whether you have met before?

(+2) sometimes
(-1) rarely
(-3) never

b) Are you embarrassed if you have greeted a stranger whom you have mistaken for an acquaintance?

(-3) very much
(0) somewhat
(+3) not at all
24. a) Have you ever been made to feel antagonistic or irritated on account of the "bossy" way a chairman conducts a meeting?

- (0) frequently
- (0) occasionally
- (+1) never

b) Do you take the initiative in opposing such a person?

- (+4) usually
- (+1) sometimes
- (-2) never

25. If you have broken or lost a tennis racquet, or some such article, belonging to another person, would you tell him right away?

- (0) yes
- (-1) perhaps

26. If a student in class discussion makes a statement that you think erroneous, do you question it?

- (+1) usually
- (-1) occasionally
- (-2) never

27. If you hold an opinion the reverse of that which the lecturer has expressed in class, do you usually volunteer your opinion

- (+2) in class
- (0) after class
- (-2) not at all

28. If you have been in accidents or fires at school or elsewhere, where there were several persons present, have you as a rule

- (+1) taken an active part in assisting
- (-2) taken the part of a spectator
- (0) left the scene at once

29. Have you ever attempted so many activities at college that you were forced to give something up?

- (+3) yes
- (-1) no

30. Have you ever felt that a professor talks too much in class and should give you more chance to express your views and conclude points?

- (0) frequently
- (+1) occasionally
- (-2) never

31. If the majority of your friends are wearing new dresses for a dance, are you disturbed by having to wear an old dress; one that you know will be recognized?

- (-2) very much
- (0) somewhat
- (+1) not at all
32. Do you find it difficult to ask a guy to accompany you to parties?

(-2) very
(0) somewhat
(+1) not at all

33. In a mixed social group where many people are strangers to each other, do you assume the role of hostess and begin introductions and conversation?

(+3) usually
(0) sometimes
(-3) never

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