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## Choice Shifts as a Function of Confidence in the Communicator and Risk Level of Message

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CHOICE SHIFTS AS A FUNCTION OF CONFIDENCE IN THE  
COMMUNICATOR AND RISK LEVEL OF MESSAGE

by

Gerald James Smith

A Dissertation Submitted to the Faculty of the Graduate  
School of Loyola University of Chicago in Partial  
Fulfillment of the Requirements for the  
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CHOICE SHIFTS AS A FUNCTION OF CONFIDENCE IN THE  
COMMUNICATOR AND RISK LEVEL OF MESSAGE

Dissertation Abstract

This study investigated the factors which lead to changes in risk-taking disposition. It was the purpose of this study to explore changes in level of risk-taking outside the context of group discussion. The factors of specific concern were the effects of the message that a person receives as well as the confidence that he has in the attributed communicator of that message. An information exchange model was employed in which subjects received information in written form but did not engage in any face-to-face interaction with others.

The Choice-Dilemmas Questionnaire was administered to 205 undergraduate university students. After scoring, the subjects were placed into either high or low risk-taking categories. High and low risk-taking subjects were then randomly assigned to the various research groups. A modified Choice-Dilemmas Questionnaire was given to subjects in each of the experimental groups. In this re-test procedure subjects received either high or low risk responses attributed to either a high confidence communicator (counseling psychologist) or a low confidence communicator (physician).

Differences in the amount of change demonstrated by the experimental and control groups were analyzed using 2x2 analyses of variance, Duncan's Multiple Comparisons Tests and, numerous t-tests.

The results may be summarized as follows: Subjects with an initially high risk-taking disposition will move in the direction of the risk level of the message they receive regardless of their confidence in the attributed communicator. However, if no experimental conditions are applied high risk-taking subjects show no change over time while low risk-taking subjects move to higher levels of risk.

In addition, groups that receive a message in the same direction as their initial risk-taking disposition remain relatively homogeneous while groups that receive a message in the opposite direction of the risk disposition become heterogeneous. It appears that the factor which is primarily responsible for changes in level of risk-taking is the risk level of the message itself. Confidence in the communicator of the message seems to have no effect on changes in response to the Choice-Dilemma items.

## VITA

Gerald James Smith was born in Chicago, Illinois on February 4, 1943. He is the son of Josephine S. and the late Edward J. Smith. He attended St. Turibius Grammar School and St. Rita High School. He completed his undergraduate work in psychology at Loyola University of Chicago in 1966. Between 1966 and 1968 he attended Marquette University in Milwaukee, Wisconsin where he pursued Master's work in clinical psychology. In 1969 he returned to Loyola University of Chicago for Doctoral studies.

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Two people, Dr. Thomas B. Johnson and my wife, Denise Dahl Smith, have been especially helpful to me. Their unwavering faith and confidence in me has been a source of strength during these past several years. To them, and to all others committed to my progress, I am most grateful and appreciative.

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## CHAPTER ONE

### INTRODUCTION

#### HISTORICAL PERSPECTIVE

For centuries philosophers and scientists have been concerned with discovering those factors which influence human behavior. The attributed causes of behavior have ranged from demons and spirits to the cycles of the moon. Always, men have sought to understand their world and, when possible, to control it. Men also have sought understanding to influence, manipulate, or control their fellow men. Perhaps the rise of the behavioral sciences is a natural extension of man's increasing ability to understand and control the physical environment.

From the time of ancient man to the last century, the vast majority of discoveries, findings, and applications have centered around understanding and controlling the environment in which we live. Only in the last hundred years have many serious attempts been made to understand man as he interacts with that environment. In the last half of the twentieth century, the moon has been landed upon, and its surface found to be a waterless and rocky wilderness pitted by collisions with meteorites. The temperature of Venus has been taken, a blistering 800 degrees fahrenheit. The upper atmosphere of the earth has been loaded down with hundreds of orbiting, manmade "planets." But man himself is still wondered at; in this vast and

mysterious universe, his constitution is much discussed but still little understood.<sup>1</sup>

The scientific study of behavior has its roots in the philosophical considerations of human nature which can be traced to the ancient Greeks. The methods of the natural scientists were imposed upon the questions of the philosophers of man and gave rise to the behavioral sciences. As a consequence, during the last seventy-five years our understanding of behavioral causality has increased considerably.

Yet, in spite of much progress, behavioral scientists are still accorded neophyte status in the scientific community. Such status is probably justified since a discipline is not considered to be mature until it has developed a methodology unique to its subject matter. Only recently have some refined procedures been developed which seem appropriate to the study of complex human behavior.

In counseling, for example, attempts have been made to identify those behaviors which, when exhibited by the counselor, lead to positive growth in the client. Truax and Carkhuff have discussed the findings which conclude that the

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<sup>1</sup>McMahon, F.B. Psychology: The hybrid science (Englewood Cliffs, New Jersey: Prentice-Hall, 1972), p. 5.

"average" gain (or positive growth) for clients in counseling is about zero.<sup>2</sup> If these findings were taken at face value it might well be concluded that counseling is of no benefit to clients. However, their systematic investigation of client change has determined that some counselor behaviors can produce positive change in clients - growth - while others produce negative change - deterioration. The "average" gain for clients in counseling, while being about zero, in fact does not reflect the complex interaction within the counseling process.

The above example has been used to point up the need to study complex phenomenon by considering some limited number of specific identifiable factors as well as the interaction among these factors. While this approach is reductionistic it does allow for the possibility of a systematic and orderly exploration of an area.

#### BACKGROUND OF THE PROBLEM

In 1961 Stoner submitted a master's thesis to the Sloan School of Management at the Massachusetts Institute of Tech-

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<sup>2</sup>Truax, C.B. & Carkhuff, R.R. Toward effective counseling and psychotherapy: Training and practice (Chicago: Aldine, 1967), pp. 5-6.

nology in which he compared individual and group decisions involving risk and concluded that groups were inclined toward higher levels of risk-taking than were individuals.<sup>3</sup> This report set off an unprecedented flurry of research activity in the social sciences because it was contrary to prior research findings and common sense notions about group processes which held that groups could be expected to be more conservative than individuals acting alone.

Wallach, Kogan, and Bem began a systematic investigation into the influence of the group on individual risk-taking behavior.<sup>4</sup> Individual subjects were asked to respond to a series of items involving risk. Group discussion followed after which individuals were asked to respond to the same items again. Like Stoner, they found that groups were riskier than individuals and termed the phenomenon "the risky shift."

Since these early explorations, numerous researchers have investigated risk taking. During the past 12 years there has been amazing consistency in findings about shifts from one population to another. Specifically, groups have been found

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<sup>3</sup>Stoner, J.A.F. "A comparison of individual and group decisions involving risk" (unpublished master's thesis, Sloan School of Management, Massachusetts Institute of Technology, 1961).

<sup>4</sup>Wallach, M.A., Kogan, N., & Bem, D.J. "Group influence on individual risk-taking," Journal of Abnormal and Social Psychology, 1962, 65, 75-86.

to endorse behaviors which are riskier than alternative behaviors endorsed by individual group members acting alone. However, as conceptualizations and research techniques became more refined shifts toward caution were also identified. Pruitt believed that because of the diversity of research findings which now exist the term "choice shifts" seems most appropriate.<sup>5</sup>

The basic assumption which is operative in most research regarding choice shifts has been succinctly stated by Cartwright:

Use of the CDQ (Choice-Dilemmas Questionnaire) in research on group decision making was originally based on the assumption that it is an instrument for measuring the risk-taking disposition of individuals or groups. Since responses to its 12 items were conceived as being determined by this unitary disposition, they were summed to give a single score. And the reduction in the mean of these scores following group discussion was taken as evidence that groups are "riskier" than individual members when acting alone. This psychometric orientation has had a pervasive influence on most of the subsequent research.<sup>6</sup>

At this time the value of research into choice shifts does not seem to lie in its immediate potential for practical

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<sup>5</sup>Pruitt, D.G. "Choice shifts in group discussion: An introductory review," Journal of Personality and Social Psychology, 1971, 20, 339-360.

<sup>6</sup>Cartwright, D. "Risk taking by individuals and groups: An assessment of research employing choice dilemmas," Journal of Personality and Social Psychology, 1971, 20, 361-378.

application. Rather, much theoretical controversy has been stimulated and as a result new questions are being asked and new models of human behavior are being proposed. As the issue of behavior in groups is explored, the generation of creative thought about influences on behavior may yet lead to practical applications which may be quite different from what we could predict from research findings and behavioral models now available.

#### HYPOTHESES

Several questions arise regarding the factors which induce choice shifts. The earliest explanations credited group discussion, in some non-specific way, with "causing" a shift. However, there is now considerable research evidence available to indicate that participation in group discussion is not essential for a choice shift to occur. While it is true that group discussion increases the magnitude of the shift, it seems likely that the discussion only enhances some other factors which themselves are responsible for the shift.

If, as "Familiarization Theory"<sup>7</sup> proposes, only increased

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<sup>7</sup>Bateson, N. "Familiarization, group discussion, and risk-taking," Journal of Experimental Social Psychology, 1966, 2, 119-129.



experience with the Choice-Dilemma items is necessary for a shift to occur, then a significant difference should be obtained between the scores on the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions are applied. A shift under such circumstances could be explained by a "general reduction in uncertainty" which is assumed to lead to higher levels of riskiness.

HYPOTHESIS I - Subjects in test-retest control groups should show a significant choice shift between the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions are applied.

Choice shifts can and do occur without group discussion.<sup>8</sup> While shifts in a cautious direction have been reported, a shift toward risk is more common and easier to obtain. Therefore, it is the low risk-taking subjects in a group who are primarily responsible for the overall "risky shift." Consistent with this point of view is the finding that subjects

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<sup>8</sup>Bell, P.R. & Jamieson, B.D. "Publicity of initial decisions and the risky shift phenomenon," Journal of Experimental Social Psychology, 1970, 6, 329-345.

who are rated as anxious show the greatest shift toward risk.<sup>9</sup> Since it is the low risk takers who are primarily responsible for the shift toward risk it seems reasonable to assume that low risk taking subjects are also more anxious than other individuals within the group. Any condition which is anxiety reducing may be expected to evoke the shift toward risk.

HYPOTHESIS II - Control subjects who are initially rated as low risk-takers will evidence a greater shift between the first and second administration of the Choice-Dilemmas Questionnaire than will high risk-taking subjects.

Since the choice shift literature seems generally consistent with the findings about attitude change, we might expect that if a subject has confidence in the person from whom he receives a message he will move toward the position held by the communicator. This assumption is in accord with the "Diffusion of Responsibility Theory."<sup>10</sup> This theory holds that the responsibility for a potential outcome can be

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<sup>9</sup>Castore, C.H. & Roberts, J.C. "Subjective estimates of our relative riskiness and risk taking following a group discussion," Organizational Behavior and Human Performance, 1972, 7, 107-120.

<sup>10</sup>Wallach, M.A., Kogan, N., & Bem, D.J. "Diffusion of responsibility and level of risk-taking in groups," Journal of Abnormal and Social Psychology, 1964, 68, 263-274.

psychologically shared. That is, in a group an individual is not solely responsible for the outcome of a decision. Such sharing may be viewed as anxiety reducing because a possible negative outcome cannot be attributed to any one person.

Further, a communicator may serve as a model to allow the "release" of responses that a subject may wish to make.<sup>11,12</sup>

Stroebe and Fraser<sup>13</sup> discuss a communicator's confidence in his own decision but virtually no studies seem to be available in which the recipients' confidence in the communicator has been assessed. If influence and persuasiveness are related to choice shifts, as proposed by "Leadership Theory"<sup>14,15</sup>

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<sup>11</sup>Pruitt, D.G. "The 'Walter Mitty' effect in individual and group risk-taking," Proceedings of the 77th Annual Convention of the American Psychological Association, 1969, 4, 425-426. (Summary)

<sup>12</sup>Pruitt, D.G. "Choice shifts in group discussion: An introductory review," pp. 339-360. (Cited in full form in n.5.)

<sup>13</sup>Stroebe, W. & Fraser, C. "The relationship between riskiness and confidence in Choice Dilemma decision," European Journal of Social Psychology, 1971, 1, 519-526.

<sup>14</sup>Collins, B.E. & Guetzkow, H.A. A social psychology of group process for decision-making. (New York: Wiley, 1964), pp. 110-118.

<sup>15</sup>Marquis, D.G. "Individual responsibility and group decisions involving risk," Industrial Management Review, 1962, 2, 8-23.

then it seems likely that a subject would shift toward the choice position of a person in whom he has confidence.

HYPOTHESIS III - Subjects should change their responses in the direction of the risk levels held by a communicator in whom they have confidence.

Following is a listing of other hypotheses to be tested as well as the rationale for each hypothesis under consideration.

Low risk-takers have been found to be more anxious and to shift more than high risk-takers. Therefore, high risk-takers and low risk-takers seem to have different personality characteristics which may make them respond differently to various alternative treatment conditions.

HYPOTHESIS IV - High risk-taking subjects and low risk-taking subjects are not influenced in the same way by identical treatment conditions.

Because people probably tend to move toward the attitudinal position of a person in whom they have confidence, we ought to find that a subject's confidence in the communicator of information relevant to the items under consideration has an effect on the magnitude of choice shifts.

HYPOTHESIS V - Both high and low risk-taking subjects will show more shift in the direction of a high confidence communicator than one in whom they have less confidence.

Previous research has indicated that high risk-taking subjects are more committed to their decisions than are low risk-takers. It may be that commitment is in part responsible for their perceived greater influence in group discussion.

HYPOTHESIS VI - High risk-taking subjects will show less change in level of risk-taking than will low risk-taking subjects when presented with information from a communicator in whom they have confidence.

General principles of behavioral reinforcement would suggest that when a person receives information which supports his own position that this position will be strengthened.

HYPOTHESIS VII - When high risk-taking subjects receive a high risk level message they should become even riskier. When low risk-taking subjects receive a low risk message they should become less risky.

According to "Release Theory", the individual responds

according to some perceived group norm.<sup>16,17</sup> If the individual is confronted with information which is in a different direction from his own initial risk choices, it is predicted that he will move toward the risk level of the other's responses.

HYPOTHESIS VIII - When high risk-taking subjects are presented with a low risk message they will become less risky. When low risk-taking subjects are presented with a high risk-taking message they will become riskier.

#### STATEMENT OF PURPOSE

It is the purpose of the experimental procedures to test the above hypotheses in a single experiment. Previous research has already found that high risk-takers and low risk-takers differ on a number of behavioral dimensions. Of special importance here is the relationship between choice shift and the confidence that subjects have in the communicator of a message relevant to the items on the Choice-Dilemmas Questionnaire.

Hypothetically, let us assume that high risk-takers are

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<sup>16</sup>Pruitt, D.G. "The 'Walter Mitty' effect in individual and group risk-taking," pp. 425-426. (Cited in full form in n. 11.)

<sup>17</sup>Pruitt, D.G. "Choice shifts in group discussions: An introductory review," pp. 339-360. (Cited in full form in n. 5.)

found to be more responsive to the message itself than to the person communicating the message and that low risk-takers are more responsive to a person in whom they have confidence and that the message itself has a lesser impact. In a counseling situation different approaches might be required to influence, in whatever related manner, clients differentiated on the basis of initial risk-taking dispositions.

#### ORGANIZATION OF THE STUDY

Chapter One presented an overview of the problem to be investigated in this study and listed the hypotheses to be tested. In the following chapter the literature concerning choice shifts will be reviewed and evaluated so that both general conclusions and contradictory findings will be explored. From this material trends will be identified which provide the basis for this study into factors affecting choice shifts.

Chapter Three will discuss the methods used to formally test the hypotheses. The results and discussion are presented in Chapter Four. Chapter Five summarizes the study and presents conclusions and recommendations based on the collected data.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### INTRODUCTION

Since the phenomenon was first defined by Stoner, much research has been conducted to ascertain the parameters of choice shifts. In almost all of the studies available a repeated-measure design has been employed. Initially, subjects are tested to determine their own individual risk preferences. Then some experimental condition is introduced and subjects are tested again with the same instrument. The effect of the experimental manipulation is assessed by testing for a significant difference between the pre-treatment and post-treatment means. When such a difference is found, a shift in risk-taking is said to occur.

The preferred instrument for measuring the risk-taking dispositions of individuals is the Choice-Dilemmas Questionnaire developed by Kogan and Wallach.<sup>18</sup> This questionnaire is composed of 12 items. The central character in each item is

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<sup>18</sup>Kogan, N. & Wallach, M.A. "Risk taking as a function of the situation, the person, and the group," In G. Mandler, P. Mussen, N. Kogan, & M.A. Wallach (Eds.) New directions in psychology III (New York: Holt, Rinehart & Winston, 1967) pp. 423-426.



faced with two alternatives, labeled 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 achieving Y. Subjects are asked to indicate the lowest probability of success that they would consider acceptable to make it worthwhile that the central character take the more attractive but riskier course of action.

To date, the results show a remarkable consistency. Group decisions are, on the average, riskier than individual decisions. Comparable shifts are found for both men and women,<sup>19</sup> for workers,<sup>20</sup> for people in professional and managerial capacities,<sup>21,22,23</sup> as well as for college students.

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<sup>19</sup>Wallach, M.A., Kogan, N., & Bem, D.J. "Group influences on individual risk-taking," pp. 75-86. (Cited in full in n. 4.)

<sup>20</sup>Jamieson, B.D. "The 'risky-shift' phenomenon with a heterogeneous sample," Psychological Reports, 1968, 23, pp. 203-206.

<sup>21</sup>Marquis, D.G. "Individual responsibility and group decisions involving risk," pp. 8-23 (Cited in full in n. 15.)

<sup>22</sup>Rim, Y. "Risk-taking and need for achievement," Acta Psychologica, 1963, 21, pp. 108-115.

<sup>23</sup>Siegel, S. & Zajong, R.B. "Group risk-taking in professional decision," Sociometry, 1967, 30, pp. 339-350.

"The time interval between the pre-treatment measures and the treatment has...varied considerably. It does not appear, however, that these differences have any substantial effect on the basic findings." <sup>24</sup>

While the treatment condition has usually been some form of group discussion, it apparently is not an essential element for individual shifts to occur. In some studies the subjects did not actually participate in group discussions about the risk items but only watched or heard others in discussion or read a summary of a discussion.<sup>25,26,27,28</sup> A risky shift has been consistently found for individual observers but the mag-

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<sup>24</sup>Cartwright, D. "Risk-taking by individuals and groups: An assessment of research employing choice dilemmas," pp. 361-378 (Cited in full in n. 6.)

<sup>25</sup>Bell, P.R., & Jamieson, B.D. "Publicity of initial decisions and the risky shift phenomenon," pp. 329-345 (Cited in full in n. 8.)

<sup>26</sup>Kogan, N. & Wallach, M.A. "Risk taking as a function of the situation, the person, and the group," pp. 423-426 (Cited in full in n. 18.)

<sup>27</sup>Lamm, H. "Will an isolated individual advise higher risk taking after hearing a discussion of the decision problem?" Journal of Personality and Social Psychology, 1967, 6, pp. 467-471.

<sup>28</sup>St. Jean, R. "Reformulation of the value hypothesis in group risk-taking," Proceedings of the 78th Annual Convention of the American Psychological Association, 1970, 5, pp. 339-340, (Summary).

nitude of the shift tends to be smaller than for participants.

From these findings it must be concluded that explicit group discussion is not required for individual choice shifts to occur. As Cartwright points out, "Although the research demonstrates that mere exposure to the content of a group discussion can produce a shift, it does not reveal what features of the discussion are responsible for its occurrence." <sup>29</sup>

These findings provided the impetus for research into the factors which induce shifts in groups and for research which hoped to identify the individuals within the groups who made the most pronounced changes. Castore and Roberts<sup>30</sup> used three groups - those who saw themselves as riskier (R), the same as (S), or more cautious (C) than their peers. The risky shift of groups was found to be primarily attributable to subjects in the (C) group. It may be that cautious subjects, once they become aware of their relative risk-taking position in the group, are most likely to change in order to maintain a positive self-concept.

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<sup>29</sup>Cartwright, D. "Risk taking by individuals and groups: An assessment of research employing choice dilemmas," p. 365, (Cited in full in n. 6.)

<sup>30</sup>Castore, C.H. & Roberts, J.C. "Subjective estimates of our relative riskiness and risk taking following a group discussion," pp. 107-120, (Cited in full in n. 9.)

Several reports indicate that people admire risky choice and that they view risk-taking and ability to be closely related.<sup>31,32,33,34</sup> In another study by Clark, Crockett, and Archer<sup>35</sup> a significant risky shift was found only for subjects who perceive themselves to be at least as risky as their peers. Though not reported, a competitive element may have been present within the group. An analysis of the qualities of the various group interactions seems necessary to explain these apparent contradictions.

Because most early research into choice shifts used group discussions it was assumed that in some way the group

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<sup>31</sup>Madaras, G.P. & Bem, D.J. "Risk and conservatism in group decision making," Journal of Experimental Social Psychology, 1968, 4, pp. 350-366.

<sup>32</sup>Jellison, J.M. & Riskind, J.A. "A social comparison of abilities interpretation of risk-taking behavior," Journal of Personality and Social Psychology, 1970, 15, pp. 375-390.

<sup>33</sup>Jellison, J.M. & Riskind, J. "Attribution of risk to others as a function of their ability," Journal of Personality and Social Psychology, 1971, 20, pp. 413-415.

<sup>34</sup>Levinger, G. & Schneider, D.J. "Test of the 'risk is a value' hypothesis," Journal of Personality and Social Psychology, 1969, 11, pp. 165-170.

<sup>35</sup>Clark, R.D. III, Crockett, W.H., & Archer, R.L. "Risk-as-value hypothesis: The relationship between perception of self, others, and the risky shift," Journal of Personality and Social Psychology, 1971, 20, pp. 425-429.

itself induced individuals within the group to change their levels of risk. Later research began to focus on the elements of group interaction to explain the observed shifts. Cartwright, in an extensive review of the available literature, concludes that the evidence gives little support to the idea that group discussion alone, irrespective of its content, leads to riskier behavior. Many researchers had subjects engage in neutral activity (activity not related to the experimental procedure) between testings. The results uniformly show no significant differences in means between first and second sets of scores. Shifts, then, cannot be attributed simply to some omnibus group process or to repeated experience with the choice dilemma items.<sup>36</sup>

If choice shifts cannot be explained solely by group interaction per se, then perhaps the shifts are due to some discrete component of the interaction. Several investigators have explored the importance of information exchange as the relevant factor in choice shifts. In cases where information about others initial choices are exchanged in a group setting it was found that the information does not dependably produce

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<sup>36</sup>Cartwright, D. "Risk taking by individuals and groups: An assessment of research employing choice dilemmas," pp. 361-378, (Cited in full in n. 6.)

shifts as large as those generated by free discussion with or without group decision.<sup>37,38,39,40,41,42</sup>

Because of the profusion of studies now available on the subject of choice shifts various theories have been advanced to explain what occurs and why. The following section of this chapter will present the theories which have been proposed to account for choice shifts. Evidence pertinent to these theories will also be presented.

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<sup>37</sup>Bell, P.R., & Jamieson, B.D. "Publicity of initial decisions and the risky shift phenomenon," pp. 329-345, (Cited in full in n. 8.)

<sup>38</sup>Clark, R.D. III, Crockett, W.H., & Archer, R.L. "Risk-as-value hypothesis: The relationship between perception of self, others, and the risky shift," pp. 425-429, (Cited in full in n. 35.)

<sup>39</sup>St. Jean, R. "Reformulation of the value hypothesis in group risk-taking," pp. 339-340, (Cited in full in n. 28.)

<sup>40</sup>Stokes, J.P. "Effects of familiarization and knowledge of others' odds choices on shifts to risk and caution," Journal of Personality and Social Psychology, 1971, 20, pp. 407-412.

<sup>41</sup>Teger, A.I. & Pruitt, D.G. "Components of group risk-taking," Journal of Experimental Social Psychology, 1967, 3, pp. 189-205.

<sup>42</sup>Wallach, M.A., & Kogan, N. "The roles of information, discussion, and consensus in group risk-taking," Journal of Experimental Social Psychology, 1965, 1, pp. 1-19.

### FAMILIARIZATION THEORY

This theory was advanced by Bateson<sup>43</sup> who felt that a risky shift occurred because of group members increased familiarity with the items under discussion. He reasoned that familiarity with the items should lead to higher levels of risk due to a "general reduction in uncertainty." In order to test his assumption, Bateson compared two treatment conditions. The first condition was group discussion in which subjects were asked to note all points for and against a given decision. In the second condition subjects were asked to write briefs about the points for and against the central characters' decision on the Choice-Dilemma items. He found shifts of equivalent size in both groups and took this as support for his theory. Flanders and Thistlethwaite<sup>44</sup> successfully replicated these findings.

Other attempts to replicate Bateson's findings have been unsuccessful. Dion and Miller<sup>45</sup> report that familiarization

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<sup>43</sup>Bateson, N. "Familiarization, group discussion, and risk-taking," pp. 119-129, (Cited in full in n. 7.)

<sup>44</sup>Flander, J.P. & Thistlethwaite, D.L. "Effects of familiarization and group discussion upon risk-taking," Journal of Experimental Social Psychology, 1967, 5, pp. 91-98.

<sup>45</sup>Dion, K.L. & Miller, N. "An analysis of the familiarization exploration of the risky-shift," Journal of Experimental Social Psychology, 1971, 7, pp. 524-533.

with the task neither underlies increased risk-taking produced by group discussion nor independently increases risk-taking in socially isolated individuals.

#### DIFFUSION OF RESPONSIBILITY THEORY

This theory explains shifts by assuming that the group reduces an individual's anxiety about the possible negative consequences of making high risk choices. Supposedly this occurs because potential negative outcomes can be psychologically "diffused" from one group member to the rest of the group.<sup>46,47,48,49</sup>

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<sup>46</sup>Bem, D.J., Wallach, M.A., & Kogan, N. "Group decision-making under risk of aversive consequences," Journal of Personality and Social Psychology, 1965, 1, pp. 454-460.

<sup>47</sup>Kogan, N. & Wallach, M.A. "Risk taking as a function of the situation, the person, and the group," pp. 423-426, (Cited in full in n. 18.)

<sup>48</sup>Wallach, M.A., Kogan, N., & Bem, D.L. "Diffusion of responsibility and level of risk-taking in groups," pp. 263-274, (Cited in full in n. 10.)

<sup>49</sup>Wallach, M.A., Kogan, N., & Burt, R. "Group risk-taking and field dependence-independence of group members," Sociometry, 1967, 30, pp. 323-339.



Kogan and Wallach<sup>50</sup> assessed subjects anxiety levels as well as their initial risk-taking disposition. A follow-up administration of the Choice-Dilemmas Questionnaire showed that individuals who were rated as anxious displayed the greatest shift toward risk in the group situation. They conclude that the group context provides the opportunity for anxiety reduction. These results are consistent with the "Diffusion of Responsibility Theory."

Most experimental groups are formed exclusively for research and so have no history and no future. In a study of natural friendship groups, the findings suggest that high cohesiveness and affective bonds between members of a group may inhibit a risky shift.<sup>51</sup> It is hypothesized that strong bonds of friendship may make individuals less willing to "blame" their co-members for the possible negative consequences of an advocated action. Pruitt cites research about subjects observing but not participating in group discussions and states:

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<sup>50</sup>Kogan, N., & Wallach, M.A. "Group risk taking as a function of members' anxiety and defensiveness levels," Journal of Personality, 1967, 35, pp. 50-63.

<sup>51</sup>Dion, K.L., Miller, N., & Magnan, M.A. "Cohesiveness and social responsibility as determinants of group risk taking," Journal of Personality and Social Psychology, 1971, 20, pp. 400-406.

"It is hard to see how a subject can place the blame for the outcomes of his decisions on persons with whom he has had no interaction."<sup>52</sup>

### LEADERSHIP THEORY

The advocates of leadership theory explain choice shifts as the result of the persuasiveness of certain members in the group discussion.<sup>53,54</sup> Empirical tests of this theory found that group members perceive the high risk-takers in the group as having been most influential in the discussion.<sup>55,56</sup>

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<sup>52</sup>Pruitt, D.G. "Choice shifts in group discussions: An introductory review," p. 345, (Cited in full in n. 5.)

<sup>53</sup>Collins, B.E. & Guetzkow, H.A. A social psychology of group processes for decision-making, pp. 110-118, (Cited in full in n. 14.)

<sup>54</sup>Marquis, D.G. "Individual responsibility and group decisions involving risk," pp. 8-23, (Cited in full in n. 15.)

<sup>55</sup>Wallach, M.A., Kogan, N., & Bem, D.J. "Group influences on individual risk-taking," pp. 75-86, (Cited in full in n. 4.)

<sup>56</sup>Wallach, M.A., Kogan, N., & Burt, R. "Can group members recognize the effects of group discussion upon risk-taking?," Journal of Experimental Social Psychology, 1965, 1, pp. 379-395.

Brown<sup>57</sup> and Rabow, Fowler, Bradford, Hofeller, and Shibuva<sup>58</sup> obtained comparable results when cautious shifts occurred. In these instances the more cautious individuals were perceived by other group members as most influential in the discussion. However, it cannot be assumed that some global rating of a person's influence in a group could explain these findings since it has been reported that high risk-takers (as measured by the Choice-Dilemmas Questionnaire) are not viewed by fellow group members as more influential in discussions of risk-neutral decision problems.<sup>59,60</sup> It may be that subjects view the highest risk-takers as particularly influential because they have shifted toward him rather than

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<sup>57</sup>Brown, R. Social psychology (New York: Free Press of Glencoe, 1965, pp. 219-222.

<sup>58</sup>Rabow, J., Fowler, F.J., Jr., Bradford, D.L., Hofeller, M.A., & Shibuva, Y. "The role of social norms and leadership in risk-taking," Sociometry, 1966, 29, pp. 16-27.

<sup>59</sup>Clausen, G. "Risk taking in small groups" (unpublished doctoral dissertation, University of Michigan, 1965).

<sup>60</sup>Wallach, M.A., Kogan, N., & Burt, R. "Are risk takers more persuasive than conservatives in group decisions?," Journal of Experimental Social Psychology, 1968, 4, pp. 76-89.

because he was particularly influential. The same could apply to low risk-takers when cautious shifts occur.<sup>61</sup>

Another Leadership Theory, called the "Leadership-Confidence Theory" has been proposed by Burnstein.<sup>62</sup> He believes that people who take a high risk position on any given item are more confident in their positions than other group members and that this confidence is expressed in greater assertiveness and therefore greater influence during group discussion.

A third variation of Leadership Theory has been proposed by Kelley and Thibaut.<sup>63</sup> They hypothesize that the structure of our language makes arguments for risk more dramatic and inherently more persuasive than arguments advanced for cautious choices. They speculate that a large risky shift may be obtained when people are permitted to argue for their positions.

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<sup>61</sup>Pruitt, D.G. "Choice shifts in group discussions: An introductory review," pp. 339-360, (Cited in full in n. 5.)

<sup>62</sup>Burnstein, E. "An analysis of group decisions involving risk ('the risky shift')," Human Relations, 1969, 22, pp. 381-395.

<sup>63</sup>Kelley, H.H. & Thibaut, J.W. "Group problem solving," In G. Lindzey & E. Aronson (Eds.), Handbook of social psychology, Vol. 4 (2nd ed.; Cambridge, Mass.: Addison-Wesley, 1969) pp. 427-432.

### VALUE THEORY

While several different versions of Value Theory have been formulated, they all share in common the assumption that groups shift in the direction toward which most of the individual members are already attracted. Value Theories have attempted to identify the moving force behind the choice shifts. Clark and Willems,<sup>64</sup> Pruitt and Teger,<sup>65</sup> and Teger and Pruitt<sup>66</sup> all identified a high positive correlation between average initial risk and the amount of shift toward risk. That is, individuals who demonstrated an initially high risk-taking disposition moved to even higher levels of risk following group discussion. When considering Choice-Dilemma items separately, subjects tend to take an initially riskier approach to items that shift to even riskier levels as compared

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<sup>64</sup>Clark, R.D. III, & Willems, E.P. "Risk preferences as related to judged consequences of failure," Psychological Reports, 1969, 25, pp. 827-830.

<sup>65</sup>Pruitt, D.G., & Teger, A.I. "Is there a shift toward risk in group discussion? If so, is it a group phenomenon? If so, what causes it?" Paper presented at the meeting of the American Psychological Association (Washington, D.C., September, 1967.)

<sup>66</sup>Teger, A.I. & Pruitt, D.G. "Components of group risk-taking," pp. 189-205, (Cited in full in n. 41.)

to items that shift toward caution.<sup>67,68</sup>

The most popular version of Value Theory was proposed by Brown<sup>69</sup> and is called the "Risk-As-Value Social Comparison Theory." Brown as well as Carlson and Davis<sup>70</sup> believe riskiness to be a culturally prescribed value that makes people want to function at a level of risk at least as high as that of other people. Therefore, it is predicted that individuals choose a level of risk that is at or beyond the average of the group.

If Brown's theory is valid, Vidmar concluded that a heterogeneous group (as defined by initial risk levels of the individual members) should show a larger shift than an homogeneous group. This hypothesis was supported by Vidmar's data

<sup>67</sup>Fraser, C., Gouge, C., & Billig, M. "Risky shifts, cautious shifts, and group polarization," European Journal of Social Psychology, 1970, 1, pp. 7-30.

<sup>68</sup>Stoner, J.A.F. "Risky and cautious shifts in group decisions: The influence of widely held values," Journal of Experimental Social Psychology, 1968, 4, pp. 442-459.

<sup>69</sup>Brown, R. Social psychology (New York: Free Press of Glencoe, 1965) pp. 387-401.

<sup>70</sup>Carlson, J.A. & Davis, C.M. "Cultural values and the risky shift: A cross-cultural test in Uganda and the United States," Journal of Personality and Social Psychology, 1971, 20, pp. 392-399.

as well as the study by Clark.<sup>71,72</sup> Both of these studies compared average change scores between homogeneous and heterogeneous groups. Other studies have demonstrated that individuals believe that other people make more cautious decisions than themselves on Choice-Dilemma items.<sup>73,74,75</sup> Baron, Dion, Baron, and Miller<sup>76</sup> revealed that subjects were aware of the culturally valued level of risk. When they conformed in the "non-valued" direction they did so despite their desire to deviate in a culturally valued direction.

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<sup>71</sup>Vidmar, N. "Group composition and the risky shift," Journal of Experimental Social Psychology, 1970, 6, pp. 153-166.

<sup>72</sup>Clark, R.D. III. "Group-induced shift toward risk: A critical appraisal," Psychological Bulletin, 1971, 76, pp. 251-270.

<sup>73</sup>Levinger, G. & Schneider, D.J. "Test of the 'risk is a value' hypothesis," pp. 165-170, (Cited in full in n. 34.)

<sup>74</sup>Pruitt, D.G. & Teger, A.I. "Is there a shift toward risk in group discussion? If so, is it a group phenomenon? If so, what causes it?" (Cited in full in n. 65.)

<sup>75</sup>Wallach, M.A. & Wing, C.W. Jr. "Is risk a value?," Journal of Personality and Social Psychology, 1968, 9, pp. 101-106.

<sup>76</sup>Baron, R.S., Dion, K.L., Baron, P.H., & Miller, N. "Group consensus and cultural values as determinants of risk taking," Journal of Personality and Social Psychology, 1971, 20, pp. 446-455.

Pruitt and Teger thought that the minimum variable necessary for shift to occur would be information about others' choices. Discussion in groups was not essential if Brown's position is valid. They did, in fact, find a risky shift after information exchange but not as large as after discussion. This led them to propose a two-process theory in which social comparison accounts for part of the shift and discussion for the rest.

In 1932 Schanck described situations in which members within a group embraced one attitude but believed that others held another. This behavior was called "pluralistic ignorance."<sup>77</sup> In 1969 Levinger and Schneider proposed this as a way to explain choice shifts. They said that the individual is in conflict between what he wants and the "assumed group standard"; his final choice is a compromise between these two positions.<sup>78</sup> "In the standard experimental paradigm, group discussion reveals other peoples' choices which may lead to a readjustment of the assumed group standard and, as a result, a shift in the individuals' decision...Group discussion should

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<sup>77</sup>Schanck, R.L. "A study of a community and its groups and institutions conceived of as behaviors of individuals," Psychological Monographs, 1932, 43, (2, Whole No. 195).

<sup>78</sup>Levinger, G. & Schneider, D.J. "Test of the 'risk is a value' hypothesis," pp. 165-170, (Cited in full in n. 34.)



reveal more social support for risk-taking than anticipated and thus allow the individual to move toward greater risk."<sup>79</sup>

"Release Theory" is another of the family of Value Theories. It holds that an individual perceives risk-taking as attractive but responds more cautiously than he would prefer because of the widely held respect for moderation. The individual is responding then to "perceived group norms." In group discussion the person may become aware of another individual who is a higher risk taker than he. This "role model" literally releases the individual from previously assumed social restraints.<sup>80</sup>

The idea of "release" is similar to the research of Asch<sup>81</sup> on conformity in judgements and Wheeler's<sup>82</sup> concept of behavioral contagion. These positions hold that individuals may behave in a manner that is contrary to their belief and/or value systems. It is some form of "social pressure" which

<sup>79</sup>Pruitt, D.G. "Choice shifts in group discussion: An introductory review," p. 349, (Cited in full in n. 5.)

<sup>80</sup>Pruitt, D.G. "The 'Walter Mitty' effect in individual and group risk-taking," pp. 425-426, (Cited in full in n. 11.)

<sup>81</sup>Asch, S. Social psychology (New York: Prentice-Hall, 1952), pp. 267-269.

<sup>82</sup>Wheeler, L. Interpersonal influence (Boston: Allyn & Bacon, 1970), pp. 54-55.

may keep an individual from behaving as he wishes. The presence of a single "role model" who behaves as the subject himself wishes to behave seems to remove inhibitions and allows these preferred behaviors to be expressed openly.

Two further positions may be taken together as "Relevant Arguments - Commitment Theory." It is proposed that group discussion allows the individual to move further in the direction of the values to which he is already committed.<sup>83</sup>

Nordhøy<sup>84</sup> and Silverthorne<sup>85</sup> determined that in group discussion more statements were presented in favor of risk than caution when a shift toward risk occurred. In attempting to explain these results, Pruitt hypothesized that there might be two mechanisms at work: "(a) People voice arguments that express their own values, and (b) people reward others for expressing such arguments."<sup>86</sup> Silverthorne concluded that the relevant

<sup>83</sup>Moscovici, S. & Zavalloni, M. "The group as a polarizer of attitudes," Journal of Personality and Social Psychology, 1969, 12, pp. 125-135.

<sup>84</sup>Nordhøy, F. "Group interaction in decision-making under risk" (unpublished master's thesis, School of Industrial Management, Massachusetts Institute of Technology, 1962).

<sup>85</sup>Silverthorne, C.P. "Information input and the group shift phenomenon in risk-taking," Journal of Personality and Social Psychology, 1971, 20, pp. 456-461.

<sup>86</sup>Pruitt, D.G. "Choice shifts in group discussions: An introductory review," p. 355, (Cited in full in n. 5.)

information that emerges in group discussion is what causes the group to shift its risk responses.

In all, Value Theories are the most popular way of explaining the choice shift phenomenon. Pruitt points out that there is considerable evidence to support the position that choice shift is an intensification of attitude rather than a shift on some subjective dimension. Consideration of shift as change in attitude is consistent with all existing theories of this phenomenon.

While research into choice shifts is extensive, no definitive explanations have been proposed that would encompass all of the results. It may well be that the phenomenon is infinitely complex and so cannot be clarified by a unidimensional position. It is likely that at least a two factor level of explanation will be required to clarify the determinants of choice shift. This implies that change in risk-taking disposition will be understood only when the multiple influences leading to this change can be identified.

The following chapter will present the specific procedures to be used in testing the various hypotheses under consideration.



# CHAPTER THREE

## METHODS AND PROCEDURES

An experimental procedure was designed to test the several research hypotheses listed in the first chapter. These hypotheses and equivalent statistical predictions are presented in Table 1.

TABLE 1  
THE RESEARCH HYPOTHESES AND EQUIVALENT  
STATISTICAL PREDICTIONS

Research Hypotheses	Statistical Predictions
H-1: Subjects in test-retest control groups should show a significant choice shift between the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions are applied.	P-1: A significant difference will be found between the mean score on the first administration and the mean score on the second administration of the Choice-Dilemmas Questionnaire when no experimental manipulations occur.
H-2: Control subjects who are initially rated as low risk-takers will show a greater shift between the first and second administration of the Choice-Dilemmas Questionnaire than will high risk control subjects.	P-2: A significant difference will be found between the mean change scores for the high risk control group and the low risk control group.

TABLE 1 - Continued

Research Hypotheses	Statistical Predictions
<p>H-3: Subjects should change their responses in the direction of the risk levels held by a person in whom they have confidence.</p>	<p>P-3: Subjects who receive a risk message from a communicator in whom they have confidence will show significantly more change than subjects who receive the same message attributed to a low confidence communicator.</p>
<p>H-4: High risk-taking subjects and low risk-taking subjects are not influenced in the same way by identical treatment conditions.</p>	<p>P-4: A significant difference will be found between the mean change scores for high risk subjects and the mean change scores for low risk subjects when given identical experimental conditions.</p>
<p>H-5: Both high and low risk-taking subjects will show more shift in the direction of a high confidence communicator than one in whom they have less confidence.</p>	<p>P-5: Regardless of subjects' initial risk-taking disposition, a significant difference will be found between mean change scores when the independent variable of confidence in communicator is varied.</p>
<p>H-6: High risk-taking subjects will show less change in level of risk taking than will low risk-taking subjects when presented with information from a communicator in whom they have confidence.</p>	<p>P-6: When presented with the same risk message attributed to a high confidence communicator, a significant difference between mean change scores for high risk and low risk subjects will occur.</p>

TABLE 1 - Continued

Research Hypotheses	Statistical Predictions
<p>H-7: When high risk-taking subjects receive a high risk level message they should become even riskier. When low risk-taking subjects receive a low risk message they should become less risky.</p>	<p>P-7: Subjects who receive a risk message that is consistent with their initial risk-taking disposition will demonstrate significantly different mean change scores in that same direction between the first and second administration of the Choice-Dilemmas Questionnaire.</p>
<p>H-8: When high risk-taking subjects are presented with a low risk message they will become less risky. When low risk-taking subjects are presented with a high risk-taking message they will become riskier.</p>	<p>P-8: When subjects receive a risk message that is in opposition to their own initial risk-taking disposition, they will show statistically significant movement in the direction of the message.</p>

In order to conduct the experiment it was necessary to first establish the type of person in whom the subjects had reported confidence. Operationally, the term confidence refers to a subject's valuation of assistance in making decisions. Procedure One which is discussed below, was conducted to determine relative confidence in persons whose career titles indicate that they are involved in "helping professions." Procedure Two details the actual experimental techniques upon which this study is based.

### PROCEDURE ONE

This procedure was designed to establish those persons whose advice the subjects reported they would value when faced with the necessity of making important life decisions. Subjects: Ninety undergraduate students served as subjects. They were all attending a midwestern Catholic university whose total population is about 3,000. Male (60%) and female (40%) students were included. The subjects came from the College of Arts and Sciences (71%), the College of Nursing (22%), and the College of Business Administration (7%). The subjects were enrolled in lower division psychology courses. These courses were elective for all students except those registered in the College of Nursing. Since the rating scale was administered during the first week of the semester, subjects were considered to be relatively unsophisticated in their understanding of research techniques. These same subjects were included in the sample used to test the main hypotheses.

Materials: A rating scale was used in which subjects were asked to assume that they were being faced with various important life decisions to be made. A dilemma existed because success was not guaranteed with any of the alternatives.

A list of resource persons was given and they were asked to assume that all of these people were equally available

for consultation in assisting them in making their decisions. A complete copy of the rating scale administered to these 90 subjects appears in Appendix A, p. 92.

Method: Four weeks prior to the beginning of the actual experiment the rating scale was administered. The subjects were asked to consider the list of resource people available to them and to rank them in order of degree of confidence they had in their ability to offer assistance in making decisions. The rank of one was to be assigned to the person in whom they had the most confidence and the rank of five was to be assigned to the person in whom they had least confidence. Each of the titles was to receive a rank between one and five.

The titles they were asked to rank were: clergyman, fellow student, counseling psychologist, teacher, and physician. Four of these titles were chosen because they are usually considered under the general category of "helping professions." The title "student" was included because of the ordinarily high level of peer interaction in the college population - especially during periods requiring decision-making. The data were analyzed using the Contingency Coefficient (C) which is based on Chi Square.

Results: The observed and expected frequencies of rankings are summarized in Table 2.



TABLE 2

OBSERVED AND EXPECTED FREQUENCIES OF RATINGS FOR THE FIVE TITLES  
USED IN ASSESSING CONFIDENCE IN VARIOUS INDIVIDUALS TO OFFER  
CONSULTATION IN DECISION-MAKING

RANK \ TITLE	Clergyman	Fellow Student	Counseling Psychologist	Teacher	Physician
1	O=9 E=17.8	O=28 E=17.8	O=33 E=17.8	O=11 E=17.8	O=8 E=17.8
2	O=24 E=18	O=10 E=18	O=20 E=18	O=27 E=18	O=17 E=18
3	O=15 E=18	O=18 E=18	O=13 E=18	O=27 E=18	O=17 E=18
4	O=18 E=18.2	O=17 E=18.2	O=11 E=18.2	O=20 E=18.2	O=25 E=18.2
5	O=24 E=18	O=17 E=18	O=13 E=18	O=5 E=18	O=31 E=18

The computed value of Chi Square was 89.55 which is significant beyond the .001 level of confidence. The value of the Contingency Coefficient (C) was .4123. The Contingency Coefficient measures the degree of association between title and rank and the results indicate that rank and title are not spuriously related but that the rank given is related to confidence by label.

The overall rankings for the five titles are summarized in Table 3.

TABLE 3

RELATIVE RANKING OF VARIOUS TITLES BASED ON RESPONSES OF 90 SUBJECTS TO A "CONFIDENCE IN ADVICE" RATING SCALE

RANK	TITLE
4.....	Clergyman
3.....	Fellow Student
1.....	Counseling Psychologist
2.....	Teacher
5.....	Physician

As a group, these 90 students reported that they would have the most confidence in a counseling psychologist and least confidence in a physician when seeking consultation when faced with a series of important life decisions. This information was used in the later experimental manipulation which is detailed below.

## PROCEDURE TWO

The purpose of this procedure was to study some factors which may influence changes in peoples' initial level of risk-taking behavior. We do know that some people are more cautious than others. One individual may require almost guaranteed success before he will change jobs while another will make such a change with much lower odds of success. The first individual can be labeled as a low risk-taker (cautious) while the second individual can be identified as a high risk-taker.

It has been demonstrated that an individual's level of "riskiness" can be modified by external influences. In most previous research some forms of interpersonal interaction; that is, group discussion, has been used as the independent variable. Such studies cannot discriminate the various influences which are present in such interactions. Some of these presumed influences may be the physical stature of the group members, the message they communicate, the prestige of the various individuals, and the forcefulness with which the group members argue for their respective positions. To date, it appears that these variables have not been systematically studied in relation to choice shifts.

In order to minimize the possible confounding interactions of the group discussion approach, the present study

eliminated face-to-face interaction. Instead, subjects were given information and were told the attributed source of this information. It was hoped that the following questions could be answered: 1. Do high risk-takers and low risk-takers respond differently to the risk-levels of messages they receive? That is, are high risk-takers more receptive to high risk messages than low risk-takers? 2. Does the subject's confidence in the source of the message make a difference in his receptivity (and consequent changes) to the message? 3. Is there an interaction between confidence in the source of a message and the risk level attributed to this source? 4. Do high risk-taking subjects and low risk-taking subjects manifest different kinds of responsiveness to the message and the attributed source of the message? These basic questions have been formally stated as hypotheses in the first chapter. The following paragraphs detail the methodology employed to test the hypotheses.

Subjects: Two hundred and five undergraduate male and female students served as subjects. They were enrolled in lower division psychology courses and held declared majors in all departments in the College of Arts and Sciences, the College of Nursing, and the College of Business Administration at a midwestern Catholic university whose enrollment is about

3,000. Ninety of these 205 subjects had served in the sample for the rating scale outlined in Procedure One.

Materials: The Choice-Dilemmas Questionnaire developed by Kogan and Wallach was used to measure the risk-taking disposition of the subjects. A complete copy of the instrument appears in Appendix B, p. 93.

Method: The Choice-Dilemmas Questionnaire was administered to the subjects during a regularly scheduled class period. They were given no advance announcement that this project was to be conducted. The Questionnaire was administered to the subjects who were asked to respond to all items according to the instructions listed on the cover sheet. To insure clarity, the experimenter read the instructions aloud before the subjects began work.

After the questionnaires had been collected they were scored. To determine the overall score for each subject the following standard scoring procedure was employed: each item was given the odds preference reported by the subject. For example, if the subject chose the response of five chances in ten on item one he was credited with five points. The point values for the 12 items were summed to give a unitary score. The lowest possible score was 12 and the highest possible score was 120. A low score indicated a high risk-taking disposition and a high score indicated a low risk-taking dispo-

sition. The subjects were then divided into either the A) high risk category or the B) low risk category. The median was the measure of central tendency employed. Subjects in the high risk-taking category and subjects in the low risk-taking category were then randomly assigned to one of the ten experimental groups listed in Table 4.

TABLE 4

A LISTING OF THE EXPERIMENTAL GROUPS AND THE CONDITIONS TO BE ADMINISTERED DURING THE SECOND PHASE OF THE EXPERIMENT

Group	Subjects Initial Risk Level	Risk Level Of Message To Be Received	Confidence Level Of Attributed Source Of Message
A	High	High	High
B	High	High	Low
C	High	Low	High
D	High	Low	Low
E	High	Control Group Test - Re-Test	
F	Low	High	High
G	Low	High	Low
H	Low	Low	High
I	Low	Low	Low
J	Low	Control Group Test - Re-Test	

Once the subjects had been assigned to the various experimental groups the Choice-Dilemmas Questionnaire was modified (See Appendix C, p.102). This questionnaire was identical to the one used during the first data collection session except that the subjects were given information about the choices supposedly made by either a counseling psychologist (high confidence condition) or a physician (low confidence condition). The information reflected either high risk choices or low risk choices. The high risk and low risk protocols were taken from actual subject responses obtained during the first administration of the Choice-Dilemmas Questionnaire.

Two weeks after the first administration of the questionnaire each of the 205 subjects received the second (experimental) form of the questionnaire in a sealed envelope with his or her name at the top. The subjects were asked to read the directions carefully since they differed from the first administration. The directions instructed them to re-read the choice situations and to place themselves in the position of the central person in each. They were then asked to consider the responses made by either the counseling psychologist or the physician and, taking this information into account, to respond a second time to the questionnaire. The subjects in the control groups were simply asked to respond to the original questionnaire a second time.

After the questionnaires from the second administration were scored, a "change score" was computed by taking the difference between the risk level scores from the first and second administrations of the questionnaire. The amount and direction of change were the factors of major concern. The data were analyzed using two 2x2 analyses of variance and eight t-tests. Duncan's Multiple Comparisons Tests were employed to analyze any interaction effects which existed. In addition, 10 direct difference t-tests for correlated means were used to test for significant movement between the first and second administration of the questionnaire for each of the groups.

The results of these analyses are presented in the following chapter.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

Before considering other analyses, it was necessary to determine if repeated exposure to items on the questionnaire was a sufficient condition to elicit significant change in risk-taking scores. To determine the effects of repeated exposure two control groups were employed. Group E was composed of subjects who initially demonstrated a high risk-taking disposition while Group J was composed of subjects with an initially low risk-taking disposition. All of the subjects in these two control groups were given identical questionnaires during both data collection sessions.

The mean value of the change scores for Group E (high risk controls) was 0.20. Using the direct difference  $t$ -test for correlated means, the  $t$ -ratio was not significant ( $t=0.07$ ;  $df=19$ ). For the low risk control Group J, the mean value of the change scores was 7.52. The direct difference  $t$ -test for correlated means yielded a significant difference between the .05 and the .01 level of confidence ( $t=2.60$ ;  $df=20$ ). These results indicate that subjects who have initially high risk levels do not seem to change their reported dispositions with the passage of time. However, subjects with an initially low risk level tend to manifest significant movement toward higher

levels of risk over time even without any experimental intervention. The implications of these and other results reported here will be discussed in the second section of this chapter.

The next question to be considered was whether the amount of change in the experimental groups differed significantly from the amount of change exhibited by the two control groups and whether the two control groups differed from each other in the amount of change noted. To make these comparisons, nine t-tests for uncorrelated means were conducted. The results are reported in Table 5.

TABLE 5

RESULTS OF COMPARISONS BETWEEN CONTROL GROUPS AND  
EXPERIMENTAL GROUPS AND BETWEEN THE TWO CONTROL GROUPS

Groups Compared	N	<u>t</u> -Ratio	Probability
A&E	41	3.57	beyond .01
B&E	41	2.92	beyond .01
C&E	41	3.37	beyond .01
D&E	41	3.63	beyond .01
F&J	41	1.70	less than .05
G&J	41	1.37	less than .05
H&J	41	4.65	beyond .01
I&J	41	3.95	beyond .01
E&J	41	1.77	less than .05

When subjects with a high risk-taking disposition (experimental Groups A through D) are compared to high risk control subjects (Group E) the results indicate that the experimental groups showed a significant difference in the amount of change when compared to controls. It may be concluded that one or more of the experimental variables account for this change.

When comparing the low risk subjects (experimental Groups F through I) with their controls (Group J), the results indicate that Groups F and G do not differ from Group J in the amount of change they show. However, Groups H and I do differ significantly from Group J. When comparing the change scores of the two control groups (E and J), no significant difference is noted. On the basis of the t-tests alone it is not possible to sort out the influences which produce this pattern.

Three factors may be responsible for the changes noted in both the high risk-taking subjects and the low risk-taking subjects. These factors are: 1.) the risk level of the message they received during the second administration of the Choice-Dilemmas Questionnaire; 2.) the attributed source of the message (either high or low confidence communicator as determined by the pre-experimental rating scale); 3.) an interaction between confidence and risk level of message.

To determine the relative influence of these factors two 2x2 analyses of variance were computed - one for the high risk experimental subjects (Groups A through D) and one for the low risk experimental subjects (Groups F through I). The results of the analysis of variance for the high risk subjects are summarized in Table 6.

TABLE 6

RESULTS OF THE 2x2 ANALYSIS OF VARIANCE FOR HIGH RISK-TAKING SUBJECTS IN EXPERIMENTAL GROUPS A THROUGH D

Source	SS	df	MS	F	Probability
Total	32598.42	83	-	-	-
Risk	17516.30	1	17516.30	93.63	beyond .01
Confidence	102.96	1	102.96	0.55	less than .05
Risk x Confidence	11.44	1	11.44	0.06	less than .05
Error	14967.72	80	187.09	-	-

It is evident that the change which occurs among high risk-taking subjects, when the variables of risk level of message and confidence in communicator are varied, is due to the risk level of the message. That is, for subjects with an initially high risk-taking disposition the changes which occur

are due to the risk level of the message itself. The confidence they have in the communicator of the message does not appear to have an effect. There is no interaction between risk level of message and confidence in communicator for high risk-taking subjects.

The analysis of variance technique yields an overall result of the relationship between rows and columns in a factorial design but not between individual cells. In order to determine which of the high risk groups actually were influenced by the risk level of the message Duncan's Multiple Comparisons Test was utilized. The results of this procedure are summarized in Table 7.

TABLE 7

RESULTS OF DUNCAN'S MULTIPLE COMPARISONS TEST FOR HIGH RISK  
EXPERIMENTAL GROUPS A THROUGH D\*

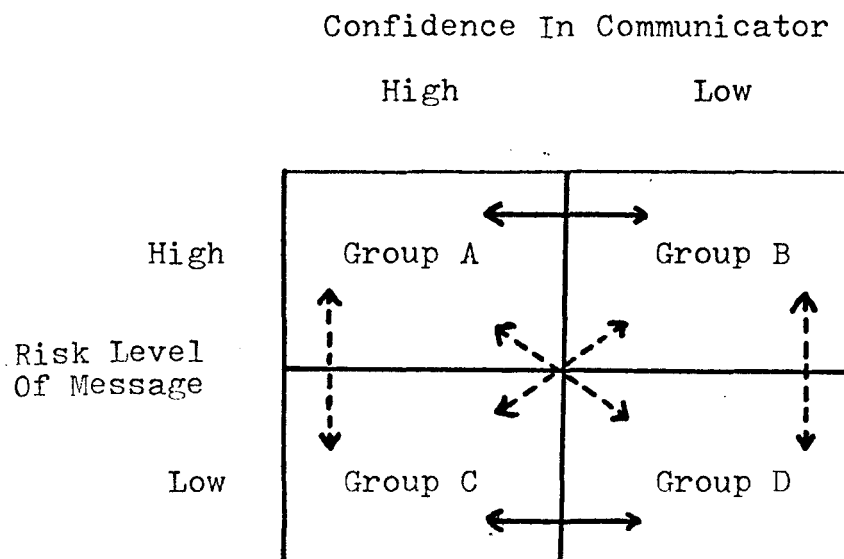
Groups	$\bar{X}_1 - \bar{X}_2$	Ranks	Range	.05	.01	Probability
A <u>vs</u> B	2.90	4 <u>vs</u> 3	R <sub>2</sub>	8.43	11.21	less than .05
A <u>vs</u> C	29.62	4 <u>vs</u> 2	R <sub>3</sub>	8.87	11.69	beyond .01
A <u>vs</u> D	31.10	4 <u>vs</u> 1	R <sub>4</sub>	9.16	12.01	beyond .01
B <u>vs</u> C	26.67	3 <u>vs</u> 1	R <sub>2</sub>	8.43	11.21	beyond .01
B <u>vs</u> D	28.15	3 <u>vs</u> 1	R <sub>3</sub>	8.87	11.69	beyond .01
C <u>vs</u> D	0.45	2 <u>vs</u> 1	R <sub>2</sub>	8.43	11.21	less than .05

\* Group A -  $\bar{X}=74.00$ , Rank=4; Group B -  $\bar{X}=71.05$ , Rank=3; Group C -  $\bar{X}=44.38$ , Rank=2; Group D -  $\bar{X}=42.90$ , Rank=1

Duncan's Test demonstrates, as does the analysis of variance, that the factor which accounts for changes in scores on the Choice-Dilemmas Questionnaire is the risk level of the message which the subjects receive. For subjects with an initially high risk-taking disposition the following conclusions can be drawn: 1.) regardless of the confidence in the communicator of the message, subjects who receive high risk messages will move to higher levels of risk, 2.) regardless of the confidence in the communicator of the message, subjects who receive a low risk message will become more cautious. These relationships are presented graphically in Figure 1.

FIGURE 1

GRAPHIC REPRESENTATION OF THE RELATIONSHIPS BETWEEN  
CONFIDENCE IN COMMUNICATOR AND RISK LEVEL OF MESSAGE  
FOR HIGH RISK-TAKING SUBJECTS IN GROUPS A THROUGH D\*



\* Solid lines (  $\longleftrightarrow$  ) indicate non-significant differences between groups. Broken lines (  $\longleftrightarrow$  ) indicate a significant difference between groups.

A 2x2 analysis of variance was also computed for subjects with an initially low risk-taking disposition (Groups F through I). The results of this analysis are summarized in Table 8.



TABLE 8

RESULTS OF THE 2x2 ANALYSIS OF VARIANCE FOR LOW RISK-  
TAKING SUBJECTS IN EXPERIMENTAL GROUPS F THROUGH I

Source	SS	df	MS	F	Probability
Total	27874.80	79	-	-	-
Risk	11472.05	1	11472.05	53.36	beyond .01
Confidence	45.00	1	45.00	0.21	less than .05
Risk x Confidence	18.05	1	18.05	0.08	less than .05
Error	16339.70	76	214.99	-	-

Like the high risk-taking subjects, the low risk-taking subjects are influenced by the message they receive. The confidence in the communicator of the message does not appear to have an impact. A Duncan's Multiple Comparisons Test was performed in order to determine which of the low risk groups were actually influenced by the risk level of the message. The results are presented in Table 9.

TABLE 9

RESULTS OF DUNCAN'S MULTIPLE COMPARISONS TEST FOR LOW RISK  
EXPERIMENTAL GROUPS F THROUGH I\*

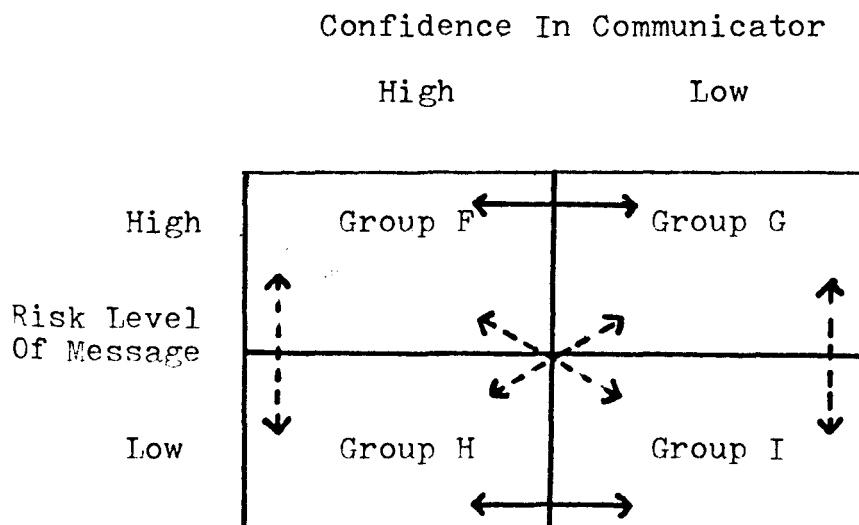
Groups	$\bar{X}_1 - \bar{X}_2$	Ranks	Range	.05	.01	Probability
F <u>vs</u> G	0.55	4 <u>vs</u> 3	R <sub>2</sub>	9.28	12.34	less than .05
F <u>vs</u> H	24.90	3 <u>vs</u> 1	R <sub>3</sub>	9.76	12.86	beyond .01
F <u>vs</u> I	22.45	3 <u>vs</u> 2	R <sub>2</sub>	9.28	12.34	beyond .01
G <u>vs</u> H	24.45	4 <u>vs</u> 1	R <sub>4</sub>	10.08	13.22	beyond .01
G <u>vs</u> I	23.00	4 <u>vs</u> 2	R <sub>3</sub>	9.76	12.86	beyond .01
H <u>vs</u> I	2.45	2 <u>vs</u> 1	R <sub>2</sub>	9.28	12.34	less than .05

\* Group F -  $\bar{X}=74.90$ , Rank=3; Group G -  $\bar{X}=75.45$ , Rank=4; Group H -  $\bar{X}=50.00$ , Rank=1; Group I -  $\bar{X}=52.45$ , Rank=2.

The results for the low risk-taking subjects are similar to those for the high risk-taking subjects. That is, the factor which accounts for changes in scores on the Choice-Dilemmas Questionnaire is the risk level of the message which the subjects received. Low risk-taking subjects who received a high risk message became "riskier" in their responses to the dilemma items and subjects who received low risk messages became more cautious. These relationships exist regardless of the confidence level of the attributed communicator of the message. Figure 2 presents these relationships graphically.

FIGURE 2

GRAPHIC REPRESENTATION OF THE RELATIONSHIPS BETWEEN CONFIDENCE IN COMMUNICATOR AND RISK LEVEL OF MESSAGE FOR LOW RISK-TAKING SUBJECTS IN GROUPS F THROUGH I\*



\* Solid lines (↔) indicate non-significant differences between groups. Broken lines (↔) indicate a significant difference between groups.

When considered separately, the high risk-taking subjects and the low risk-taking subjects seem to be influenced in the same way. That is, both groups respond to the risk level of the message they receive but not to the communicator of the message. However, because both groups of subjects demonstrated initial differences in their risk-taking dispositions it seemed appropriate to test for differences in the amount of change that each group exhibited.

In order to test this question equivalent high risk groups and low risk groups were compared. For example, Group A was composed of high risk-taking subjects who received a high risk message attributed to a high confidence communicator. Group F received the same experimental conditions as Group A. The only difference was that subjects in Group F had an initially low risk-taking disposition. Table 10 summarizes the groups which were compared, lists the experimental conditions which the groups received, and indicates the t-ratio which was used to assess differences in change scores between groups.

TABLE 10

RESULTS OF t-TESTS BETWEEN COMPARABLE HIGH RISK-TAKING  
GROUPS AND LOW RISK-TAKING GROUPS

Groups		Risk Level Of Message	Confidence In Communicator	t-Ratio	Probability
High Risk	Low Risk				
A	F	High	High	0.20	less than .05
B	G	High	Low	0.84	less than .05
C	H	Low	High	1.09	less than .05
D	I	Low	Low	1.81	less than .05

It might be expected that initially low risk-taking subjects who receive a high risk message should evidence more change than initially high risk-taking subjects since there is more latitude for upward movement among low risk-takers. Similarly, since high risk-takers have more room for downward movement than do low risk-takers, greater change ought to be expected among the high risk-taking subjects when a low risk message is presented. The results presented in Table 10 indicate that this expectation is not supported. That is, high risk-taking subjects and low risk-taking subjects, while moving in the same directions, do not differ from each other in the amount of change demonstrated.

This study has been concerned with the measurement of differences between the change scores of the various groups. However, it seemed appropriate to determine if each of the experimental groups showed a significant change in scores between the first and second administration of the Choice-Dilemmas Questionnaire. To test this issue eight additional direct difference  $t$ -tests for correlated means were performed on each of the eight experimental groups. The same test applied to the two control groups has already been reported. These results are summarized in Table 11.

TABLE 11

THE RESULTS OF THE DIRECT DIFFERENCE  $t$ -TEST FOR CORRELATED MEANS FOR THE EIGHT EXPERIMENTAL GROUPS

Group	$\bar{X}_d$	$S_{\bar{X}_d}$	df	$t$ -Ratio	Probability
A	14.00	2.36	20	5.93	beyond .01
B	11.05	2.09	20	5.27	beyond .01
C	15.62	3.55	20	4.40	beyond .01
D	17.10	3.66	20	4.67	beyond .01
F	14.90	3.39	19	4.40	beyond .01
G	15.45	3.64	19	3.64	beyond .01
H	20.00	2.56	19	7.81	beyond .01
I	7.55	2.64	19	2.86	at .01

The results presented above indicate that the subjects in each of the eight experimental groups did, in fact, show a significant change in risk level. The movement that occurred between the first and second administration of the questionnaire was, in all cases, significant at or beyond the .01 level of confidence. These findings are consistent with other research previously reported in the literature.

#### DISCUSSION

The findings obtained for high risk-taking subjects and low risk-taking subjects were in many ways similar. As was reported above, the amount and direction of change for all subjects in experimental groups was essentially equivalent. However, it must be noted that all subjects did not finally arrive at the same level of reported risk preference. Both high and low risk subjects who received high risk messages moved to positions of greater risk. The amount of movement was not significantly different between these groups. Therefore, when a final comparison was made, initially high risk-takers were still "riskier" than were initially low risk-takers.

Similarly, when high and low risk subjects received a low risk message they became more cautious. Again, the amount of movement was not significantly different between these

groups. The initial relative difference between the groups remained unchanged.

It appears that for all subjects, whether initially high risk-takers or initially low risk-takers, the risk level of the message they receive from an attributed communicator has about the same effect. This result fails to confirm Hypothesis IV which predicted that high risk-taking subjects and low risk-taking subjects would not be influenced in the same way by identical treatment conditions.

Patterns are evident which suggest that there are some discrete differences between high risk-taking groups and low risk-taking groups. As was reported earlier, the data was composed of change scores, that is, scores derived by taking the numerical difference between the first and second administration of the questionnaire. While average (mean) change scores did not differ between high risk and low risk groups the dispersion of scores around the mean (variability) did differ.

When considering variability, the results indicate that when subjects receive messages whose risk level is inconsistent with their initial risk-taking disposition the groups become more heterogeneous. In contrast, subjects in groups who receive risk messages congruent with their initial risk-taking disposition remain relatively homogenous. It may be



concluded that while the message has a strong influence on change in response, this influence is not uniform for all subjects. Incongruence between subjects' initial risk-taking disposition and the risk level of the message they receive, while leading to changes in average risk responses, also leads to greater variability. The group whose message is inconsistent with its initial disposition becomes more diffused - has lessened internal consistency. Table 12 lists the experimental conditions, the average change in risk-taking and, the standard deviation for each of the ten groups.

It was further hypothesized that subjects in control groups should show a significant choice shift between the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions were applied. The results indicate that this hypothesis is not supported for subjects who had an initially high risk-taking disposition.

TABLE 12

A LISTING OF EXPERIMENTAL CONDITIONS, THE AVERAGE CHANGE SCORES AND, THE STANDARD DEVIATION FOR EACH OF THE TEN GROUPS\*

Groups	Risk Level Of Message	Level of Confidence In Communicator	$\bar{X}$ Change	Standard Deviation
High Risk	-	-	-	-
A	High	High	74.00	10.57
B	High	Low	71.05	9.35
C	Low	High	44.38	15.68
D	Low	Low	42.90	16.37
E	Control		60.20	13.34
Low Risk	-	-	-	-
F	High	High	74.90	14.76
G	High	Low	75.45	18.48
H	Low	High	50.00	11.16
I	Low	Low	52.45	11.53
J	Control		67.52	12.37

\* The change score was computed by subtracting the raw scores earned on the two administrations of the questionnaire. Since the numerical value of some differences was a negative number a constant (K=60) was added to all difference scores. The difference score with K added is referred to as the "change score."

High risk control subjects in Group E showed virtually no movement with the passage of time. These findings suggest that high risk subjects remain consistent over time.

The same conclusion cannot be drawn for control subjects who manifest an initially low risk-taking disposition. The low risk control subjects in Group J demonstrated a significant shift toward risk with the passage of time. This finding indicates that low risk-taking subjects have a tendency to move to higher levels of risk even without experimental intervention.

When the low risk control group (Group J) was compared to the low risk groups which received a high risk message (Groups F and G) no significant difference was observed in the amount of upward change. This suggests that low risk-takers are, in fact, not substantially influenced by the message. They could be expected to move to higher levels of risk without any experimental intervention at all.

While it was assumed that subjects would change their responses in the direction of the risk levels held by a person in whom they had confidence, this hypothesis was not supported. In none of the groups was the variable of confidence in the attributed communicator of a message responsible for a difference in the amount and direction of change noted. This finding is inconsistent with research findings in

the area of attitude change, an area logically related to the present research.

Perhaps the lack of effect of the communicator variable in the present research is due to the following: the rating scale asked respondents to rank levels of confidence they had in various categories of individuals. The analysis indicated that the title of counseling psychologist received the highest confidence rating while the title of physician received the lowest rating. In the experimental application, these two titles were used outside of the original rating scale context. It may be that the subjects responded to the ascribed status of the two professional titles rather than to the dimension of confidence.

Since both titles usually have high status ratings, it may be that the titles of counseling psychologist and physician did not allow for substantive discrimination in the subjects' perceptual set. If, indeed, subjects were responding to a status dimension during the actual experimental data collection, then perhaps this is the reason for the lack of effect of the variable of attributed communicator of the message.

Hypotheses VII and VIII were supported by the present research. These hypotheses, taken together, state that high risk-taking subjects will become "riskier" when they receive

a high risk message and will become more cautious when they receive a low risk message. Low risk-taking subjects will move to higher levels of risk when given a high risk message and will become even more cautious when given a low risk message.

There were a total of eight hypotheses that were tested in this research. The specific hypotheses and the conclusions drawn about each of them are presented in summary fashion in Table 13.

TABLE 13

A SUMMARY OF THE VARIOUS HYPOTHESES AND THE RESULTS OF THE PROCEDURES USED TO TEST THESE HYPOTHESES

Hypotheses	Results
H-1: Subjects in test-re-test control groups should show a significant choice shift between the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions are applied.	Statistically supported for individuals with an initially high risk-taking disposition.  Not supported for individuals with an initially low risk-taking disposition.
H-2: Control subjects who are initially rated as low risk-takers will show a greater shift between the first and second administration of the Choice-Dilemmas Questionnaire than will high risk control subjects.	Statistically supported by present research findings.

TABLE 13 - Continued

Hypotheses	Results
H-3: Subjects should change their responses in the direction of the risk levels held by a person in whom they have confidence.	Not supported by present research.
H-4: High risk-taking subjects and low risk-taking subjects are not influenced in the same way by identical treatment conditions.	Not supported by present research.
H-5: Both high and low risk-taking subjects will show more shift in the direction of a high confidence communicator than one in whom they have less confidence.	Not supported by present research.
H-6: High risk-taking subjects will show less change in level of risk taking than will low risk-taking subjects when presented with information from a communicator in whom they have confidence.	Not supported by present research.
H-7: When high risk-taking subjects receive a high risk level message they should become even riskier. When low risk-taking subjects receive a low risk message they should become less risky.	Statistically supported by present research findings.

TABLE 13 - Continued

Hypotheses	Results
H-8: When high risk-taking subjects are presented with a low risk message they will become less risky. When low risk-taking subjects are presented with a high risk-taking message they will become riskier.	Statistically supported by present research findings.

In the following chapter the parameters of this project will be summarized. Conclusions based on the results of this study will be presented and recommendations for further research into this topic will be discussed.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### OVERVIEW OF STUDY

From empirical research and everyday observation it has been noted that some people are more cautious than others. It has also been demonstrated that people can influence change in others' level of risk or caution. Therefore, an individual's initial risk-taking disposition can be modified by external influences.

In 1964 Kogan and Wallach developed a questionnaire to assess an individual's general inclination toward risky or cautious preferences in a series of various real life situations. Since its introduction the Choice-Dilemmas Questionnaire has become the standard measurement instrument in research concerning choice shifts.

Most prior research into choice shifts has been directed toward assessing the effects of group discussion on individual's shifts in risk-taking disposition. More recent evidence proved that while discussion enhances the size of the shift, participation in group discussion is not essential for choice shifts to occur.

Assessing the specific factors which lead to choice



shifts as a result of group discussion is difficult because of the many uncontrolled variables involved in face-to-face interaction. It was the purpose of this dissertation to explore changes in level of risk-taking outside the context of group discussion. The factors of specific concern in this research were the effects of the message that a person receives as well as the confidence he has in the communicator of that message.

In order to avoid the multiple influences involved in group discussion, an information exchange model was employed. In information exchange subjects receive information in written form but do not engage in any face-to-face interaction with others.

Four questions were of primary concern in this research:

- 1.) Do subjects with an initially high risk-taking disposition and subjects with an initially low risk-taking disposition respond differently to risk levels of information they receive in an information exchange procedure?
- 2.) Does their confidence in the attributed communicator make a difference in their receptivity, and consequent change, to this message?
- 3.) Are there different interactions between the confidence in the communicator and the risk level attributed to the communicator for high risk-takers and low risk-takers?
- 4.) Do high and low risk-taking subjects show different kinds of

responsiveness to the message and the attributed source of the message?

These and related questions were formulated into the research hypotheses which were formally tested by the experimental procedures.

In order to test these questions a preliminary rating scale to determine confidence in communicators was administered to 90 subjects. Male (60%) and female (40%) University students comprised the sample. The subjects came from Arts and Sciences (71%), Nursing (22%) and, Business Administration (7%). They were enrolled in lower division psychology courses which were elective for all subjects except those enrolled in the College of Nursing. Of the five titles they were asked to rank, the title of counseling psychologist received the highest confidence rating and the title of physician received the lowest rating.

The Choice-Dilemmas Questionnaire was administered to 205 subjects who were enrolled in lower division psychology courses at a private Midwestern university. They came from all departments and colleges within the university. Ninety of these 205 subjects had served in the sample for the rating scale outlined above. After scoring, the subjects were placed into high or low risk-taking categories. The median was the measure of central tendency employed. High and low

risk subjects were then randomly assigned to one of the experimental conditions. A modified Choice-Dilemmas Questionnaire was given to each experimental group. In this re-test procedure subjects received either high or low risk responses which were attributed to either a high confidence communicator (counseling psychologist) or a low confidence communicator (physician). Subjects were asked to consider this information and their own preferences and then to respond to the questionnaire again.

The data were analyzed using 2x2 analyses of variance, Duncan's Multiple Comparisons Tests and, numerous t-tests. The research hypotheses, their equivalent statistical predictions, the statistical procedures used to analyze the data, and the final results are presented in tabular form in Table 14.

TABLE 14

THE RESEARCH HYPOTHESES, THEIR EQUIVALENT STATISTICAL PREDICTIONS,  
STATISTICAL ANALYSES PROCEDURES, AND THE FINAL RESULTS

Research Hypotheses	Statistical Predictions	Test Procedures	Final Results
H-1: Subjects in test-retest control groups should show a significant choice shift between the first and second administration of the Choice-Dilemmas Questionnaire when no experimental treatment conditions are applied.	P-1: A significant difference will be found between the mean score on the first administration and the mean score on the second administration of the Choice-Dilemmas Questionnaire when no experimental manipulations occur.	direct-difference t-test for correlated means	Not supported for individuals with an initially low risk-taking disposition.  Statistically supported for individuals with an initially high risk-taking disposition.
H-2: Control subjects who are initially rated as low risk-takers will show a greater shift between the first and second administration of the Choice-Dilemmas Questionnaire than will high risk control subjects.	P-2: A significant difference will be found between the mean change scores for the high risk control group and the low risk control group.	t-test for uncorrelated means	Statistically supported by present research findings.

TABLE 14 - Continued

Research Hypotheses	Statistical Predictions	Test Procedures	Final Results
H-3: Subjects should change their responses in the direction of the risk levels held by a person in whom they have confidence.	P-3: Subjects who receive a risk message from a communicator in whom they have confidence will show significantly more change than subjects who receive the same message attributed to a low confidence communicator.	analysis of variance  Duncan's Multiple Comparisons Test	Not supported by present research.
H-4: High risk-taking subjects and low risk-taking subjects are not influenced in the same way by identical treatment conditions.	P-4: A significant difference will be found between the mean change scores for high risk subjects and the mean change scores for low risk subjects when given identical experimental conditions.	analysis of variance  Duncan's Multiple Comparisons Test  <u>t</u> -test for uncorrelated means	Not supported by present research.

TABLE 14 - Continued

Research Hypotheses	Statistical Predictions	Test Procedures	Final Results
H-5: Both high and low risk-taking subjects will show more shift in the direction of a high confidence communicator than one in whom they have less confidence.	P-5: Regardless of subjects' risk-taking disposition, a significant difference will be found between mean change scores when the independent variable of confidence in communicator is varied.	analysis of variance  Duncan's Multiple Comparisons Test  t-test for uncorrelated means	Not supported by present research.
H-6: High risk-taking subjects will show less change in level of risk-taking than will low risk-taking subjects when presented with information from a communicator in whom they have confidence.	P-6: A significant difference between mean change scores will occur for high risk and low risk subjects.	analysis of variance  t-test for uncorrelated means	Not supported by present research.

TABLE 14 - Continued

Research Hypotheses	Statistical Predictions	Test Procedures	Final Results
H-7: When high risk-taking subjects receive a high risk level message they should become even riskier. When low risk-taking subjects receive a low risk message they should become less risky.	P-7: Subjects who receive a risk message that is consistent with their initial risk-taking disposition will demonstrate significantly different mean change scores in that same direction between the first and second administration of the Choice-Dilemmas Questionnaire.	direct difference <u>t</u> -test for correlated means	Statistically supported by present research findings.
H-8: When high risk-taking subjects are presented with a low risk message they will become less risky. When low risk-taking subjects are presented with a high risk-taking message they will become riskier.	P-8: When subjects receive a risk message that is in opposition to their own initial risk-taking disposition, they will show statistically significant movement in the direction of the message.	analysis of variance  direct difference <u>t</u> -test for correlated means	Statistically supported by present research findings.

### SUMMARY OF RESULTS

The results of the present research may be summarized as follows:

1. When high risk-taking subjects receive a high risk message they move to higher levels of risk.
2. When high risk-taking subjects receive a low risk message they move to lower levels of risk.
3. Over time, high risk-taking subjects do not change their risk-taking dispositions if no experimental variables are applied.
4. Low risk-taking subjects can be expected to move toward higher levels of risk even without the application of experimental conditions.
5. Low risk-taking subjects do not appear to be influenced by a high risk message. The same amount and direction of movement might be expected without providing such information.
6. Low risk-taking subjects become more cautious when given low risk messages.
7. When subjects receive a message that is in the same direction as their initial risk-taking disposition the group remains relatively homogeneous.
8. Subjects who receive a message that is in the opposite direction from their initial risk-taking disposition move in the direction of the message. However, the group becomes



more heterogeneous in its responses (show greater variability).

9. The confidence in the attributed communicator of a message appears to have no effect on change in risk-taking.

However, this result may be due to the subjects' perception of the titles of counseling psychologist and physician along a status dimension rather than a confidence dimension.

### CONCLUSIONS

Most of the previous research investigating the phenomenon of choice shifts has been conducted by using group discussion. Cartwright, after extensively reviewing the literature, concluded that shifts could not be attributed to repeated experience with the Choice-Dilemma items. This conclusion may be statistically defensible if all subjects are considered together. However, when high and low risk-takers are considered separately the present research supports the position that repeated exposure to items does not induce a choice shift for high risk-taking subjects. It seems that repeated experience with the items is sufficient to yield a significant choice shift for low risk-taking subjects.

While Bateson's "Familiarization Theory" is not fully supported here, his theory does seem to apply to subjects' whose initial risk-taking disposition is low. Overall, the several versions of "Value Theory" seem best able to account

for the present findings.

The "Value Theories" postulate that groups move in the direction toward which most of the individual members are already attracted. The results of the study reported here seem to support this assumption. Perhaps the strongest evidence is that groups remain homogeneous when provided with information consistent with their risk-taking dispositions but become heterogeneous when given information that is contrary to their initially demonstrated dispositions.

Two additional factors seem to be operative. First, the "Risk-As-Value Theory" proposed by Brown is supported by the finding that low risk-taking subjects show a tendency to move toward higher levels of risk even without any experimental manipulations. Second, the concept of "leadership" may be important. In all groups it was found that subjects moved in the direction of the risk level of the message. The message was attributed to a counseling psychologist or physician. If, as was discussed earlier, the subjects responded to the status of the two titles then it is likely that the uniform changes were due to an attraction in the direction of the "statused-leaders".

To some extent the research presented in this dissertation has contributed to clarifying some of the complex issues involved in determining choice shifts. The most important

feature of this project has focused on the separate treatment of high and low risk-takers. It is quite possible that by treating both high and low risk-takers as a single group many of the effects revealed here cancelled each other out in previously reported studies.

Another important feature of this project is that it attempted to study the factors leading to choice shift without face-to-face interaction. It was hoped that such an approach would allow for an opportunity to study the factors in choice shifts without the confounding effects of interpersonal interaction.

#### RECOMMENDATIONS FOR FURTHER RESEARCH

Research investigating the factors which induce choice shifts has potentially utilitarian value. The underlying principles that can be gleaned from such research are likely to be relevant to problem-solving, career guidance, counseling and psychotherapy and, institutions dealing with people in various other capacities.

The most promising avenue for continued research seems to be in determining personality factors which correlate with high and low risk-taking dispositions. For example, prior research has indicated that ability and risk-taking are perceived by subjects as positively related to each other. It

would be valuable to investigate the relationship between ability and risk-taking disposition to determine if high risk-takers also have high ability.

The findings presented here suggest that initially low risk-takers can be expected to move to higher levels of risk without intervention. It seems worthwhile to pursue the factors leading to this change. One such factor may be anxiety. If a reduction in anxiety is accompanied by a rise in level of risk-taking disposition then such information may be useful in counseling and guidance.

As an example, let it be assumed that a client is anxious and so is unwilling to seek more attractive, but riskier, alternatives for himself. Counseling directed specifically at anxiety reduction may literally force the client to seek better alternatives which in turn may improve his self-concept. An improved view of himself could bring his abilities more clearly into focus so that the end result is an upward spiral of successes. Such built-in reinforcement may be responsible for persons who show continued growth and adjustment in their life.

As reported earlier, groups that receive messages that are incongruent with their initial risk-taking dispositions become more heterogeneous. Perhaps this variability in a group reflects individual group members approach-avoidance

conflicts. If individuals are experiencing such conflict they may well change their risk responses but lack a high level of commitment to their choices. Therefore, changes reported may not be enduring. The relationship between commitment and conflict in choice shifts is worth serious study.

The factors that influence choice shifts are not yet fully defined. Ongoing research into this topic is likely to yield yet more complexity. The results of this study, while answering some questions, suggests many others. For example, the nature of differences between high and low risk-takers should be more fully explored. Also, the confidence a subject has in a communicator of a message should be pursued unconfounded by status considerations. Finally, the various factors involved in choice shift should be studied in real-life "change situations" such as counseling and psychotherapy, career guidance and, institutional program planning.

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## APPENDICES

## APPENDIX A

Assume that you are currently faced with a series of very important decisions to make. These decisions will definitely affect your life in the future. You are in a dilemma because success is not guaranteed in any area. The problems center around the choice of a job, the choice of a marriage partner, etc.

Also assume that various people are all equally available to you for consultation in assisting you to make your decisions.

Rank the following people in order of preference so that the individual whose advice you would most value would receive a rank of 1 and the individual whose advice you would least value in these kinds of matters would receive a rank of 5.

RANK

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PERSON

clergyman

fellow student

counseling psychologist

teacher

physician

## APPENDIX B

## OPINION QUESTIONNAIRE

Instructions:

On the following pages, you will find a series of everyday-life situations. 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 twelve situations in all. Please do not omit any of them.

Name \_\_\_\_\_

Class \_\_\_\_\_

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 life-time 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 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.
- ☐ The chances are 9 in 10 that the company will prove financially sound.
- ☐ Place a check here if you think Mr. A should not take the 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.

- \_\_\_\_\_ The chances are 1 in 10 that the stocks will double their value.
- \_\_\_\_\_ The chances are 3 in 10 that the stocks will double their value.
- \_\_\_\_\_ The chances are 5 in 10 that the stocks will double their value.
- \_\_\_\_\_ The chances are 7 in 10 that the stocks will double their value.
- \_\_\_\_\_ The chances are 9 in 10 that the stocks will double their value.
- \_\_\_\_\_ Place a check here if you think Mr. C should not invest in Company X stocks, no matter what the probabilities.

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

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

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

- ☐ Place a check here if you think Mr. D should not attempt the risky play no matter what the probabilities.
- ☐ The chances are 9 in 10 that the risky play will work.
- ☐ The chances are 7 in 10 that the risky play will work.
- ☐ The chances are 5 in 10 that the risky play will work.
- ☐ The chances are 3 in 10 that the risky play will work.
- ☐ The chances are 1 in 10 that the risky play will work.

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

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

Please check the lowest probability that you would consider acceptable for Mr. E's corporation to build a plant in that country.

- \_\_\_\_\_ The chances are 1 in 10 that the foreign country will remain politically stable.
- \_\_\_\_\_ The chances are 3 in 10 that the foreign country will remain politically stable.
- \_\_\_\_\_ The chances are 5 in 10 that the foreign country will remain politically stable.
- \_\_\_\_\_ The chances are 7 in 10 that the foreign country will remain politically stable.
- \_\_\_\_\_ The chances are 9 in 10 that the foreign country will remain politically stable.
- \_\_\_\_\_ Place a check here if you think Mr. E's corporation should not build a plant in the foreign country, no matter what the probabilities.

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

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

7. 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.

8. Mr. H, a college senior, has studied the piano since childhood. He has won amateur prizes and given small recitals, suggesting that Mr. H has considerable musical talent. As graduation approaches, Mr. H has the choice of going to medical school to become a physician, a profession which would bring certain prestige and financial rewards; or entering a conservatory of music for advanced training with a well-known pianist. Mr. H realizes that even upon completion of his piano studies, which would take many more years and a lot of money, success as a concert pianist would not be assured.

Imagine that you are advising Mr. H. Listed below are several probabilities or odds that Mr. H would succeed as a concert pianist.

Please check the lowest probability that you would consider acceptable for Mr. H to continue with his musical training.

- ☐ Place a check here if you think Mr. H should not pursue his musical training, no matter what the probabilities.
- ☐ The chances are 9 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 7 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 5 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 3 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 1 in 10 that Mr. H would succeed as a concert pianist.

9. Mr. J is an American captured by the enemy in World War II and placed in a prisoner-of-war camp. Conditions in the camp are bad, with long hours of hard physical labor and a barely sufficient diet. After spending several months in this camp, Mr. J notes the possibility of escape by concealing himself in a supply truck that shuttles in and out of the camp. Of course, there is no guarantee that the escape would prove successful. Recapture by the enemy could well mean execution.

Imagine that you are advising Mr. J. Listed below are several probabilities or odds of a successful escape from the prisoner-of-war camp.

Please check the lowest probability that you would consider acceptable for an escape to be attempted.

- ☐ The chances are 1 in 10 that the escape would succeed.
- ☐ The chances are 3 in 10 that the escape would succeed.
- ☐ The chances are 5 in 10 that the escape would succeed.
- ☐ The chances are 7 in 10 that the escape would succeed.
- ☐ The chances are 9 in 10 that the escape would succeed.
- ☐ Place a check here if you think Mr. J should not try to escape no matter what the probabilities.

10. Mr. K is a successful businessman who has participated in a number of civic activities of considerable value to the community. Mr. K has been approached by the leaders of his political party as a possible congressional candidate in the next election. Mr. K's party is a minority party in the district, though the party has won occasional elections in the past. Mr. K would like to hold political office, but to do so would involve a serious financial sacrifice, since the party has insufficient campaign funds. He would also have to endure the attacks of his political opponents in a hot campaign.

Imagine that you are advising Mr. K. Listed below are several probabilities or odds of Mr. K's winning the election in his district.

Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. K to run for political office.

- ☐ Place a check here if you think Mr. K should not run for political office no matter what the probabilities.
- ☐ The chances are 9 in 10 that Mr. K would win the election.
- ☐ The chances are 7 in 10 that Mr. K would win the election.
- ☐ The chances are 5 in 10 that Mr. K would win the election.
- ☐ The chances are 3 in 10 that Mr. K would win the election.
- ☐ The chances are 1 in 10 that Mr. K would win the election.

11. 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.

12. Mr. M is contemplating marriage to Miss T, a girl whom he has known for a little more than a year. Recently, however, a number of arguments have occurred between them, suggesting some sharp differences of opinion in the way each views certain matters. Indeed, they decide to seek professional advice from a marriage counselor as to whether it would be wise for them to marry. On the basis of these meetings with a marriage counselor, they realize that a happy marriage, while possible, would not be assured.

Imagine that you are advising Mr. M and Miss T. Listed below are several probabilities or odds that their marriage would prove to be a happy and successful one.

Please check the lowest probability that you would consider acceptable for Mr. M and Miss T to get married.

- ☐ Place a check here if you think Mr. M and Miss T should not marry, no matter what the probabilities.
- ☐ The chances are 9 in 10 that the marriage would be happy and successful.
- ☐ The chances are 7 in 10 that the marriage would be happy and successful.
- ☐ The chances are 5 in 10 that the marriage would be happy and successful.
- ☐ The chances are 3 in 10 that the marriage would be happy and successful.
- ☐ The chances are 1 in 10 that the marriage would be happy and successful.

## APPENDIX C

This sample questionnaire is illustrative of those used in testing the various experimental groups. Subjects in each group received a questionnaire with responses attributed to either a physician or a counseling psychologist. In addition, attributed responses were given as either high-risk responses(H) or low-risk responses(L). An "x" was used to indicate attributed responses on the questionnaires given to subjects.

## OPINION QUESTIONNAIRE

As a follow-up to the first testing that took place in class some time ago, it is our intention to have you respond to the same opinion questionnaire under somewhat different conditions. To be specific, this questionnaire was given to a physician (counseling psychologist) and he was asked to make responses based on his own experiences. You are asked to consider his responses before responding to these items again.

Instructions:

On the following pages, you will find the same series of every-day life situations as those described to you in the first opinion questionnaire. 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.

Your task will be to:

- (1) Read each item (situation) carefully. As you read the item, try to place yourself in the position of the central person in each of the situations.
- (2) Next, check to see what response was made to this item by the physician (counseling psychologist). (You will find these responses on the same page as the item being judged).



- (3) Finally, taking the two above points of procedure into account, indicate your response to the item.

You should go through this procedure for each item before proceeding to the next item. There are twelve situations in all. Please do not omit any of them.

Name \_\_\_\_\_

Class \_\_\_\_\_

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 life-time 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.
- ☐ The chances are 9 in 10 that the company will prove financially sound.
- ☐ Place a check here if you think Mr. A should not take a job, no matter what the probabilities.

The response of the physician (counseling psychologist) was:

- H The chances are 1 in 10....
- ☐ The chances are 3 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 9 in 10....
- L Place a check here if....

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 attempted.

- ☐ 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.

The response of the physician (counseling psychologist) was:

- ☐ Place a check here if....
- ☐ L The chances are 9 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 3 in 10....
- ☐ H The chances are 1 in 10....

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.

- ☐ The chances are 1 in 10 that the stocks will double their value.
- ☐ The chances are 3 in 10 that the stocks will double their value.
- ☐ The chances are 5 in 10 that the stocks will double their value.
- ☐ The chances are 7 in 10 that the stocks will double their value.
- ☐ The chances are 9 in 10 that the stocks will double their value.
- ☐ Place a check here if you think Mr. C should not invest in Company X stocks, no matter what the probabilities.

The response of the physician (counseling psychologist) was:

- H The chances are 1 in 10....
- ☐ The chances are 3 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 9 in 10....
- L Place a check here if....

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

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

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

- ☐ Place a check here if you think Mr. D should not attempt the risky play, no matter what the probabilities.
- ☐ The chances are 9 in 10 that the risky play will work.
- ☐ The chances are 7 in 10 that the risky play will work.
- ☐ The chances are 5 in 10 that the risky play will work.
- ☐ The chances are 3 in 10 that the risky play will work.
- ☐ The chances are 1 in 10 that the risky play will work.

The response of the physician (counseling psychologist) was:

- ☐ Place a check here if....
- ☐ The chances are 9 in 10....
- ☒ L The chances are 7 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 3 in 10....
- ☐ H The chances are 1 in 10....

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

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

Please check the lowest probability that you would consider acceptable for Mr. E's corporation to build a plant in that country.

- ☐ The chances are 1 in 10 that the foreign country will remain politically stable.
- ☐ The chances are 3 in 10 that the foreign country will remain politically stable.
- ☐ The chances are 5 in 10 that the foreign country will remain politically stable.
- ☐ The chances are 7 in 10 that the foreign country will remain politically stable.
- ☐ The chances are 9 in 10 that the foreign country will remain politically stable.
- ☐ Place a check here if you think Mr. E's corporation should not build a plant in the foreign country, no matter what the probabilities.

The response of the physician (counseling psychologist) was:

- H The chances are 1 in 10....
- ☐ The chances are 3 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 9 in 10....
- I Place a check here if....

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

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

The response of the physician (counseling psychologist) was:

- ☐ Place a check here if....
- ☐ The chances are 9 in 10....
- ☒ L The chances are 7 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 3 in 10....
- ☐ H The chances are 1 in 10....

7. 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 risk 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.

The response of the physician (counseling psychologist) was:

- H The chances are 1 in 10....
- ☐ The chances are 3 in 10....
- L The chances are 5 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 9 in 10....
- ☐ Place a check here if....



8. Mr. H, a college senior, has studied the piano since childhood. He has won amateur prizes and given small recitals, suggesting that Mr. H has considerable musical talent. As graduation approaches, Mr. H has the choice of going to medical school to become a physician, a profession which would bring certain prestige and financial rewards; or entering a conservatory of music for advanced training with a well-known pianist. Mr. H realizes that even upon completion of his piano studies, which would take many more years and a lot of money, success as a concert pianist would not be assured.

Imagine that you are advising Mr. H. Listed below are several probabilities or odds that Mr. H would succeed as a concert pianist.

Please check the lowest probability that you would consider acceptable for Mr. H to continue with his musical training.

- ☐ Place a check here if you think Mr. H should not pursue his musical training, no matter what the probabilities.
- ☐ The chances are 9 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 7 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 5 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 3 in 10 that Mr. H would succeed as a concert pianist.
- ☐ The chances are 1 in 10 that Mr. H would succeed as a concert pianist.

The response of the physician (counseling psychologist) was:

- ☐ Place a check here if....
- ☐ L The chances are 9 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 5 in 10....
- ☐ The chances are 3 in 10....
- ☐ H The chances are 1 in 10....

9. Mr. J is an American captured by the enemy in World War II and placed in a prisoner-of-war camp. Conditions in the camp are bad, with long hours of hard physical labor and a barely sufficient diet. After spending several months in the camp, Mr. J notes the possibility of escape by concealing himself in a supply truck that shuttles in and out of the camp. Of course, there is no guarantee that the escape would prove successful. Recapture by the enemy could well mean execution.

Imagine that you are advising Mr. J. Listed below are several probabilities or odds of a successful escape from the prisoner-of-war camp.

Please check the lowest probability that you would consider acceptable for an escape to be attempted.

- ☐ The chances are 1 in 10 that the escape would succeed.
- ☐ The chances are 3 in 10 that the escape would succeed.
- ☐ The chances are 5 in 10 that the escape would succeed.
- ☐ The chances are 7 in 10 that the escape would succeed.
- ☐ The chances are 9 in 10 that the escape would succeed.
- ☐ Place a check here if you think Mr. J should not try to escape, no matter what the probabilities.

The response of the physician (counseling psychologist) was:

- ☐ The chances are 1 in 10....
- ☐ The chances are 3 in 10....
- ☒ H The chances are 5 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 9 in 10....
- ☐ L Place a check here if....

10. Mr. K is a successful businessman who has participated in a number of civic activities of considerable value to the community. Mr. K has been approached by the leaders of his political party as a possible congressional candidate in the next election. Mr. K's party is a minority in the district, though the party has won occasional elections in the past. Mr. K would like to hold political office, but to do so would involve a serious financial sacrifice, since the party has insufficient campaign funds. He would also have to endure the attacks of his political opponents in a hot campaign.

Imagine that you are advising Mr. K. Listed below are several probabilities or odds of Mr. K's winning the election in his district.

Please check the lowest probability that you would consider acceptable to make it worthwhile for Mr. K to run for political office.

- \_\_\_\_\_ Place a check here if you think Mr. K should not run for political office, no matter what the probabilities.
- \_\_\_\_\_ The chances are 9 in 10 that Mr. K would win the election.
- \_\_\_\_\_ The chances are 7 in 10 that Mr. K would win the election.
- \_\_\_\_\_ The chances are 5 in 10 that Mr. K would win the election.
- \_\_\_\_\_ The chances are 3 in 10 that Mr. K would win the election.
- \_\_\_\_\_ The chances are 1 in 10 that Mr. K would win the election.

The response of the physician (counseling psychologist) was:

- \_\_\_\_\_ Place a check here if....
- \_\_\_\_\_ The chances are 9 in 10....
- L \_\_\_\_\_ The chances are 7 in 10....
- \_\_\_\_\_ The chances are 5 in 10....
- \_\_\_\_\_ The chances are 3 in 10....
- H \_\_\_\_\_ The chances are 1 in 10....

11. 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 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.

The response of the physician (counseling psychologist) was:

\_\_\_\_\_ The chances are 1 in 10....

\_\_\_\_\_ The chances are 3 in 10....

H \_\_\_\_\_ The chances are 5 in 10....

L \_\_\_\_\_ The chances are 7 in 10....

\_\_\_\_\_ The chances are 9 in 10....

\_\_\_\_\_ Place a check here if....

12. Mr. M is contemplating marriage to Miss T, a girl whom he has known a little more than a year. Recently, however, a number of arguments have occurred between them, suggesting some sharp differences of opinion in the way each views certain matters. Indeed, they decide to seek professional advice from a marriage counselor as to whether it would be wise for them to marry. On the basis of these meetings with a marriage counselor, they realize that a happy marriage, while possible, would not be assured.

Imagine that you are advising Mr. M and Miss T. Listed below are several odds or probabilities that their marriage would prove to be a happy and successful one.

Please check the lowest probability that you would consider acceptable for Mr. M and Miss T to get married.

- ☐ Place a check here if you think Mr. M and Miss T should not marry, no matter what the probabilities.
- ☐ The chances are 9 in 10 that the marriage would be happy and successful.
- ☐ The chances are 7 in 10 that the marriage would be happy and successful.
- ☐ The chances are 5 in 10 that the marriage would be happy and successful.
- ☐ The chances are 3 in 10 that the marriage would be happy and successful.
- ☐ The chances are 1 in 10 that the marriage would be happy and successful.

The response of the physician (counseling psychologist) was:

- L Place a check here if....
- ☐ The chances are 9 in 10....
- ☐ The chances are 7 in 10....
- ☐ The chances are 5 in 10....
- H The chances are 3 in 10....
- ☐ The chances are 1 in 10....

### APPROVAL SHEET

The dissertation submitted by Gerald James Smith has been read and approved by the three members of his Dissertation Committee.

The final copies have been examined by the chairman of the committee and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

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Date

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Manuel S. Silverman, Ph.D.  
Chairman of the Committee