Can Principals’ Personality Traits Predict their Risk-Taking: Uncertainty and Success Orientation as they Relate to Risk Propensity

Bruce A. Evans
Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/dissertations

Part of the Educational Administration and Supervision Commons, and the Educational Leadership Commons

Recommended Citation
https://scholarworks.wmich.edu/dissertations/1450

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
CAN PRINCIPALS' PERSONALITY TRAITS PREDICT THEIR RISK-TAKING:
UNCERTAINTY AND SUCCESS ORIENTATION AS THEY
RELATE TO RISK PROPENSITY

by

Bruce A. Evans

A Dissertation
Submitted to the
Faculty of The Graduate College
In partial fulfillment of the
requirements for the
Degree of Doctor of Education
Department of Teaching, Learning and Leadership

Western Michigan University
Kalamazoo, Michigan
December 2000
CAN PRINCIPALS’ PERSONALITY TRAITS PREDICT THEIR RISK-TAKING:
UNCERTAINTY AND SUCCESS ORIENTATION AS THEY RELATE TO RISK PROPENSITY

Bruce A. Evans, Ed.D.
Western Michigan University, 2000

This exploratory investigation compared the personality traits uncertainty orientation and success orientation of Michigan principals with their risk-taking propensities. The personality traits were correlated individually with the risk-taking of principals and both traits were combined to examine their additive effect. The principals' personality traits and their risk-taking were also compared by gender.

One-third of the public school principals in Michigan were chosen and targeted as subjects for study. The study concluded a significant positive correlation between uncertainty orientation and success orientation existed. The Pearson coefficient was $r = 0.39$. However the alpha level was $\alpha = 0.003$. The findings provided a weak but significant positive correlation between uncertainty orientation and risk-taking for females. The findings provided a weak but significant negative correlation between success orientation and risk-taking for males.
ACKNOWLEDGMENTS

How does one thank all those who have helped in some way or another with this project? Major appreciation must be given to Edward Kelley who helped me begin and complete the early stages of this project. I give my thanks to the members of my committee Dr. Van Cooley, Dr. David Cowden and Dr. Ronald Crowell for your guidance and support. Thanks also goes to Dr. Mary Anne Bunda, without her help this project would likely not have been completed, thank you Mary Anne.

To my family I give sincere thanks for their “sticking with me” throughout the entire time. Thanks Michele, Allan, Kerry, Paul, and Leah—without your love and support I would not have ever made it to this point.

Lastly, I dedicate this dissertation to my father and mother, Thomas and Lenore. Without your continued strength, support and encouraging belief this project would not have been accomplished.

Bruce A. Evans
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI®

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................................... ii  
TABLE OF CONTENTS ...................................................................................... iii  
LIST OF TABLES .................................................................................................. ix  
LIST OF FIGURES ................................................................................................ x  

## CHAPTER

I. **INTRODUCTION OF THE STUDY** .................................................... 1  
   Theoretical Background .................................................................. 3  
   Purpose of the Study........................................................................ 5  
   Significance of the Study ................................................................. 6  
   Definition of Terms.......................................................................... 7  
   Organization of the Study ................................................................. 9  

II. **REVIEW OF RELATED LITERATURE** ............................................. 11  
   Overview ....................................................................................... 11  
   Background ................................................................................... 13  
   Relevant Studies of Instruments...................................................... 14  
   Relevant Studies of Theory ............................................................. 17  
   Need for Risk-Taking Study ........................................................... 26  
   Definition of Risk-Taking ............................................................... 28  
   Definition of Personality Trait ....................................................... 29
### Table of Contents—Continued

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>In- Baskets as Measurement Tools</td>
<td>30</td>
</tr>
<tr>
<td>An In-Basket to Measure Risk-Taking</td>
<td>33</td>
</tr>
<tr>
<td>Instructions</td>
<td>34</td>
</tr>
<tr>
<td>Response Items</td>
<td>35</td>
</tr>
<tr>
<td>Personality Traits Uncertainty Orientation and Success Orientation</td>
<td>39</td>
</tr>
<tr>
<td>Uncertainty Orientation</td>
<td>40</td>
</tr>
<tr>
<td>Success Orientation</td>
<td>41</td>
</tr>
<tr>
<td>Questions to be Considered</td>
<td>42</td>
</tr>
<tr>
<td>Summary</td>
<td>43</td>
</tr>
<tr>
<td>III. METHODOLOGY OF THE STUDY</td>
<td>46</td>
</tr>
<tr>
<td>Overview</td>
<td>46</td>
</tr>
<tr>
<td>Research Approach</td>
<td>46</td>
</tr>
<tr>
<td>Study Type</td>
<td>46</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>47</td>
</tr>
<tr>
<td>Variables</td>
<td>48</td>
</tr>
<tr>
<td>Uncertainty Orientation</td>
<td>48</td>
</tr>
<tr>
<td>Success Orientation</td>
<td>50</td>
</tr>
<tr>
<td>Risk-Taking Propensity</td>
<td>51</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>52</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Pilot ........................................................................</td>
<td>52</td>
</tr>
<tr>
<td>Pilot Sample ................................................................</td>
<td>53</td>
</tr>
<tr>
<td>Pilot Data Analysis...............................................</td>
<td>54</td>
</tr>
<tr>
<td>Population and Sample...............................................</td>
<td>54</td>
</tr>
<tr>
<td>Target Population ..................................................</td>
<td>54</td>
</tr>
<tr>
<td>Sample Size ..................................................................</td>
<td>55</td>
</tr>
<tr>
<td>Main Study Sample ...................................................</td>
<td>56</td>
</tr>
<tr>
<td>Questionnaires and Scoring .......................................</td>
<td>57</td>
</tr>
<tr>
<td>First Questionnaire, Uncertainty and Achievement ............</td>
<td>57</td>
</tr>
<tr>
<td>Scoring Uncertainty and Achievement ............................</td>
<td>58</td>
</tr>
<tr>
<td>Second Questionnaire, Certainty ..................................</td>
<td>59</td>
</tr>
<tr>
<td>Third Questionnaire, Failure Avoidance .......................</td>
<td>60</td>
</tr>
<tr>
<td>Fourth Questionnaire, Risk-Taking Propensity ...............</td>
<td>60</td>
</tr>
<tr>
<td>Scoring Risk-Taking Propensity ..................................</td>
<td>62</td>
</tr>
<tr>
<td>Normalizing Scores ..................................................</td>
<td>64</td>
</tr>
<tr>
<td>Data Analysis ................................................................</td>
<td>65</td>
</tr>
<tr>
<td>Correlation Coefficient ............................................</td>
<td>65</td>
</tr>
<tr>
<td>Level of Significance ...............................................</td>
<td>65</td>
</tr>
<tr>
<td>Correlation Between Uncertainty Orientation and Risk-Taking Propensity</td>
<td>66</td>
</tr>
</tbody>
</table>
Table of Contents—Continued

CHAPTER

Correlation Between Success Orientation and Risk-Taking Propensity ........................................................... 66

Correlation Between Uncertainty Orientation and Success Orientation .......................................................... 66

Multiple Regression: Correlations for Uncertainty Orientation, Success Orientation And Risk-Taking Propensity .......................... 66

IV. ANALYSIS AND EVALUATION .................................................................................................................. 68

Sample Overview ............................................................................ 68

Demographics .................................................................................. 69

Findings from Hypothesis ............................................................... 72

Pilot........................................................... 72

Sample ...................................................................................... 73

Correlation for Uncertainty Orientation and Risk-Taking Propensity .................................................... 75

Correlation for Success Orientation and Risk-Taking Propensity .................................................... 75

Correlation for Uncertainty Orientation and Success Orientation .......................................................... 76

Multiple Regression: Correlation for Uncertainty Orientation, Success Orientation and Risk-Taking Propensity .......................................................... 76

Discussion........................................................................................ 77

Gender Data Analysis and Discussion................................................. 77
Table of Contents—Continued

CHAPTER

Correlation by Gender of Uncertainty Orientation and Risk-Taking Propensity .................................................... 78

Correlation by Gender of Success Orientation and Risk-Taking Propensity .................................................... 79

Correlation by Gender of Uncertainty Orientation and Success Orientation ........................................................... 80

Multiple Regression by Gender: Correlation for Uncertainty Orientation, Success Orientation and Risk-Taking Propensity .................................................... 81

Summary .......................................................................................... 82

Suggested Improvements ................................................................ 83

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS ........ 85

Summary .......................................................................................... 85

Conclusions ...................................................................................... 87

Uncertainty Orientation and its Relation to Risk-Taking ........ 89

Success Orientation and its Relation to Risk-Taking ................. 89

Uncertainty Orientation and its Relation to Success Orientation ........................................................... 90

Uncertainty Orientation, Success Orientation and Risk-Taking Propensity ........................................................... 92

Recommendations ........................................................................... 92

APPENDICES

A. Personal Demographic Information Questionnaire ....................... 94
Table of Contents—Continued

CHAPTER

B. Sentence Leads for Measuring Uncertainty and Achievement .......... 97
C. Demographic Tables and Figures for Principals................................. 99
D. Sample of Certainty Inferred From Authoritarianism Questionnaire.... 102
E. Sample of Test Anxiety Questionnaire Used to Infer Failure Avoidance 104
F. Human Subjects Institutional Review Board Approval Letter............. 106

BIBLIOGRAPHY.......................................................................................... 108
# LIST OF TABLES

1. Preferences of High Thrill Seekers and Low Thrill Seekers ........................................... 23
2. Comparisons of Decision Situations in the Risk In-Basket ........................................ 37
3. Distribution of Risk Ratings by Situation ..................................................................... 39
4. Principals' Risk Propensity Descriptive by Risk-Taking Scenario ............................... 73
5. Distribution of Principals' Risk Ratings by Situation .................................................. 74
6. Pearson Correlation for Uncertainty Orientation and Risk-Taking ........................... 75
7. Pearson Correlation for Success Orientation and Risk-Taking .................................... 75
8. Pearson Correlation for Uncertainty Orientation and Success Orientation .................. 76
9. Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Principals ......................................................... 77
11. Pearson Correlation for Success Orientation and Risk-Taking in Males .................... 80
12. Pearson Correlation for Uncertainty Orientation and Success Orientation in Females .......................................................... 81
13. Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Female Principals ......................................................... 81
14. Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Male Principals ......................................................... 82
LIST OF FIGURES

1. Diagram of Basic Risk Paradigm ................................................................. 29
2. Age of Principals ......................................................................................... 70
3. Total Years in Present Principal Position .................................................. 71
4. Scattergram by Gender of Uncertainty Orientation and Risk-Taking .......... 78
5. Scattergram of Success Orientation and Risk-Taking ................................ 79
CHAPTER I

INTRODUCTION OF THE STUDY

The world is fraught with risk-taking. To quote Dr. Laura Schlessinger, a psychologists with a popular radio talk show, "No matter what decision you make, you risk something and you sacrifice something" (1996). We make decisions on a continuous basis. Often the choices made effect the lives of others. When principals in schools make decisions they impact many lives. This research compares two personality traits of principals with their risk-taking propensities.

Taking a risk is choosing a new idea, taking a new path or trying something where the outcome is uncertain. Risk-taking, simply stated, is choosing the unknown when making a choice between the status quo and something with an unknown outcome. The risky choice is often referred to by different names—an initiative, a new program, an innovation, a change, an intervention.

According to the Merriam-Webster's Collegiate Dictionary change is defined as, "to make different in some particular," (1994, p. 190). When one takes a risk one is choosing to make a change. According to Hord, Rutherford, Huling-Austin, and Hall (1987), change is a process that usually occurs over several years. The process involves individuals, is highly personal, and should be focused on, among other things, innovations. Long-term change is impossible without continued support for
some degree of risk-taking.

Due to the political nature and different special needs of schools and their communities there are seldom strong forces proposing the unknown choice. Indeed, risk-taking and initiatives by school leaders are often discouraged (Benoit, 1975). Frequently when taking risks the changes desired are not realized. During the decade of the 1980’s, reform efforts directed at schools had little impact on the quality of student learning (Editors of Education Week, 1993; Fullan, 1991). Arguably then, risk-taking must be sustained to some degree and become part of the organizational climate for long-lasting changes to occur.

Risk-taking and change is a necessary ingredient for schools to promote quality learning. Learning involves risky choices. The process of inquiry promotes risk-taking as a way to learn. “A critical constructive force in the school encourages inquiry and change” (Smith & Andrews, 1989, p. 8). According to Owens (1987), educational organizations are now expected to prepare young members in our culture for an ever-changing society. Further, schools are to confront change and yet maintain some stability. The implication is for schools to change so schools may keep up with and provide balance with the ever-changing world. The changes are not to be too radical nor are the schools to remain too stable.

Principals are the key to providing an environment where change may exist. Principals see the organization as a whole and give direction to the organization (Tanner & Tanner, 1987). Change may not take place without risk-taking since risk-
taking by definition is choosing the unknown over the status quo. Therefore, principals must promote some degree of risk-taking or their schools will not change.

Studies of risk-taking have been as wide and varied as the concept of risk-taking itself. Ralph Keyes (1985) after studying what some consider risk-taking individuals, (a wirewalker, sky diver, an entrepreneur, etc.) wrote that what was risky to one was not necessarily risky to another. To rephrase Keyes, we all perceive risk differently.

Decisions involve risk-taking, and risk-taking by organizations promotes change. Leaders who promote risk-taking whether school principals or company executives have enduring effects on others and the nature of our society as a whole. Therefore, in 1986 MacCrimmon and Wehrung published a book reporting the results of a study completed on risk-taking. The investigation analyzed 509 top-level executives from America and Canada and the executives' risk-taking propensities. The study included an in-basket style questionnaire to measure risk-taking propensity. In-baskets were designed to provide some comparability between responders. The same questionnaire has been incorporated into this research.

Theoretical Background

What makes people risk takers? Atkinson (1957) argued that motivation for actions combined one's motivations to approach and/or to avoid a specific situation. Atkinson put forth a theory that success oriented individuals (persons with higher
achievement levels than their avoidance to failure) would tend to take moderate risks. A success-oriented person would not choose large risk tasks even though the rewards may be great because the assumed probability of success was low. On the other hand, a low risk task should be considered easy to master and generally not expected to produce large rewards. Therefore a success-oriented person would avoid high-risk options and select choices with moderate risks with moderate rewards expecting to be successful. In one such experiment Atkinson used 45 young children playing a ring-toss game (Atkinson & Litwin, 1960). The risk-taking levels were determined by how far from the target that the subject stood to throw the rings. The further a child stood from the target, the greater risk taker the child was.

In 1978 Atkinson and Birch (1978) concluded the way people acted depended both upon the tendency to succeed and the tendency to avoid failure (failure avoidance). The theory included two forces, one a determinant to achieve and the second an inhibitory force to avoid failure. According to Atkinson and Birch's (1978) persons with failure threatened orientation should choose the easiest or lowest risk tasks. However in a study by McClelland (1987) subjects high in failure threatened anxieties showed preference for moderate risk-taking.

Sorrentino, Hewitt, and Raso-Knott (1992) proposed an explanation for the failure of Atkinson's theory in a study using a personality trait called uncertainty orientation. Uncertainty-oriented persons were defined as motivated to find out new things about themselves and/or their environments. The reverse held for certainty-
orientated people, they were not interested in learning new things. Sorrentino et al.
(1992) suggested the motive to achieve and the motive to avoid failure were not
enough to predict risk-taking behaviors. Sorrentino et al believed an uncertainty-
oriented person would choose moderate risk levels over great or small levels so
uncertainty-oriented persons could (with some modest degree of expectation) learn
more about their abilities and/or their environment. On the opposite side, the
certainty oriented person would select a low risk level choosing to avoid or ignore
learning more about themselves or the environment.

One of Sorrentino et al’s (1992) studies used a ring-toss experiment, which
supported the uncertainty theoretical concept. The study provided evidence that
uncertainty orientation and success orientation were additive traits that promoted
moderate risk level choices. In their study, Sorrentino, Hewitt, and Raso-Knott
(1992) demonstrated Atkinson’s (1964) theory predicting risk-taking was situation
specific. Atkinson’s theory, Sorrentino et al reasoned, only applied when predicting
behaviors in situations where a subject felt responsible for the outcomes. Sorrentino
and others work supported the idea that uncertainty orientation was not situation
specific.

Purpose of the Study

The purpose of this study was to further the body of knowledge associated
with risk-taking. “The ultimate task of science, no matter what the subject of study, is
to improve common sense” (Atkinson, 1978, p. 3). Specifically, this study further developed the understanding of how two personality traits, uncertainty orientation and success orientation, relate to risk-taking. If we know the personality traits of an individual, will we then be able to predict an individual’s risk-taking propensities? This investigation examined the theoretical constructs proposed by Sorrentino and others to measure the risk-taking propensity of principals using MacCrimmon and Wehrung’s (1986) in-basket questionnaire.

Therefore, this investigation explored four major constructs; in null form the four were:

1. Uncertainty-orientation will not relate to risk-taking propensity in principals.

2. Success-orientation will not relate to risk-taking propensity in principals.

3. Uncertainty-orientation will not relate to success orientation in principals.

4. Uncertainty-orientation and success-orientation when taken together will not relate to risk-taking propensity in principals.

Significance of the Study

When principals make the best possible choices in risky situations everyone reaps rewards. “Research has shown for the longest time that the principal is the key to the success of the school” (Mays, 1994, p. 1). Glasser discussed the power within a school as coming from the principal as the power within a classroom comes from the
teacher (Brandt, 1988). Decisions made by principals impact their educational organizations. By the very nature of schools, the risk-taking modeled in schools may influence the way our future generations approach decision-making. If principals influence school children then principals' risk-taking propensities may influence the course of future events yet unseen.

School districts and individual schools need good leaders. If risk-taking and personality are related educators may gain yet another tool in matching personnel to need. A district that perceives a need to chart a course towards change may want to hire a principal with higher risk-taking propensities. School boards and superintendents would be able to choose principals depending upon their desire to have a more stable leader or a 'change agent' at the helm.

Definition of Terms

The following definitions explain terms used in this study:

**Risk**: To expose to the possibility of loss. Chances of loss and exposure to loss are components of risk. Magnitude of loss shall be considered as a third component to risk. To reduce risk, one may reduce any one of the three components to risk. Therefore, one may consider degree of risk in choices. Determinants of risk include the lack of control, the lack of information, and the lack of time (MacCrimmon & Wehrung, 1986).

**Risky Situation**: A decision point involving at least one alternative with
exposure to risk (MacCrimmon & Wehrung, 1986).

**Risk-taking propensity:** The preference to behavior in situations where there are choices involving risk. People choosing more risk have higher risk-taking propensities. This research used risk-taking as synonymous to risk-taking propensity.

**Risk-taker:** A person choosing a more risky alternative when making a choice.

**Risk-avoider:** A person selecting a less risky alternative when making a choice.

**Adjustments (also called modifications):** Behaviors to reduce the chance of loss, the magnitude of a loss, or the exposure to a loss. Adjustments may be indicated by attempts to gain in the determinants, (time, control, and information) prior to making a choice in a risky situation (MacCrimmon & Wehrung, 1986).

**In-Basket Questionnaire:** A questionnaire where respondents are asked to answer situations as the responders role-play a fictional character in a given job. The questionnaires are accompanied by enough background information on the organization so the responder may act. The responder is given an in-basket complete with letters, memos, phone calls, etceteras that simulate an actual job position in an organization (Frederiksen, Saunders; & Wand, 1957).

**Trait:** is a personality characteristic that applies and is predictive to average behavior across time and instances (Anastasi, 1983; Zuckerman, 1979).

**State:** Is a personality characteristic that is time-specific, defining a condition for a point in time (Allport, 1937; Cattell, 1972).
Organization of the Study

Chapter I consisted of an introduction to the problems associated with risk-taking and their effects upon society. The connection between risk-taking and change was elaborated. The reality that principals' risk-taking impacts children and our future was argued. Decision theory (Atkinson & Litwin, 1960) and experimental results comparing success-orientation (a personality trait) and risk-taking were described. The furtherance of Atkinson’s success-oriented theory considering uncertainty-orientation as a separate personality trait influential in risk-taking choices was summarized as proposed by Sorrentino et al. (1992). The purpose of the study was explained (to relate principals' personality traits, uncertainty orientation and success orientation, to their risk-taking propensities). The significance of the study and definition of terms was provided.

Chapter II provided an overview and background of risk-taking and risk-taking research. Chapter II reviewed the different instruments used to measure risk-taking. The chapter continued with risk-taking theory and the need for the study. Risk-taking and personality were defined; in-baskets and their use to measure risk-taking were discussed. The personality traits of uncertainty-orientation and success-orientation were expanded upon. Finally the questions to be considered and a summary were included in Chapter II.

Chapter III described the research approach, the variables and the hypothesis in null form. The pilot and sample were described. The questionnaires and their
scoring were specified, as was the data analysis.

Chapter IV described the analysis and its evaluation. The sample's demographics were reviewed. The findings from the hypothesis were reviewed and discussed. A section of discussion examined findings related to the study but not directly linked to the hypothesis.

Chapter V included an overall summary of the first three chapters and findings from Chapter IV. Conclusions and recommendations were also found in Chapter V.
CHAPTER II

REVIEW OF RELATED LITERATURE

Overview

The purpose of this chapter was to review relevant literature basic to the
development of an understanding and rationale for this study. The purpose of this
study was to examine two personality traits (success orientation and uncertainty
orientation) and how the two traits related to the risk-taking of principals. The aim of
the researcher was to provide a critique based upon a rational, logical, orderly
description of the elements comprising this investigation. This chapter consists of
sections covering the overview, background, relevant studies of instruments, relevant
studies of theory, need for risk-taking study, definition of risk-taking, definition of
personality trait, in-baskets as measurement tools, an in-basket to measure risk-taking,
personality traits uncertainty orientation and success orientation, questions to be
considered, and summary.

Popular literature of late has touted risk-taking as an important quality for
educators. In a flyer published monthly as a program for boards of education by The
Master Teacher, Inc., boards have been told to “... encourage educators to take risks
...” (Kremer, 1994, p. 1). In publications aimed primarily at principals, educators
are reading about the importance of encouraging risk-taking (experimentation) as an
alternative to teacher evaluation (Barkley, 1993). In a study by the National Association of Secondary School Principals (NASSP) instructional leadership involved risk-taking. According to Pellicer, Anderson, Keere, Kelley, and McCleary (1990)

Instructional leadership involves risk-taking. In all the schools visited, whenever the study team saw good instructional programs, almost always an element of risk was involved. It seemed that risk was directly related to positive growth. The more risks, the bigger the risks, the more people involved in risk-taking behavior, the better the outcomes, (p. 36).

The study stressed that risks were always taken for a definite reason. The study suggested that “Risk-taking behavior is probably necessary because of the bureaucratic nature of schools and school districts” (Pellicer et al., 1990, pp. 57-58).

Spin-off articles based upon the NASSP study only fueled the popular thought that risk-taking is beneficial. One such article was entitled “Go for it: Outstanding Principals Earn their Wings as Risk Takers” (Pellicer, 1990).

A lobbyist for the North Carolina Association of Educators warned that a law revoking tenure for North Carolina principals would limit principals’ freedom to take risks (Portner, 1993). Once again the implication was that risk-taking is a positive quality, especially for principals. Tom Peters answered the question of how principals can become leaders with vision by saying principals need to have, “... both opportunity and encouragement for principals to experiment and create, taking risks and surviving those risks as long as they are well thought out” (NASSP, 1988, p. 37).
In one of his books, Tom Peters encouraged risk-taking by managers and other leaders quoting the late Bill Gore, “You can try anything, as long as it’s above the ‘waterline’” (Peters, 1987, p. 264). In a later book Peters looked for the “pirate” and “gambler” within us and encouraged “the wholesale exercise of the human imagination” to solve problems (Peters, 1992, p. xxxiii). Peters supported extreme risk-taking, even when the risks led to failures. Peters believed risk-taking impacted world economic systems when he said, “. . . market economies, [are] powered by lunatics and dreamers, by failure far more than success” (Peters, 1992, p. xxxiv). In a quote by Dick Liebhaber, “We don’t shoot people who make mistakes. We shoot people who don’t take risks,” (Peters, 1992, p. 145) Peters continued his encouragement for risk-taking behaviors.

Background

Historically risk-taking research has been characterized by two designs. In the first researchers studied human behavior and risk-taking propensity within a situation (Yates, 1992). The design has had as its focus a single kind of choice situation with varying parameters (for example, gaming with different dollar and probability amounts). The presumption was little or no risk-taking differences came from individual differences. The second approach examined the connection between personality traits and risk-taking across situations (for example, success oriented people take moderate risks). The presumption was little or no risk-taking differences
came from situational influences. In fact, the evidence suggested differences appeared when a trait was examined across situations (Yates, 1992).

Risk-taking has shown to vary across situations and personalities. Yates generalized risk-taking studies into six conceptual designs (1992). In each there was some form of matrix with one axis representing situations and the other personality characteristics. Situations have been further divided into physical risks and games of chance. Individual characteristics have included differentiation into categories like age, gender, etc. (Yates, 1992).

Relevant Studies of Instruments

Different instruments have been used to study risk-taking and personality traits. Kogan and Wallach (1964) developed a 12-item Choice Dilemmas Procedure Questionnaire (CDQ) which has been widely used to measure risk propensity (e.g. Mohapi, 1991; Rabbitt, 1983). Choice dilemma approaches were developed which consisted of questions involving different situations where the responder selected a level of risk she or he was willing to take when making a decision (Milligan, 1994). Kogan and Wallach's CDQ was one measure often used because it was easy to administer and it permitted comparisons from different studies. The survey was important because of its validity and reliability (Kogan & Wallach, 1964).

In choice dilemma questionnaires subjects were asked to advise twelve different individuals in highly dissimilar settings (Kogan & Wallach, 1964).
Problematic was the position as to how can subjects evaluate one’s choices reasonably if subjects have had no experience in the roles they were to emulate. The switching of roles needed for answering advice questions contributed to the complexity of assessment. A further difficulty with choice dilemma questionnaires was they provided no fixed consequence, causing the responding participant to create an expected utility before answering. Cartwright (1971) suggested that choice questionnaires only worked as a measure of risk-taking propensity if the values of outcomes remained constant. Rabbitt (1983) reported, “Since the CDQ has produced more dramatic findings [for popular publication] it has had greater appeal, and the choice-dilemma paradigm has continued to dominate the field” (p. 84).

In an unpublished doctoral dissertation Rabbitt, (1983) developed an instrument to identify risk-accepting and risk-aversive propensities in school personnel. Rabbitt’s application sought to use cognitive dissonance in people to measure risk accepting and risk-avoidance propensities in school personnel. Rabbitt described cognitive dissonance as the difference between desire and behavior. For instance, a smoker smokes (behavior) however, their mental cognitive abilities (desire) say smoking was wrong. Based upon some measurement of those thoughts and behaviors one would be able to determine a level of risk-acceptance or avoidance. Rabbitt believed such a measurement would eliminate the problems of looking for a specific personality trait (when there may be many) and of having to consider specific
situations as influential of risk-taking propensity. The premise was the lower the dissidence the lower the risk taker.

Rabbitt (1983) concluded risk acceptance and risk aversion were two behavioral traits related to occupational success. Rabbitt established validity by asking school superintendents to judge his subjects as risk acceptors or risk avoiders. Rabbitt believed one could use self-ratings, subordinate ratings and other ratings to determine better instrument predictions.

Mohapi (1991) studied the risk propensities of Illinois principals using Rabbitt’s instrument. Mohapi tried to determine the risk-taking, risk adverse tendencies of principals in Illinois. The investigation concluded principals could not be identified as more or less risk-taking.

MacCrimmon and Wehrung (1986) developed an in-basket to measure risk-taking for use in a risk-taking portfolio. The in-basket was used because of the strength of in-baskets as measurement tools for complex issues. The 16-page in-basket asked 509 American and Canadian top level managers to respond to four hypothetical, risky, business situations. The in-basket asked the responder to assume the role of an executive vice-president of a large firm. The responder just took over the job in their role and had to deal with different simulated situations before leaving on a long trip. Any action taken on situations had to be specified in writing. The situations were all described in self-contained forms. By analyzing the memos the responder’s risk-taking propensity was measured.
Bernoulli (1738) was perhaps the first person to discuss risk and risk-taking from a theoretical sense. Bernoulli asked questions regarding the likelihood of an individual choosing one value over another based upon an “expected value principle.” The “expected value principle” was dependent upon a utility model—a model that predicted a subject would select the highest utility given a multiple group of choices.

Expected values were computed by multiplying each possible gain by the number of ways in which it could occur, then by dividing the sum of the products by the total number of possible cases. In Bernoulli’s early work, each case had to have the same probability. Having the same probability assumed each person encountering an identical risk would consider the risks of equal value.

Bernoulli was aware he needed to account for people’s individual expectations. Therefore, mean utility (moral expectation) was determined by multiplying each possible profit expectation by the number of ways in which it could occur, then by dividing the sum of the products by the total number of possible cases. The profit that corresponded to that utility was equal to the value of the risk in question. However, a poor person would consider a fixed currency amount as having greater utility than a rich person would.

By way of example, two wage earners had one year’s salary in the bank and no other assets; the first wage earner earned 20,000 dollars per year and the second wage earner earned 200,000 dollars per year. A 2,000-dollar increase (a 2,000-dollar
value to both) equaled 2,000/20,000 or 0.1 increase in utility to the first wage earner yet only a 0.01 increase in utility for the second earner. Therefore, a 2,000-dollar bet would represent a much greater risk to the first wage earner than to the second. Due to the subjective nature of people’s expectations, theorists have traversed several different models for decision making under risk and uncertainty (Lopes, 1994).

Slovic (1962) studied what was thought to be a general psychological trait called utility for risk or risk-taking propensity. Slovic used different risk-taking measures to see if there was some convergent validation between traits. Slovic used response set, dot estimation, word meaning, life experience inventory, job preference inventory, gambling preferences, self crediting tests, variance preferences, probability preferences, and risk rating measures as part of his studies.

Slovic (1962) after examining several broad types of risk-taking measures for convergent validity, found the measures did not demonstrate the ability to consistently reveal risk-taking tendencies. Slovic’s (1962) study administered 82 fraternity seniors a battery of risk-taking measures.

The implications of the present study for the existence and measurement of a general risk-taking trait are (a) none or only a few of the variables analyzed actually measure the trait; or (b) willingness to take risks may not be a general trait at all but rather one which varies from situation to situation within the same individual (p. 70.)

Atkinson (1964) proposed a theory of achievement motivation in which risk-taking played a central role. His original theory proposed success-oriented persons (those in whom the motive to succeed is greater than the motive to avoid failure)
should prefer moderate risk to low or high levels of risk. Conversely, people high in motive to avoid failure would avoid moderate risk in favor of high or low risk choices. The basis of the prediction was compromise. For the success motivated person taking large risks would provide large successes yet the probability of success in the risky choices was low. Therefore, the success-oriented person would maximize one's opportunity by choosing a moderate level of risk, believing in a realistic achievement. Atkinson used a ring toss game to confirm his expectations.

McClelland (1961) replicated and supported Atkinson's success oriented (achievement) theory for situations where the subjects perceived they had some control. McClelland used several skill games to measure risk-taking including a shuffle board game, a ring toss game, pitching pennies, and pencil mazes. In skill games distance was utilized as being directly proportional to risk-taking. In an effort to determine cross-cultural similarities from Germany, Brazil and India McClelland devised one other skill measure. The measure used a paper/pencil test where subjects had to draw a circle on one side of a piece of paper and then had to turn the paper over and put a cross in the center of the circle. The researchers theorize the larger the circle, the lower the risk-taking propensity (McClelland, 1961). McClelland found no significant relationships in the study using the paper/pencil test. In other studies (McClelland, 1987) provided evidence counter to Atkinson's theory by continuing to have subjects high in failure-threatened anxieties show some preference for moderate risk-taking.
Keyes (1985) wrote a case study of individuals perceived as risk takers—a wirewalker, an entrepreneur and a skydiver. The premise of his book was that risk-taking might very well be a characteristic or trait that is more prevalent in some individuals than in others. Keys discussed two levels of risk. Risks considered Level I were risks for thrill seeking and stimulus. Keys suggested people have a need for a basic level of stimulus in part because of peoples’ distant past when they had to hunt, kill, and fight for survival. Man may have evolved into different types—those that have retained and increased the need for brain opiates and those that have evolved to where their brain organs produce too many opiates. People with too little opiate production would seek ways to approach danger—and thus provide more brain opiates. People who have an ample supply of brain stimulus would naturally seek to avoid danger and any extra stimuli.

Keyes defined Level II risks as primarily long-term risks such as marriage, leaving a job for a new position, opening a business, etc. These risks were considered risks that may not necessarily pump brain endorphins but were behaviors considered extremely fearful to a number of people. Keyes defined risk as what one fears to do.

The psychological realm has studied risk-taking (also sensation seeking and thrill seeking) for a notable time period. Of interest to psychologists was the development of a Sensation Seeking Scale (SSS) by Marvin Zuckerman (1990) in the early 1960’s. The Sensation Seeking Scale was designed to measure how people desired arousal activities. The scale measured thrill and adventure seeking (i.e.}
physically adventurous activities), experience seeking, disinhibition, and susceptibility to boredom. Zuckerman’s work indicated a possible biological explanation for individual differences in risk-taking. The Sensation Seeking Scale has been used to show evidence of possible brain chemistry differences between high and low risk-takers.

Zuckerman (1994) believed sensation seeking was a normal trait. Zuckerman stated the behavioral genetic research suggested genetic factors account for at least 30% of the variance in most broad personality traits. Zuckerman’s definition of sensation seeking included the willingness to take physical, social, legal, and financial risks for the sake of such experiences. Zuckerman suggested risk-taking behavior was a correlative to sensation seeking but not an essential part of the definition. Zuckerman’s point was that most sensation seekers accept the risk that is involved with the need or drive to experience a sensation itself. Zuckerman (1990) believed risk-taking behavior depended more on motivational or emotional states at the decision moment than on the motivational or emotional traits.

I suggest that individual differences in reactivity to intense and novel stimulation, that provide the basis for the sensation-seeking trait, may be the end result of natural variation in evolved A and W mechanisms in humans. Sensation seeking and sensation avoidance, as extremes of a continuous behavioral trait dimension, may represent two different strategies for adaptation to a dangerous environment in which novel stimuli can be either sources of biological reward or a threat to survival. The sensation seeker among our hominid ancestors was probably more exploratory and more adventurous than the sensation avoider. This trait pattern would provide the advantage of increased access to new potential food sources and mates, but a disadvantage in terms of the risks entailed in such activities. The sensation avoider would tend to avoid the risks at the expense of the loss of foraging and
reproductive advantage (p. 314).

Other researchers (Farley, 1986; Keyes, 1985) wrote about the relationship between risk-taking and sensation seeking. Farley contributed extensive work on sensation seeking and proposed a model for people's risk-taking tendencies. Farley proposed a continuum where people fall between big T ("T" stands for thrill seekers) and little t personalities. Farley used mazes (big T's would vary their choice of route) and figure tests (big T's would choose complex patterns) to identify type T's. Table 1 shows the preferences for each group as presented by Farley.

Thrill seekers were identified by Farley as "T+" ("T" positive) if the thrill seeker was inclined to take positive risks (e.g. mountain climbing, etc.) and "T-" if the thrill seeker indulged in negative or self-destructive behaviors. Farley considered thrill seeking to be a personality trait, yet he would not discount the biological and environmental influences that may be present.

Farley (1986) and Leo (1985) indicated a possible genetic trait between risk-taking and personality by connecting the high proportionate levels of Nobel Prize winners from the United States to immigrants. The immigrants were all high-risk takers (immigrants had to be to travel to the United States). The high-risk takers were more creative (based upon the number of Nobel prizes taken by United States citizens). Then one may presume the immigrant's offspring were also high risk-takers (since the number of Nobel prizes by United States citizens has remained high). Does risk-taking have a genetic connection?
Table 1

Preferences of High Thrill Seekers and Low Thrill Seekers

<table>
<thead>
<tr>
<th>Big T's</th>
<th>Little t's</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Certainty</td>
</tr>
<tr>
<td>Unpredictability</td>
<td>Predictability</td>
</tr>
<tr>
<td>Novelty</td>
<td>Familiarity</td>
</tr>
<tr>
<td>Complexity</td>
<td>Simplicity</td>
</tr>
<tr>
<td>Ambiguity</td>
<td>Clarity</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Rigidity</td>
</tr>
<tr>
<td>Much Variety</td>
<td>Little Variety</td>
</tr>
<tr>
<td>High Intensity</td>
<td>Low Intensity</td>
</tr>
<tr>
<td>High Conflict</td>
<td>Low Conflict</td>
</tr>
<tr>
<td>Low Structure</td>
<td>High Structure</td>
</tr>
</tbody>
</table>

Note. Adapted from "The Big T in Personality," by F. Farley, 1986, Psychology Today, 20, p. 48. Reprinted with permission from Psychology Today, Copyright (c) 1986 (Sussex Publishers, Inc.).

Farley suggested people were thrill seekers possibly because of their biological makeup. Perhaps nutrition in the early part of life had something to do with it. Farley discussed brain chemistry as a possible cause for thrill searching. If a person did not have enough endorphins in their brain or nervous system then the person may seek things that would excite and produce endorphins for their system. Farley summarized that biology may set the stage for being a big T, but social
circumstances help determine whether the big T person would become a creator or a destructor ("T+" or "T-"). The implication by Farley was clear, environments of people influence risk-taking (e.g. sensation seeking).

Farley proposed a scheme for school settings. Farley proposed individualizing instruction for big T's and little t's (e.g. risk takers and risk avoiders). Farley proposed having the personalities of the students and teacher match. The learning environment could either be highly stimulating or conventional. Big T's would best learn in an open climate with discovery learning and little t's would learn best in a structured, didactic learning environment (Farley, 1986).

Throughout his studies Farley found that big T's as a group tended to be more creative, more extroverted, take more risks, have more experimental artistic preferences, and have more variety in their sex lives than did little T's. Farley suggested big T's may move with greater ease from abstract to concrete thinking and back again. Farley believed persons that were big T's had a tendency to seek the unknown and uncertain. When big Ts' tendencies to seek the unknown combined with their tendencies toward risk-taking it would further enhanced the likelihood of big T's being very creative. Farley believed the opposite was true for little t's. Farley said, "The interesting thing is that the destructive forces—crime, drinking and driving—arise from the same group who could be the most creative" (Leo, 1985, p. 93). Is sensation-seeking a personality trait similar or equivalent to uncertainty-orientation (see Table 1)?
Sorrentino and others (et al., 1992) expanded Atkinson’s theory (success-oriented persons should prefer moderate risk) by adding a personality trait called uncertainty orientation. The measure of uncertainty orientation was designed using two components, uncertainty and certainty. Sorrentino and Higgins (1986) explained:

The uncertainty-orientated person seeks to attain clarity about his or her self or environment... Certainty orientation is also concerned with information value, but in terms of maintaining present clarity about the self or the environment. People who score high in n-uncertainty and low in authoritarianism are considered uncertainty oriented; people who score low in n-uncertainty and high in authoritarianism are considered certainty oriented . . . (p. 382).

What Sorrentino et al (1992) thought happened in studies where Atkinson’s theory failed to predict risk-taking by continuing to have subjects high in failure-threatened anxieties show some preference for moderate risk-taking (McClelland, 1987) was the interaction of the personality trait uncertainty orientation. Sorrentino et al believed the uncertainty orientation personality trait dominated the success-oriented trait. By selecting moderate risk levels the uncertainty-oriented persons were able to get new information about themselves and the environment (Sorrentino, et al., 1992).

In a duplication of Atkinson’s ring toss study Sorrentino and others advanced support for the idea that success orientation and uncertainty orientation both played a part in risk-taking propensity in games of chance and skill.

Sorrentino, Hewitt, and Raso-Knott used the hypothesis, “If informational aspects for a skilled task are relevant to individual differences in uncertainty orientation, and affective aspects are relevant to achievement-related motives, then we
should expect that both dimensions will influence risk-taking behavior” (1992, p. 523). One of their studies used a ring-toss to measure risk-taking, (greater distance from the ring equated to greater risk-taking). The study supported Atkinson’s theoretical concept which Sorrentino expanded providing evidence that uncertainty-orientation and success orientation were additive traits which promote moderate risk level choices.

In the second and third studies, Sorrentino et al (1992) were interested in determining if individual differences in uncertainty orientation would predict risk-taking in situations where the outcomes were totally determined by chance. Sorrentino et al (1992) believed the theory by Atkinson (1964) predicting risk-taking—was situation specific for success oriented persons but not for uncertainty oriented persons. Atkinson’s theory, Sorrentino and others reasoned, only applied when predicting behaviors in situations where a subject felt responsible for the outcomes. Sorrentino’s studies supported the theory that uncertainty orientation was not situation specific. Sorrentino et al (1992) concluded their research report by saying the studies have added, “. . . to a growing body of evidence that uncertainty orientation may transcend specific situational domains,” (p. 532).

Need for Risk-Taking Study

In Milligan’s research to identify characteristics of principals who were risk takers, Milligan suggested that further exploration on the topic would not only add to
the body of knowledge but would also have implications for the selection and placement of principals. "An adequate study of leadership should involve a study of situations as well as leaders themselves," (1994, p. 13). "Is risk taking a characteristic that some people possess and others do not? Or is risk taking something that individuals will display depending on the situation or on certain demographic variables associated with the decision maker?" (1994, p. 16). "Is risk taking a trait that is built into the personality or is it dependent upon the situation?" (1994, p.20). Risk-taking has been associated with being creative, innovative, solving problems, improving outcomes, resisting the mainstream, and positive growth, to name a few (Farley, 1986; Yates, 1992; MacCrimmon & Wehrung, 1986; Peters, 1987). Can some of these elements be explained?

For educators, managers and executives risk-taking has been shown to be an ordinary occurrence. To be able to manage risks well, to be risk-takers has been a desired quality for these people. Risk-taking may be situation (state) specific or it may be linked to a personality trait. Risk-taking may be influenced by personality traits and/or given situations—the research has been inclusive so far. Risk-taking has not been clearly defined nor understood. Yet it has received considerable encouraging press and popularity. Why should principals (or other leaders) take risks?

Risk-taking has been shown to be a characteristic sought after by those selecting leaders (Kremer, 1994; Pellicer, 1990). To be effective a principal,
executive or manager must deal with risky choices daily (Portner, 1993; NASSP, 1988). To further understand risk-taking we must combine personality traits with situations in order to examine the phenomena. This research used an existing in-basket measure (MacCrimmon & Wehrung’s) and two known personality traits (success orientation and uncertainty orientation) to compare risk-taking by school principals with their personality traits.

The idea follows that if a principal makes risky choices (to a degree) he or she will promote an environment capable of long-lasting change within a school building. In order to find a principal that makes risky choices one must examine their personality traits and predict his or her propensity to take risks. Given the relatively new concept of uncertainty orientation as a personality trait, this research proposes to lend support for or against the theoretical concept that risk-taking behavior may be predicted based upon personality traits. Do uncertainty orientation and success orientation play a role in predicting the risk propensity of secondary school principals? Do the traits work together?

Definition of Risk-taking

“Risk is brewed from an equal dose of two ingredients—probabilities and consequences” (Slovic, 1986, p. 412.) The Merriam-Webster’s Collegiate Dictionary (1994) defines the verb “risk” as, “Possibility of loss or injury: peril” (p. 1011). For risk to occur there must be some uncertainty (i.e. possibility) of loss. By reasoning
then, there are three components to a risk, chance of loss, exposure to loss, and some magnitude of loss.

Risk-taking by definition is the choice between a known and an unknown with the unknown having some possibility of loss. (Generally, the unknown choice has some possible gain and loss with the potential for gain greater than the sure choice.) The basic risk paradigm is diagrammed in Figure 1 and is not untypical of many everyday decisions.

Figure 1. Diagram of Basic Risk Paradigm.

Definition of Personality Trait

Personality may be defined as, "that which permits the prediction of what a person will do in a given situation" (Cattell, 1950, p. 2). Following the development and definitions by Anastasi (1983) and Zuckerman (1979) a personality "trait" shall apply to average behavior across time and instances. A "state" is time-specific, defining a condition for a point in time (Allport, 1937; Cattell, 1972). Therefore, a
trait implies a general orientation across time. This concept is important since many
traits are descriptive, not explanatory. However, this research chooses to use traits as
explanatory (personality traits predict behavior).

Different positions abound as to whether behavior is driven by personal
characteristics or given situations. Cattell (1972) is perhaps the strongest proponent
for characteristics driving behavior across situations. At the other end of the spectrum
is the position that behavior is situational determined. Mischel (1968) concluded that
only 5% to 10% of the variance in behavior was attributable to individual differences.
Buss (1989) argued that researchers could design their studies to favor variation from
either situations or traits, making it useless to debate which was the general case.
These arguments and discrepancies provide even more reason to further examine
whether uncertainty orientation (a relatively new trait) predicts behavior across
situations.

In-Baskets as Measurement Tools

The earliest uses for in-baskets (also called in-trays) were in training and
management development (Frederiksen, Saunders, & Wand, 1957). Frederiksen
(1962) described in-baskets as:

An in-basket test is a situational test, which simulates important aspects of the
job of an administrator. It consists of the letters, memoranda, notes of
incoming telephone calls, and other materials, which have supposedly
collected, in the in-basket of an administrative officer. The subject who takes
the test is given appropriate background information concerning the school,
business, military unit, or whatever institution is involved. . . . The
background information is sufficiently detailed that the subject can reasonably be expected to take action on many of the problems presented by the in-basket documents (p. 1).

Educational Testing Services was asked to develop a method to determine how well the desired outcome of training in the Command and Staff School was being achieved. Educational Testing Services developed in-baskets because of the difficulties of assessment in areas that demand a high level of performance. The company was seeking a new instrument to measure complex skills such as the ability to organize discrete pieces of information, anticipation of events that may arise in organizations and the ability to make decisions based upon large numbers of separate considerations. Frederiksen, Saunders, and Wand (1957) said about in-baskets:

At this level of functioning, tests of intellectual ability bear a lower relation to performance than they do to performance on tasks of a less complex nature, partly because selection on a basis of intelligence has already taken place, and partly because administrative responsibilities appear to demand additional skills (pp. 1-2).

The in-basket is a simulation used for assessment that has only been around since the Second World War (Gill, 1979). The tests were designed to simulate real-life work situations.

During the development of their first in-basket, Frederiksen, Saunders, and Wand (1957) used 12 categories that evolved to make up a system of classification. Six of the categories were behaviors that were considered individual, and six involved behaviors that were considered interactive; that is, the categories involved relationships with other people in order to be carried out.
MacCrimmon and Wehrung (1986) chose not to work with the iterative categories because they believed the categories could not be easily evaluated. The intent was not just to measure if the students had mastered textbook knowledge, but to evaluate if students actually exhibited desired behaviors as their own.

In 1979 Gill reported on in-tray research and its measure of management potential. Gill described the method used when administering the in-basket.

Subjects are provided with instructions, information on the company, its organization and the role to be played, and the in-tray contents. There is a fixed time allowed, usually 1-1/2 hours, during which they write letters, memoranda and notes on their decisions and actions as if they were really doing the job. Characteristically, they have just taken over the job but have to depart in 1 1/2 hours’ time to fulfill an immovable commitment elsewhere, and there is usually nobody to help or consult (p. 185).

Scoring was a difficult issue. Taft (1959) concluded that assessors familiar with the types of people being assessed had the greatest validity when scoring in-baskets. MacCrimmon and Wehrung (1986) scored the in-basket based upon either the presence or absence of written action (for example, did the subject attempt to gain more information or not).

In-baskets have shown to, “... add reliable predictive variance beyond that provided by the paper-and-pencil tests,” (Gill, 1979, p. 195). Further, Gill reported:

Experimental data suggesting high relative face validity in graduate recruitment and adequate inter-rater reliability in senior executive promotion procedures. . . . Its utility in relation to the concept of achievement-versus-aptitude, to trainability testing and to equal opportunity at work is suggested. . . (p.185).

In-baskets allowed for personal responses not allowed by choice dilemma.
questionnaires. Allowing open-ended responses permitted individuals to introduce additional considerations in his or her answers.

Frederiksen (1962) wrote, “The in-basket test may also be thought of as a performance test which reflects [the] personality of the examinees” (p. 24). Frederiksen believed the in-basket test may provide some criteria to, “... help in understanding more conventional measures of personality, including cognitive aspects of personality” (p. 24). In-baskets have as strength the ability to measure complex skills.

An In-Basket to Measure Risk-taking

A common risk-taking measure has been the questionnaire. In-baskets have been grouped in this category. In-baskets hold promise for testing complex skills (Frederiksen, 1962; Meyer, 1970). In-baskets provided an engaging simulation for different real-life challenges (Gill, 1979; MacCrimmon & Wehrung, 1986). The research review has not uncovered a consistent application or standard use for in-basket tests.

MacCrimmon and Wehrung (1986) used an in-basket questionnaire for analyzing the risk-taking of managers. MacCrimmon and Wehrung (1986) developed an in-basket questionnaire in stages. The first stage piloted 170 undergraduates and 30 graduate student responses on trial items, eliminating items because of poor results. The second stage followed with a second pilot using 40 business executives
as subjects. MacCrimmon and Wehrung eliminated all but four situations so their in-basket could be answered in a reasonable amount of time (e.g. 45 minutes).

**Instructions**

Each of the four predicaments were based upon MacCrimmon and Wehrung’s (1986) basic risk paradigm, containing a choice between a risky and a safe action (see Figure 1). The managers answering the in-basket were given these instructions:

**INSTRUCTIONS:** In this booklet we ask you to take on the role of the vice-president of a large multinational corporation. You are requested to respond to the letters and memos in his in-basket and then to further specify the decisions you have taken by answering a short questionnaire (p. 307).

Instructions also included:

Please act as if you are Bill Bickner, Vice-President, North American Operations of Multinational Products, Inc. Formerly the president of the Connecticut subsidiary, you have just replaced James Norton, who died last week of a heart attack...

You are to use your own experience as the basis for your decisions in the role of Bill Bickner (p. 80).

The Bickner role was chosen since managers have always had a wide variability in their actual roles. Standardization has always been a desired trait when testing for comparison. Therefore, standard portrayal was used because comparisons of risk-taking propensities were to be made. To enhance the risk-taking data on individuals the administrators were asked to use their own experiences.
Response Items

The four risky situations the subjects responded included:

1. A lawsuit. A letter from a subsidiary president asking whether the firm should settle out of court or file suit in a patient violation case.

2. A customer threat. A major customer visited and threatened to withdraw their business unless one of his competitors was no longer supplied. The threat was in memo form from Mr. Bickner’s secretary.

3. A union dispute. The president of a subsidiary wrote to ask that a work sampling study be stopped to avert a union strike.

4. A proposed joint venture. A memo from the head of a team that investigated other prospects, asking whether a project should be pursued individually or as a joint venture.

At the end of the in-basket containing the four risky situations was an action rating and a probability rating. The action rating had an 11-point scale (considered from 0 to 10). The scale was simply a number line with equal distance segments marked off on it with the following instructions from MacCrimmon and Wehrung’s (1986) in-basket booklet:

For each of the four situations, for which you have written memos, there are two main courses of action. On the scales below, we would like you to rate your inclination toward taking one or the other action. Even if you prefer to collect more information before making a final decision, we would like you to indicate your current inclination by placing an X on each scale (p. 14).
Following the action rating was a survey asking the responder to answer the lowest acceptable chance needed for the responder to take an action. In simpler terms, if the subject could take the action the subject desired what probability would be needed before doing so. The possibility that no change in odds would effect a choice was also available, (e.g. the choice to not continue no matter what the chances).

The in-basket outcomes consisted of a choice between a sure action and two possible consequences for the risky choice. The consequences for the risky choice included a positive (favorable) and a negative result. The outcomes had specific probabilities attached, which were detailed in the memorandum explaining the action needed. The expected values of the sure outcome and the risky outcome were equal. Comparisons of the situations and their outcomes have been portrayed in Table 2.

Analysis of in-basket results led MacCrimmon and Wehrung (1986) to conclude the executives were most likely to take risks in the customer threat situation and most risk-averse in the joint venture situation. MacCrimmon and Wehrung concluded the risk-taking across situations was at best weakly related. Risk-taking by the executives was more common for situations involving losses than where there were only gains possible (i.e. higher risk-taking for customer threat and lawsuit that for the joint venture). The executives showed related scores from their memo writing, risk action ratings and a lowest acceptable chance answers (MacCrimmon & Wehrung, 1986). The risk-taking distributions have been summarized in Table 3.
<table>
<thead>
<tr>
<th>Decision Situations</th>
<th>Lawsuit</th>
<th>Customer Threat</th>
<th>Union Dispute</th>
<th>Joint Venture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Whether to settle out of court or not</td>
<td>Whether to comply with customer threat or not</td>
<td>Whether to comply with union request on work sampling or not</td>
<td>Whether to pursue the project individually or not</td>
</tr>
<tr>
<td>Initiator</td>
<td>Letter from president</td>
<td>Memo from secretary</td>
<td>Letter from president</td>
<td>Memo from project leader</td>
</tr>
<tr>
<td>Non-monetary</td>
<td>Possible long term litigation</td>
<td>Impact on other customers</td>
<td>Impact of strike on others</td>
<td>Implications of cooperating with competitor</td>
</tr>
<tr>
<td>Possible</td>
<td>Bargain with litigant</td>
<td>Reason with customer</td>
<td>Bargain with union</td>
<td>Negotiate with competitor</td>
</tr>
<tr>
<td>controllability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of key events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sure action</td>
<td>Settle out of court</td>
<td>Stop supplying competitor</td>
<td>Discontinue job sampling study</td>
<td>Pursue project with competitor</td>
</tr>
<tr>
<td>Sure Action</td>
<td>Lose $800,000</td>
<td>Lose $4 million each year</td>
<td>6.5% return on equity</td>
<td>14% return on investment</td>
</tr>
<tr>
<td>Consequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risky action</td>
<td>Fight lawsuit</td>
<td>Continue supplying competitor</td>
<td>Continue work sampling study</td>
<td>Pursue project alone</td>
</tr>
<tr>
<td>Risky action</td>
<td>Win case, small legal costs</td>
<td>Competitor does not go bankrupt, lose $3 million each year</td>
<td>No union strike, 10% return on equity</td>
<td>Capture large market share, 22% return on investment</td>
</tr>
<tr>
<td>Positive consequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2—Continued

<table>
<thead>
<tr>
<th>Decision Situations</th>
<th>Lawsuit</th>
<th>Customer Threat</th>
<th>Union Dispute</th>
<th>Joint Venture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risky Action</td>
<td>Lose case, lose $1.6 million</td>
<td>Competitor goes bankrupt, lose $7 million annually</td>
<td>Union strike, lose $200,000</td>
<td>Capture small market share, 10% return on investment</td>
</tr>
<tr>
<td>Negative consequence</td>
<td>0.50</td>
<td>0.75</td>
<td>0.40</td>
<td>0.33</td>
</tr>
<tr>
<td>Probability of positive consequence</td>
<td>Lose $800,000</td>
<td>Lose $4 million annually</td>
<td>Ambiguous</td>
<td>14% return on investment</td>
</tr>
</tbody>
</table>


Only 4% of the managers did not modify any of the situations faced in MacCrimmon and Wehrung’s 1986 study. On the other extreme, 22% of the responses tried to modify each of the situations faced. The executives frequently asked for specific information when collecting more data. Executives attempted to bargain when uncertainties were due to actions of others. The executives delayed decisions in 28% of their memos; however, only 2% of the memos suggested an indefinite delay. Delegation was used in 30% of the managers’ memos.
Table 3

Distribution of Risk Ratings by Situation

<table>
<thead>
<tr>
<th>Actions Specified</th>
<th>Risk Ratings (Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lawsuit</td>
</tr>
<tr>
<td>Inclined to Take Risk</td>
<td>65</td>
</tr>
<tr>
<td>Risk-Neutral</td>
<td>6</td>
</tr>
<tr>
<td>Inclined to Take Sure Action</td>
<td>29</td>
</tr>
</tbody>
</table>


Personality Traits Uncertainty Orientation and Success Orientation

The personality traits success orientation and uncertainty orientation have demonstrated some relationship to risk-taking. Sorrentino et al (1992) expanded Atkinson’s (1964) theory with empirical work which indicated uncertainty oriented and success oriented personality traits were predictors of risk-taking. Sorrentino et al’s (1992) research suggested the two traits were additive when subjects choose risks in skilled situations. Sorrentino et al (1992) implied that success motivated individuals would choose moderate risk-taking only when the subjects felt responsible for the outcomes and that uncertainty orientated personalities would
choose moderate risk-taking across situations.

Sensation seeking has been linked to risk-taking and what Farley (1986) termed thrill seeking. The trait has shown evidence of being a personality, perhaps genetic, perhaps biological. One may argue the Big "T" trait (see Table 1) has demonstrated equivalence to uncertainty orientation. Further lending support for the idea that uncertainty orientation may be connected to risk-taking and that uncertainty oriented people may not change their risk-taking patterns because of given situations.

**Uncertainty Orientation**

Uncertainty-oriented persons were defined as motivated to find out new things about themselves or their environments. The reverse held for certainty-orientated people. Certainty oriented people choose to avoid or ignore new or inconsistent information about their environments or themselves.

**Uncertainty**

The n-uncertainty component was inferred from a projective measure using a modification of the Thematic Apperception Test (Murray, 1936). The modification used sentence leads instead of pictures and was developed by Frederick, Sorrentino, and Hewitt (1985). Using sentence leads instead of pictures was found to be a valid procedure (Raynor & Rubin, 1971; Sorrentino, Short, & Raynor, 1984).

To determine n-uncertainty procedures by Atkinson (1958, Appendix 3) were
employed. Four sentence leads were used; the leads were the same leads used to establish n-achievement. Of the sentence leads, one, three and four came from Atkinson’s (1958) list of leads recommended to assess multiple motives. Lead two was used to aid in assessing uncertainty orientation (Sorrentino et al., 1992). The stories were scored following the procedures described by Sorrentino et al. (1984) and by Sorrentino and Hewitt (1984).

**Certainty Inferred from Authoritarianism**

Certainty has been inferred using an adaptation of the Byrne and Lamberth (1971) acquiescence-free measure of authoritarianism. The measure was used to infer one’s orientation toward certainty and was assumed to be independent of one’s orientation toward uncertainty. The questionnaire had 21 six-point scaled items. Totals from the items were used. The scores were converted to z-scores and then subtracted from n-uncertainty z-scores to produce a resultant uncertainty orientation measure.

**Success Orientation**

Two component measures were used to determine success-orientation. One was the motive to succeed and two was the motive to avoid failure (Sorrentino, Hewitt, & Raso-Knott, 1992). The motive to succeed was inferred from achievement and the motive to avoid failure was inferred from test anxiety.
Success Inferred from Achievement

The trait n-achievement has been determined by using four sentence leads: (1) A person is working with a typewriter and books, (2) A person is sitting, wondering about what may happen, (3) A young person is standing: a vague operation scene is in the background, and (4) Two people are working in a laboratory on a piece of equipment. Of the sentence leads, one, three and four came from Atkinson’s (1958) list of leads recommended to assess achievement-related motives. For each lead subjects were asked a series of questions (e.g. who are the persons in the story? what is taking place?) and asked to write a story to respond to the leads and questions. In general, n-achievement was scored when a subject showed affective concern about attainment of an achievement goal.

Failure Avoidance Inferred from Test Anxiety

The first third of the items from Mandler and Sarason’s (1952) Test Anxiety Questionnaire have been used to infer the motive to avoid failure. The first third was found to be highly correlated with the total scores (Smith, 1964). Scores from the Test Anxiety Questionnaire were transformed into z-scores and subtracted from n-achievement z-scores to produce a measure of success orientation.

Questions to be Considered

Specifically, this study will further the understanding of how two personality
traits, uncertainty orientation and success orientation, relate to risk-taking.

Therefore, this investigation examined four major constructs; the four were:

1. Uncertainty-orientation would relate to risk-taking propensity in principals. Uncertainty orientated principals in efforts to find more out more about themselves and/or their environments should choose moderate risk-taking over low or high risk-taking (Sorrentino et al., 1992).

2. Success-orientation would relate to risk-taking propensity in principals. Atkinson's (1964) theory proposed success-oriented person would maximize one's opportunity by choosing a moderate level of risk, believing in a realistic achievement.


4. Uncertainty-orientation and success-orientation when taken together would relate to risk-taking propensity in principals. Sorrentino et al (1992) supported the idea that success orientation and uncertainty orientation both played a role in risk-taking propensity and that the traits were additive.

Summary

Public school principals answered three questionnaires to determine the strength of two personality traits, success orientation and uncertainty orientation. The principals then answered an in-basket questionnaire with four risky hypothetical
situations. The in-baskets were scored to determine their risk-taking propensities. A correlational study comparing principals' personality traits to their risk-taking propensities was then carried out to examine the strengths or weaknesses of the hypotheses. According to Isaac and Michael, correlation research was, “Appropriate where the variables are very complex and/or do not lend themselves to the experimental method and controlled manipulation” (1985, p. 49).

School districts and individual schools need good leaders. If risk-taking and personality are related, educators may be able to gain yet another tool in matching personnel to need. If a district perceives a need to chart a course towards change, the district may well want to hire a principal with specific risk-taking propensities. School boards and superintendents would be able to choose principals depending upon their desire to have a more stable leader or a ‘change agent’ at the helm. Principals matched to their positions will be more satisfied and arguably remain in their positions longer.

When principals make the best possible choices in risky situations, everyone reaps rewards. “Research has shown for the longest time that the principal is the key to the success of the school” (Mays, 1994, p. 1). Glasser discussed the power within a school as coming from the principal, as the power within a classroom comes from the teacher (Brandt, 1988). Decisions made by principals have major impact. The risk-taking by school principals must be explored. Risk-taking modeled in schools by principals may change children’s risk-taking, effecting their decision-making and
possibly leading them into being creative or destructive as Farley (1986) implied.

Since principals impact the children in schools their risk-taking must be explored.
CHAPTER III

METHODOLOGY OF THE STUDY

Overview

This investigation examined theoretical constructs connecting the personality traits, uncertainty orientation and success orientation to risk-taking propensity. Can personality traits predict risk-taking propensity? Public school principals answered three questionnaires to determine the strength of their personality traits. The principals then answered an in-basket questionnaire in which four risky hypothetical situations were responded to. The principals' responses were scored to determine their risk-taking propensities.

Research Approach

Study Type

The approach for this investigation was a correlational study comparing principals' personality traits to their risk-taking propensities. According to Isaac and Michael (1985) correlation research is, “Appropriate where the variables are very complex and/or do not lend themselves to the experimental method and controlled manipulation” (p. 49).
Prediction studies measure the prediction variables prior to measuring the criterion variable (Borg & Gall, 1983). This study measured the criterion variable (e.g. risk-taking propensity) with four hypothetical situations immediately after the predictor variables were measured. Therefore this study was a relational study, where both the predictor and the criterion variable were measured virtually at the same time.

“Relationship studies are concerned primarily with gaining a better understanding of complex behavior patterns by studying the relationships between these patterns and variables to which they are hypothesized to be causally related” (Borg & Gall, 1983, p. 576). To keep the study predictive the criterion variable was determined after the predictor variables.

Data Analysis

Scattergrams were generated to visually examine the relationships between variables. To examine the first three hypotheses the Pearson product-moment correlation coefficient (the Pearson coefficient) was calculated to produce a statistical value for the relationships between (a) uncertainty orientation and risk-taking propensity, (b) success orientation and risk-taking propensity, and (c) uncertainty orientation and success orientation, for the principals. The Pearson coefficient was used to analyze the relationship between the data related, in other words their predictability (Hinkle, Wiersma, & Jurs, 1988).
Multiple regression was the statistical tool used to investigate the fourth hypothesis or the relationship between risk-taking propensity and the combined effects of uncertainty orientation and success orientation. "We can define multiple regression as a multivariate technique for determining the correlation between a criterion variable and some combination of two or more predictor variables" (Borg & Gall, 1983, p. 596). When exploring correlational relations between two or more variables, multiple regression can do everything a test and analysis of variance can do and more (Borg & Gall, 1983).

Variables

The variables for this study were uncertainty orientation, success orientation and risk-taking propensity. The predictor variables were the personality traits uncertainty orientation and success orientation. The criterion variable was risk-taking propensity.

Uncertainty Orientation

Uncertainty orientation was determined using two components, uncertainty and certainty. Certainty was inferred from a measure of authoritarianism. Scores for authoritarianism were subtracted from uncertainty scores to produce a resultant uncertainty orientation measure.
Simply stated, a high uncertainty orientated person would prefer to learn new things about themselves and their environment. High uncertainty-oriented people would like to try new activities, new foods, different roads, etc. as a matter of course. A low uncertainty orientated person would just as soon not try or do anything new.

Uncertainty

Uncertainty was determined by asking participants to write short stories. Sentence leads (e.g. a person is thinking: an image of a crossroads is in the person’s mind) were used to provide the basis of a story. For each lead participants were asked a series of questions (e.g. Who were the persons in the story? What is taking place?) and asked to write a story to respond to the leads and questions. Uncertainty was scored when a participant indicates a desire to approach uncertainty (Sorrentino, Hanna, et al. 1992).

Certainty

Certainty was inferred using an adaptation of the Byrne and Lamberth (1971) acquiescence-free measure of authoritarianism (Appendix D). The measure used was a questionnaire with 21 six-point scaled items. The participant agreed or disagreed with the items depending upon their authoritarian tendencies. Totals from the items were calculated to obtain an authoritarianism measure that was used to infer their certainty.
Success Orientation

Success orientation was established using two components (Sorrentino, Hewitt, & Raso-Knott, 1992). The first was the motive to achieve and the second was the motive to avoid failure. Scores for failure avoidance were subtracted from achievement scores to produce a resultant uncertainty orientation measure.

A high success oriented person preferred to complete their goal, to reach the mark they set for themselves, etc. To some extent high success oriented people would fear failure. A low success oriented person would not focus upon goals and would be more fearful of failure.

Achievement

Achievement was determined by asking participants to write short stories. The achievement measure was determined using the same four sentence leads used to determine uncertainty. Instead of scoring for uncertainty imagery the stories were scored for achievement imagery using procedures outlined by McClelland, Atkinson, Clark, and Lowell (1958). Achievement was scored when a participant showed affective concern about attainment of an achievement goal (McClelland et al., 1958).

Failure Avoidance

Failure avoidance was inferred from a measure of test anxiety. The first third of items from Mandler and Sarason's (1952) Test Anxiety Questionnaire (Appendix
E) were used to measure test anxiety. The items included 15 questions about group testing situations. The questions measured feelings and attitudes ranging from strong to weak. Totals from the items were calculated to obtain a test anxiety score that was used to infer failure avoidance.

**Risk-Taking Propensity**

Principals answered an in-basket questionnaire to determine their risk-taking propensity (MacCrimmon & Wehrung, 1986). The more risky outcomes selected by a principal the greater the risk taker he or she was. The questionnaire included four hypothetical, risky, business situations in written memorandum format, an action rating scale and a lowest acceptable chance scale.

Each situation consisted of a choice between a sure action and two possible consequences for a risky action. The consequences for the risky choice included a positive (favorable) and a negative result. To determine risk-taking propensity scores were added for each situation then combined to obtain a total score for risk-taking propensity. A detailed description of the in-basket, and some rationale for its use are contained in Chapter II.
Hypotheses

Can the personality traits, uncertainty orientation and success orientation predict the risk-taking propensity of a principal? To examine this question the hypotheses in null form were:

1. Uncertainty-orientation will not relate to risk-taking propensity in principals.
2. Success-orientation will not relate to risk-taking propensity in principals.
3. Uncertainty-orientation will not relate to success orientation in principals.
4. Uncertainty-orientation and success-orientation when taken together will not relate to risk-taking propensity in principals.

Pilot

There were several reasons to conduct a pilot study. The reasons included (a) providing the researcher with more ideas, (b) permitting a thorough check of the statistical and analytical analysis, (c) increasing the possibility of saving time and/or money in the main study, and (d) providing feedback valuable to the study (Isaac & Michael, 1985). Additional advantages of a pilot study for this research were: (a) for the scorer to become familiar with the instruments used to measure complex variables, (b) to determine the clarity of the instructions, (c) to examine the
participants completeness of answers, and (d) to estimate the size of the correlation, (Borg & Gall, 1983).

After administering the instruments the researcher and another scorer scored the instruments. A student (considered an expert scorer) scored the personality instruments for uncertainty under the supervision of Dr. Richard Sorrentino at the University of Western Ontario. Dr. Sorrentino has worked with uncertainty orientation for several years.

Pilot Sample

The pilot sample came from principals in Shiawassee County Michigan. The county consisted of eight public pre-kindergarten through twelfth grade school districts. Within the county there were 33 schools, 19 elementary, 6 middle and 8 secondary schools, each with a principal. Every principal in the county was asked to participate in the pilot. The pilot expected to test between 10 and 30 participants as proposed by Isaac and Michael (1985, p. 96) however only 7 completed samples were returned. Shiawassee County principals were chosen because of their experimental accessibility, their diversity, and the size of the sample. The pilot selected permitted the researcher to hand out the questionnaires in person when asking for responses.
Pilot Data Analysis

Scattergrams were generated and the Pearson coefficients calculated between (a) uncertainty orientation and risk-taking propensity, (b) success orientation and risk-taking propensity, (c) uncertainty orientation and success orientation. The researcher sought to answer questions important to the main study. The questions included, (a) were the instructions to the questionnaires clear, (b) what was the response rate of the participants, (c) was the data analysis appropriate for the study, and (d) was there evidence of correlation.

The principals understood the instructions. The response rate was 21%, higher than the 7% received by MacCrimmon and Wehrung but too low for meaningful data analysis or to support evidence of a correlation.

Population and Sample

Target Population

Principals occur in three natural categories; elementary, middle and secondary school principals. At the time of this study there were 608 secondary, 583 middle and 2,044 elementary public schools in Michigan (Michigan Education Directory 1997, 1996). The target population included all public school principals in Michigan.

The population was chosen to provide a diverse and representative group of principal responders. Districts vary widely in their student population size and their
economic levels. This sample by design contained a representative number of principals from districts with different population sizes and economic levels. To assist the researcher in further determining the representative nature of this sample a demographic questionnaire was included as part of the data collection instrument (Appendix A).

Sample Size

"In correlational research it is generally desirable to have a minimum of 30 cases" (Borg & Gall, 1983, p. 257). Small samples were appropriate where evaluating behavior is involved (Isaac & Michael, 1985; Borg & Gall, 1983). For correlational studies a researcher may use the pilot study results to determine the appropriate number of cases needed for a particular correlation to be statistically significant (Borg & Gall, 1983). Once a correlation is calculated from the pilot a sample size may be determined (Borg & Gall, 1983).

Findings based upon large sample sizes were usually considered more reliable than findings based upon smaller sample sizes (Hinkle, Wiersma, & Jurs, 1988). Isaac and Michael wrote about exploratory research, "To find promising leads or alternatives in research, it is essential to stay close to data. Samples with N's between 10 and 30 have many practical advantages" (1985, p. 96). Even though this study was an exploratory study, a sample of 60 or more was initially desired.
Main Study Sample

Random sampling was chosen to collect information from one-third of the population of public school principals in Michigan. The population included all the 556 districts in the state of Michigan. The districts were organized by numerical ordering from lowest to highest using their district code numbers (given to districts by the State of Michigan). The first district and every third following district were chosen for sampling. The district of Detroit was added because it represented 10% of the principals in the state. In simpler terms, one-third of the school districts (thereby assuming one-third of the principals) in Michigan were included in the sample. By including the Detroit Public Schools the sample actually consisted of over one-third of the principals in the state.

The need for such a large sample arose because of two reasons. The first was the 7% response rate MacCrimmon & Wehrung (1986) had for their in-basket (also used in this study). The second was the requirement imposed by the Human Subjects Institution Review Board (HSIRB) that permission from the district superintendent be received in writing. If the district's superintendent did not consent to the sampling then the next district in each group of three was chosen. If the second superintendent refused sampling then the third was selected and permission asked. From the 1,054 surveys mailed, 50 returned complete responses acceptable for use in the study.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Questionnaires and Scoring

First Questionnaire, Uncertainty and Achievement

A sentence lead questionnaire was used to determine two distinctly separate measures, uncertainty and achievement. The four sentence leads were: (1) A person is thinking: an image of a crossroads is in the person’s mind; (2) A person is sitting, wondering about what may happen, (3) A young person is standing: a vague operation scene is in the background, and (4) Two people are working in a laboratory on a piece of equipment. Leads one and two were used to aid in assessing the uncertainty component (Sorrentino, R. M., personal communication, January 15, 1997; Sorrentino, Hewitt, et al., 1992).

For each lead participants were asked a series of questions (e.g. Who are the persons in the story? What is taking place?) and asked to write a story to respond to the leads and questions. Participants were given 20 seconds to look at the lead and 4 minutes to write a story about the lead. The stories were scored following the procedures described by Sorrentino, Hanna, and Brouwers (1992). In general, uncertainty was scored when a subject showed affective concern about the need for uncertainty imagery (Sorrentino, Hanna, et al. 1992).

The achievement measure was determined by using the same four sentence leads used to determine uncertainty. Of the sentence leads, three and four came from
Atkinson’s (1958) list of leads recommended to assess achievement-related motives. Instead of scoring for uncertainty imagery the stories were scored for achievement imagery using the procedures outlined by McClelland, Atkinson, Clark, and Lowell (1958).

**Scoring Uncertainty and Achievement**

In both uncertainty and achievement the scorer looked for the subject to demonstrate some need in the form of imagery. The instructions by Sorrentino, Hanna and Brouwers (1992) included:

The projective measure of Uncertainty relies heavily in its conceptualization on Kagan’s (1972) notions concerning modes of uncertainty resolution. It also utilizes a scoring system similar to those developed for Achievement, Power, and Affiliation ([Smith,] 1992). Scoring procedures are the same for Uncertainty as they are for these other measures, and Appendix I of Smith (1992) should be closely followed.

Kagan (1972) viewed the resolution of uncertainty as a primary motive; uncertainty was postulated to originate from incompatibility between (a) too cognitions, (b) cognition and experience, or (c) cognition and behavior. Kagan also suggested that a major source of uncertainty is one’s inability to predict the future. These categories provided a basis for identifying the presence of uncertainty imagery in stories written to a sentence lead or picture (p. 1).

In resolving uncertainty the need for uncertainty imagery was used in addition to other scoring subscales. When determining achievement the scorer looked for the goal achievement imagery. The other subscales used to determine both uncertainty and achievement included, stated need, instrumental activity, goal anticipation positive, goal anticipation negative, blocking people, blocking world, affective state
positive, affective state negative nurturant press, and thema. The scorer added one for each subscale determined to be present in a story answer for a given sentence lead.

If the scorer determined the sentence response story had unrelated imagery the sentence was scored a minus one. If the scorer determined the sentence response story had doubtful imagery the sentence was scored zero. Therefore, the score range for each sentence lead was between minus-1 and plus 11. Since there were four sentence leads the raw score range for the uncertainty component and for the achievement component (which infers certainty) was between minus-4 and 44.

The uncertainty and achievement components were determined using different scorers. One scorer was hired by the primary researcher and scored the leads for uncertainty following the procedures outlined by Sorrentino, Hanna, et al (1992). The scorer had training and experience scoring the sentence leads.

Second Questionnaire, Certainty

Certainty was inferred from a questionnaire for authoritarianism (Appendix D). The measure was chosen because authoritarianism involves a subject’s concern for familiar and predictable events (Kelman & Barclay, 1963). The measure was used to infer one’s orientation toward certainty and was assumed to be independent of one’s orientation toward uncertainty. The questionnaire had twenty-one 6-point scaled items. The item scores ranged from plus three (agree very much) to minus three (disagree very much). Totals from the items were calculated to obtain an
authoritarianism measure. Therefore the possible raw score range for authoritarianism was between minus-63 and plus 63. Chronbach’s alpha was calculated (0.78) to check the internal consistency of this questionnaire.

Third Questionnaire, Failure Avoidance

Failure avoidance was inferred from test anxiety. A 15-item questionnaire was used to measure test anxiety (Appendix E). The items asked questions about group testing situations. The items were found to highly correlate with total scores on Mandler and Sarason’s (1952) test anxiety questionnaire (Smith, 1964).

The test was a measure of feelings and attitudes ranging from strong to weak. The responder was asked to place a mark on a line within six segments ranging from low anxiety to high anxiety. The marks were scored on a five-point scale (i.e. from one to five). The two midpoint segments were each scored the same. Therefore the possible raw score range for test anxiety was between 15 and 75. Chronbach’s alpha was calculated (0.92) to check the internal consistency of this questionnaire.

Fourth Questionnaire, Risk-Taking Propensity

MacCrimmon and Wehrung (1986) used an in-basket questionnaire to measure the risk-taking propensity of top level executives as part of a risk-taking portfolio study. Their questionnaire included four hypothetical, risky, business
situations in written memorandum format, an action rating scale and a lowest acceptable chance scale.

The risk in-basket instructions were written to allow administrators the ability to respond by written memo to whomever they felt was appropriate. The in-basket had to be answered using only the materials available. After the four hypothetical situations were answered in memo format a participant completed the action rating and the probability rating questions. The action rating and the lowest acceptable chance questions were in relation to the four hypothetical situations. The time specified to complete the in-basket items was 45 minutes, 35 for writing responses and 10 for the questions after the in-basket section.

Each situation presented the participant a choice between maintaining the status quo or taking some unknown risky alternative. The risky outcomes had specific probabilities attached, which were detailed in the memorandum explaining the action desired. The expected values of the sure outcome and the risky outcome were equal.

Five scores were determined from a principal’s response to each situation. To calculate risk-taking propensity the five scores were added for each situation then combined to obtain a total score for risk-taking propensity.
**Scoring Risk-Taking Propensity**

Three of the in-basket's five scores were determined from the in-basket response to each situation. One from the scorer's determination of level of risk, (an integer rating between one and eight with eight representing the highest risk propensity), one from the presents or absence of an action to delay (scored minus-one if present, zero if absent), and one from the presents or absence of seeking more information (scored minus-one if present, zero if absent).

The presents of any of the codes for delaying or delegating indicated the presents of delay. The five codes for delay were (1) temporary delay action specified, (2) infinite delay action specified, (3) delegate decision with recommendation, (4) delegate decision without recommendation; and (5) delegate implementation, but decision specified (MacCrimmon & Wehrung, 1986).

The presents of any of the codes for seeking information indicated the presents of seeking information. The four codes for information seeking were: (1) desire expressed to collect information, but no action specified to do so; (2) action specified to collect some information, (3) action specified to collect much information, and (4) bargaining, negotiating or presenting a new alternative (MacCrimmon & Wehrung, 1986).

The action rating had a nine-point scale (from one to nine). The scale was simply a number line with equal distance segments marked on it. At each end of the
scale was an action representing either a risky choice or a safe choice. An action rating score was determined for each of the four situations based upon where the participant marked an "X" on the line.

Following the action rating was the lowest acceptable chance probability (lowest chance out of 100) question asking the responder to answer what the lowest chance needed for the responder to take an action was. In simpler terms, what probability would the participant need before taking a desired action? The participant also had the choice not to take the risk no matter what the probability. Lowest acceptable chance was scored between minus-one and plus-one (plus-one representing the highest risk propensity) depending upon the response to chances out of 100 (i.e. score = response minus 50 times 0.02).

To determine risk-taking propensity subtotals were calculated for each of the four hypothetical situations. The subtotals were then totaled for an overall risk-taking propensity score. Therefore the possible raw score range for risk-taking propensity was between minus-4 and 72.

The primary researcher (previously a principal) scored the risk-taking in-basket responses. Frederiksen, Saunders, and Wand concluded, "Relevant experience with the job situation which the In-Basket Test is designed to simulate would be very helpful in learning to score the test" (1957, p. 10). Frederiksen et al also wrote, "...the In-Basket Test may be scored by someone working mostly from the printed instructions with a minimum of special training" (p.11). Taft (1959) wrote that
assessors most familiar with the types of people being assessed produce the best validity.

**Normalizing Scores**

Since the range and distribution of the raw scores for uncertainty, achievement, authoritarianism, test anxiety, and risk-taking propensity were so varied the researcher transformed the raw data to standard scores. After converting the individual component scores to normalized scores the components were then combined to produce unweighted variable scores for data analysis. Standard scores may be used to calculate correlations and direct comparisons yielding the same results as the original data if the reference groups were equivalent (Isaac & Michael, 1985).

Using the measures for uncertainty and authoritarianism (certainty) both sets of scores were transformed into \( z \) scores. The \( z \) scores for authoritarianism were subtracted from uncertainty \( z \) scores to produce a resultant uncertainty orientation measure. The \( z \) scores from the test anxiety (failure avoidance) measure were subtracted from the \( z \) scores for achievement to produce the resultant measure success orientation.
Data Analysis

Correlation Coefficient

The Pearson coefficient was used to quantify the strength of association between variables. The Pearson coefficient can be used to describe the extent to which two sets of data are related, in other words their predictability (Hinkle, Wiersma, & Jurs, 1988). The Pearson coefficient indicates an index of a linear relationship between variables for paired observation. Variables may have a strong relationship but have a small correlation if the relationship is not linear (Norusis, 1993).

Level of Significance

After scattergrams were examined and prior to data calculations a level of significance was established. The level of significance (represented by α) is defined as the probability of a Type I error occurring (i.e. rejecting a true hypothesis). For this exploratory study the consequence of rejecting a true null hypothesis and therefore not proceeding to investigate the relationships between personality traits and risk-taking propensity were considered small. The α = 0.05 level of significance was accordingly set for this investigation.
Correlation for Uncertainty Orientation and Risk-Taking Propensity

A Pearson coefficient was calculated between uncertainty orientation and risk-taking propensity to examine the test hypothesis. The test hypothesis was uncertainty-orientation would not relate to risk-taking propensity in principals.

Correlation for Success Orientation and Risk-Taking Propensity

A Pearson coefficient was calculated between success orientation and risk-taking propensity to examine the test hypothesis. The test hypothesis was success orientation would not relate to risk-taking propensity in principals.

Correlation for Uncertainty Orientation and Success Orientation

A Pearson coefficient was calculated between uncertainty orientation and success orientation. The test hypothesis was uncertainty orientation would not relate to success orientation in principals.

Multiple Regression: Correlation for Uncertainty Orientation, Success Orientation, and Risk-Taking Propensity

Multiple regression was used to investigate the possible additive predictive relationship that uncertainty orientation and success orientation had on risk-taking propensity. The test hypothesis was uncertainty-orientation and success-orientation when taken together will not relate to risk-taking propensity in principals. To
determine if the multiple correlation coefficient was significant an F distribution was calculated. The F-test was to determine if the null hypothesis, that the multiple correlation in the population equals zero, was true.
CHAPTER IV

ANALYSIS AND EVALUATION

Sample Overview

The purpose of this study was to examine two personality traits (success orientation and uncertainty orientation) and how the two traits related to the risk-taking of principals. The purpose of this chapter was to present the data and its analysis based upon each of four relational hypotheses. This chapter consists of sections covering the sample and its demographics, findings from the relational hypotheses, discussion detailing the relations by gender, and a summary.

There were 556 districts in the sample (all the districts in the state of Michigan). The districts were organized by numerical ordering from lowest to highest using district code numbers (given to districts by the State of Michigan). The first district and every third district were chosen for sampling. Additionally, the district of Detroit was chosen because it represented 10% of the principals in the state (the Detroit Public Schools refused permission to be part of the project). If the district’s superintendent did not consent to the sampling (as required by the HSIRB) then the next district was chosen in each group of three. If the second superintendent refused sampling then the third was selected and permission asked.
Of the 186 groups containing 3 districts each (one group had only one district) 3 groups were excluded from the sample because the groups were contained in the pilot, 117 first selected, 42 second selected and 18 third selected superintendents consented to sampling. Nine groups (of three districts) did not consent to be part of the sample. In all 185 district superintendents (177 in the sample and 8 in the pilot) consented to the sampling. Therefore 1,054 surveys were sent to individual principals in 185 different districts.

Demographics

From the pilot 7 completed responses were received and 50 responses were received from the main sample. The completed responses from the pilot and the sample were combined for data analysis because findings based upon large sample sizes are considered more reliable than findings based upon smaller sample sizes (Hinkle, Wiersma, & Jurs, 1988). The gender distribution for completed responses was 31 male (54%) and 26 female (46%). The distribution compares to the distribution of Michigan administrators as reported by the Michigan Association of School Boards (MASB) for the 1996-97 school year. Their report cited 61% males and 39% females (MASB, 1999).

The race/ethnic distribution for completed responses was 56 Caucasian (98%) and 1 African American (2%). In 1996-97 administrators were 76% Caucasian, 18% African American, less than 1% American Indian, less than 1% Asian American, and
3% Hispanic (MASB, 1999). In 1993-94 principals in American public schools were 84% White, Non-Hispanic Caucasian, 10% Black, Non-Hispanic, 1% American Indian or Alaskan Native, 1% Asian or Pacific Islander, and 4% Hispanic according to the Digest of Education Statistics (1998).

The ages of the principals ranged from 29 years to 69 years old as shown in Figure 2. The mean age of the completed responses was 48 years old.

![Figure 2. Age of Principals.](image)

The average age of principals in the United States has risen from 47 to 48 between 1988 to 1994 (United States Department of Education, 1994).

The principals' building assignment distribution was 36 elementary school (63%), 6 middle school (11%), 9 high school (16%), and 6 other schools (10%). In
1998-99 principals were assigned to 60% elementary, 17% middle, 18% high school, and 5% other buildings (Michigan Education Directory, 1999). For the 1997-98 school year the MASB reported 59% elementary, 16% middle, 17% high school, and 8% other buildings (internet site www.masb.org/page.cfm/181).

Of the responding principals 30 of 54 (56%) were principals for 5 years or less. A total of 7 principals (13%) had worked for 20 years or more. Figure 3 shows the total number of years the principals have been in their present positions.

![Figure 3: Total Years in Present Principal Position.](image)

Of the 56 responding principals 39 (68%) have been in their present positions for 5 years or less. The standard deviation of 5.4 years dropped to 3.8 years when the
top two longest staying principals (26 years and 19 years) were excluded for the descriptive statistics analysis.

The number of different principal positions held by each principal was one position for 24 (43%) principals, two positions for 15 (27%) principals, three positions for 11 (20%) principals, and more than three positions held for 6 (11%) principals. The age when the principals first became principals ranged from 25 to 54 years old. The mean age of the principals was 38 years old.

One principal had a bachelors (2%) degree, 32 had masters (56%), 12 had specialists (21%) and 12 had doctorate (21%) degrees. In 1993-94 the national data indicated 1% held bachelors, 63% held masters degrees, 26% held specialists, 9% held doctorates, (Digest of Education Statistics, 1998).

The mean for the principals’ salaries was $60,200. Of the 57 principals 52 (91%) earned between $50,000 and $90,000. In the Michigan Association of School Board’s publication (answered by approximately 90 percent of the school districts in Michigan) Principal Contract Settlement Report 1997-1998 (1998) the minimum and maximum average salaries for principals ranged between $62,378 and $69,554.

**Findings from Hypothesis**

**Pilot**

Of the 33 principals asked to complete the survey in person 7 completed the surveys providing a 21% response rate. The initial graphs indicated a slight positive
relation between risk-taking and uncertainty orientation as well as between risk-taking and success orientation. The relation between uncertainty orientation and success orientation was near zero. However since the pilot sample had only seven completed returns the data analysis was considered inclusive.

Sample

The 7 completed responses from the pilot were combined with the 50 completed responses from the sample for data analysis. The single condition different between the pilot and the sample was how the questionnaires were delivered. The pilot questionnaires were delivered in person. The main group had questionnaires mailed. Only 50 surveys were returned which were complete (5%) of the 1,054 mailed.

Table 4 shows the principals' risk-taking propensity scores for each individual scenario responded to. The principals were most risk-taking for the customer threat

<table>
<thead>
<tr>
<th>Principal's Risk Propensity Descriptive by Risk-Taking Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Std. Deviation</td>
</tr>
</tbody>
</table>
and least risk-taking for the joint venture. When risk-taking was measured in MacCrimmon and Wehrung's (1986) risk-taking portfolio the American and Canadian top level managers also showed the strongest risk-taking for the customer threat and the weakest risk-taking for the joint venture.

Table 5 depicts the principals' distribution by percentages (see Table 3 in Chapter 2). Risk-taking by the principals and the executives was more common for situations involving losses than where there were only gains possible (i.e. higher risk-taking for customer threat and lawsuit than for the joint venture). The principals choose less risk and more sure action than the executives did in every situation.

<table>
<thead>
<tr>
<th>Actions Specified</th>
<th>Risk Ratings (Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lawsuit</td>
</tr>
<tr>
<td>Inclined to Take Risk</td>
<td>56.1</td>
</tr>
<tr>
<td>Risk-Neutral</td>
<td>12.3</td>
</tr>
<tr>
<td>Inclined to Take Sure Action</td>
<td>31.6</td>
</tr>
</tbody>
</table>
Correlation for Uncertainty Orientation and Risk-Taking Propensity

There was no significant correlation between risk-taking propensity and uncertainty orientation. Table 6 shows the Pearson correlation coefficient between uncertainty orientation and risk-taking for the study.

Table 6

<table>
<thead>
<tr>
<th>Uncertainty Orientation</th>
<th>Zscore: RGrbot Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>.869</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.000</td>
<td>-.022</td>
<td></td>
</tr>
</tbody>
</table>

Correlation for Success Orientation and Risk-Taking Propensity

There was no significant correlation between risk-taking propensity and success orientation. Table 7 depicts the Pearson correlation coefficient between uncertainty orientation and risk-taking for the study.

Table 7

<table>
<thead>
<tr>
<th>Success Orientation</th>
<th>Zscore: RGrbot Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>.932</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.000</td>
<td>-.012</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>.963</td>
<td></td>
</tr>
</tbody>
</table>
Correlation for Uncertainty Orientation and Success Orientation

The correlation was significant and positive (0.39) between success orientation and uncertainty orientation. Of note was the strength of the probability for obtaining the results if the null hypothesis was true. The findings indicate there was a very predictable relationship between the two personalities as shown in Table 8.

Table 8

<table>
<thead>
<tr>
<th>Success Orientation</th>
<th>Pearson Correlation</th>
<th>Uncertainty Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>0.392</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.003</td>
</tr>
</tbody>
</table>

Multiple Regression: Correlation for Uncertainty Orientation, Success Orientation and Risk-Taking Propensity

The findings did not reveal a significant correlation when taken together (R = 0.02, R Square = 0.00, adjusted R Square = -0.04, the standard error of the estimate was equal to 1.02). Table 9 shows the F distribution for the regression.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table 9

Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Principals

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2.8E-02</td>
<td>2</td>
<td>1.416E-02</td>
<td>.014</td>
<td>.986</td>
</tr>
<tr>
<td>Residual</td>
<td>55.972</td>
<td>54</td>
<td>1.037</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion

Can principal’s personality traits predict their risk-taking? The findings of this study indicate “no” in general. The study did find that uncertainty orientation and success orientation related significantly and positively (r = 0.39). This study was not supportive of the theory based on uncertainty orientation by Sorrentino et al (1992). Sorrentino et al predicted success oriented persons would prefer moderate risk. This study also did not support Atkinson’s (1964) theory which predicted success oriented persons would prefer moderate risks. Worth further investigation were the relations observed from scattergrams when fit lines were drawn by gender.

Gender Data Analysis and Discussion

A positive relationship was illustrated for females between uncertainty orientation and risk-taking. A positive relationship was also illustrated for females between uncertainty orientation and risk-taking. Inverse relations were observed when the scattergram fit lines were drawn for males.
Correlation by Gender of Uncertainty Orientation and Risk-Taking Propensity

Figure 4 shows the scattergram of uncertainty orientation and risk-taking for males and females. Examination illustrated no low uncertainty orientated females took high risks yet the males did. The correlation by gender demonstrated a positive significant correlation for females. The relationship for females was low and significant only when examining it using one-tailed analysis as shown in Table 10.
Table 10
Pearson Correlation for Uncertainty Orientation and Risk-Taking in Females

<table>
<thead>
<tr>
<th>Zscore: RGrtot</th>
<th>Pearson Correlation</th>
<th>Uncertainty Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zscore:</td>
<td>1.000</td>
<td>.367</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.033</td>
<td></td>
</tr>
</tbody>
</table>

Correlation by Gender of Success Orientation and Risk-Taking Propensity

Figure 5 shows the scattergram by gender between success orientation and risk-taking for the completed responses. The principals who were success

![Figure 5](image-url)

Figure 5. Scattergram by Gender of Success Orientation and Risk-Taking.
oriented demonstrated opposite trends. Success oriented females took greater risks. The male principals were mostly found in the low success orientation range even though the fit line (and correlation) was negative. The male low success oriented principals took small, large and medium risks.

The Pearson correlation showed a negative significant relation for men as shown in Table 11. This data support the concept that men principals who were success oriented shied away from risk yet women did the opposite. Note on the scattergram there were no men on the positive success oriented side of the graph, making the significant correlation questionable or at least curious.

Correlation by Gender of Uncertainty Orientation and Success Orientation

Table 12 shows the relation between uncertainty orientation and success orientation for females. The relation was slightly positive and significant only when the analysis was calculated for a one-tailed test.
Table 12

Pearson Correlation for Uncertainty Orientation and Success Orientation in Females

<table>
<thead>
<tr>
<th>Success Orientation</th>
<th>Pearson Correlation</th>
<th>Uncertainty Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (1-tailed)</td>
<td>1.000</td>
<td>.384</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.026</td>
</tr>
</tbody>
</table>

Multiple Regression by Gender: Correlation for Uncertainty Orientation, Success Orientation and Risk-Taking Propensity

The regression $F$ distributions by gender were both significant using both personality traits uncertainty orientation and success orientation to correlate to risk-taking. Table 13 shows the distribution for females. The correlation was $R = 0.42$, standard error 1.01.

Table 13

Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Female Principals

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4.993</td>
<td>2</td>
<td>2.496</td>
<td>2.430</td>
<td>.110</td>
</tr>
<tr>
<td>Residual</td>
<td>23.630</td>
<td>23</td>
<td>1.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28.623</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14 shows the $F$ distribution for males. The correlation was $R = 0.41$, standard error 0.85 for the males. The relations for both females and males were slightly positive when uncertainty orientation and success orientation were taken
Table 14

Analysis of Variance Using Uncertainty Orientation and Success Orientation to Predict Risk-Taking in Male Principals

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4.178</td>
<td>2</td>
<td>2.089</td>
<td>2.904</td>
<td>.071</td>
</tr>
<tr>
<td>Residual</td>
<td>20.141</td>
<td>28</td>
<td>.719</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24.319</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

together to predict risk-taking. The females had a slightly greater positive relationship when between the two personality traits

Summary

This chapter presented the sample’s demographic data and its comparison to State and National demographics. Data from the pilot study was presented and discussed. The statistical analysis found one significant finding based upon the hypotheses. That was uncertainty orientation was significant and directly related to success orientation in Michigan principals (see Table 8).

The relationships between uncertainty orientation, success orientation and risk-taking by gender were explored. Uncertainty orientation was significant and directly related to risk-taking in females (see Table 10). Success orientation was significant and inversely related to risk-taking in males (see Table 11). Uncertainty orientation was significant and directly related to success orientation in females (see Table 12). When taken together, uncertainty orientation and success orientation were
predictive of risk-taking in both females and males (see Tables 13 and 14).

Can principals’ personality traits predict their risk-taking? Perhaps, the personality trait success orientation was a significant predictor of risk-taking in males. Uncertainty orientation was a significant predictor of risk-taking in females. Was there a clear relationship? The researcher reminds the reader this study was exploratory in nature and design and so its findings should be taken with caution. The number of responses used for data analysis was 57. All were subject to a double volunteer factor, first from the district superintendent and second from the principal’s own desire to complete questionnaires requiring approximately two hours of time.

While many of the findings were significant one would be wise to remember findings based upon large sample sizes usually are considered more reliable than findings based upon smaller sample sizes (Hinkle, Wiersma, & Jurs, 1988). However Isaac and Michael said for exploratory research, “Samples with N’s between 10 and 30 have many practical advantages” (1985, p. 96).

Suggested Improvements

Surveys are the most widely used technique to gather information and data (Isaac & Michael, 1985). Surveys are dependent upon communication with others. As in this researcher’s investigation, direct communication may improve survey response. Likely the longer an instrument requires for completion the lower the response rate. An additional problem with surveys is that there may be personalities
that will take time to respond and more troubling—personalities that likely will not complete surveys (i.e. perhaps success oriented males don’t answer surveys, see Figure 5). So what changes could improve this study?

To include all possible respondents a simple random sample may be replaced by a stratified random sample. Some states (ex. Kentucky) require their principals to attend training on a periodic basis. The states often make arrangements for the principals’ classes and only approve a small number per year. Since all principals would be attending the classes would be ideal to gather information on all types of personalities. Permission may be granted to sample at the classes (this researcher received permission to do so if desired through the National Association of Secondary School Principals working in conjunction with the Department of Education in Kentucky).

Other possible ways to sample principals center around stratified sampling techniques. There are special classes and conferences for principals, all of which may follow this sampling format. Having principals to a dinner or hosting dinner for a group may also serve the purpose. The two primary concepts needed to assist the research are (1) sample principals from a non-voluntary group, and (2) have all the principals complete the questionnaires. When dealing with a multiple of personality types voluntary sampling ideally must vanish.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to examine two personality traits (success orientation and uncertainty orientation) and how the two traits related to the risk-taking of Michigan principals. Chapter I argued that risk-taking was needed to institute change. Schools need to change to provide quality teaching and learning. Principals were key to the change process and risk-taking was key to change therefore risk-taking propensities of principals were studied. Could one predict risk-taking based upon personality?

Theories abound as to what motivates people to take risks. Atkinson (1957) considered actions to be motivated by a combination of desires to approach and desires to avoid. Atkinson predicted success oriented persons would seek moderate risks. Atkinson and Birch (1978) had some success with their predictions yet McClelland (1987) experimentally discovered problems with Atkinson’s theory.

Sorrentino et al (1992) worked with another personality trait (uncertainty orientation) which might also influence risk-taking behaviors.

Chapter II reviewed related literature on risk-taking studies, different study instruments, different risk theories, and different personality traits. Uncertainty
orientation was compared to sensation seeking or thrill seeking. Risk-taking as a characteristic was explained. Risk-taking was defined as choosing the unknown path when making a choice between a known and an unknown. In-baskets as measurement tools were detailed. The elements of uncertainty orientation and success orientation were defined.

Chapter III explained the research was a correlation study using three variables, uncertainty orientation, success orientation and risk-taking. The hypotheses were put forth in null form. The four were:

1. Uncertainty-orientation will not relate to risk-taking propensity in principals.
2. Success-orientation will not relate to risk-taking propensity in principals.
3. Uncertainty-orientation will not relate to success orientation in principals.
4. Uncertainty-orientation and success-orientation when taken together will not relate to risk-taking propensity in principals.

The population was described as all the principals in the state of Michigan. The sample was described. Four questionnaires were used to determine the principals’ personality traits and their risk-taking propensities. The first questionnaire determined uncertainty and achievement. The second questionnaire was used to determine certainty; the third was used to ascertain failure avoidance. The fourth questionnaire was an in-basket used to determine risk-taking. Scores were normalized. Uncertainty orientation was calculated by subtracting certainty from
uncertainty. Success orientation was calculated by subtracting failure avoidance from achievement. Completed responses were received from 7 principals in the pilot and 50 responses from 1,054 surveys sent to 185 districts.

Chapter IV illustrated the demographics of the principals who were included. The data analysis was presented. Pearson correlation coefficients were calculated to examine the hypotheses. The correlation between success orientation and uncertainty orientation was found to be positive and significant.

Data analysis further examined the hypotheses by gender. Uncertainty orientation was significant and directly related to risk-taking in females (see Table 10). Success orientation was significant and inversely related to risk-taking in males (see Table 11). Uncertainty orientation was significant and directly related to success orientation in females (see Table 12). When taken together, uncertainty orientation and success orientation were predictive of risk-taking in both females and males (see Tables 13 and 14).

Conclusions

Can principals' personality traits predict their risk-taking? The answer is "yes" for females and "yes" for males. Sorrentino et al (1992) believed uncertainty orientation might be a personality trait that was not influenced by situations and that may dominate over other personality traits such as success orientation. Sorrentino
and others thought uncertainty orientation in individuals would cause behaviors
towards moderate risk-taking.

Is risk-taking something that individuals will display depending on the
situation (Milligan, 1994)? The implications from this study answered that question
"yes" based upon the answers to the four risk-taking scenarios presented in Table 4
and Table 5. The principals' answers varied the means were 4.8 for the joint venture,
8.6 for the union dispute, 9.7 for the lawsuit, and 12.2 for the customer threat
scenario. The means from MacCrimmon and Wehrung's 1986 study were 5.2 for the
joint venture, 6.2 for the union dispute, 6.2 for the lawsuit, and 7.8 for the customer
threat scenario (p.92). Clearly people (principals, American and Canadian managers)
vary their risk-taking based upon the situation faced. Worth reporting was the finding
that the principals answered the risk-taking in-baskets with a similar pattern as the
executives did from MacCrimmon and Wehrung's 1986 study. The lowest risk-
taking was for the joint venture and the highest risk-taking was for the customer
threat. The principals had higher risk-taking means for three of four scenarios. The
higher means were possibly because of statistics associated with the small samples or
were possible because of the seemingly greater protection afforded principals in an
educational setting. Perhaps the school environment permits the principals to be less
cautious than the environmental influences of businesses. Principals have some
degree of job protection in Michigan by being offered multiple year contracts and by
legal requirements associated with due process and firing.
Uncertainty Orientation and its Relation to Risk-Taking

There was a direct weak correlation between uncertainty orientation and risk-taking for females (Table 10). Using uncertainty orientation as a predictor of risk-taking the one-tailed Pearson correlation coefficient for females was 0.37. From Figure 4 there were almost no low-uncertainty females in the sample. Interestingly there were only a few high-uncertainty oriented males in the sample. One has to ask if this would be a typical pattern of responders for voluntary surveys.

Uncertainty oriented female principals may be more willing to respond to surveys than certainty oriented females because they are willing to share of themselves in an effort to learn more about themselves. Male principals who are uncertainty oriented may feel as though they know themselves well enough not to respond to a survey instrument.

Looking at the data for male principals from Figure 4 leads one to speculate that the higher uncertainty oriented principals might indeed choose moderate risk-taking over high or low risk-taking. The speculation comes from a pattern that may not have been fully developed due to the lack of data points.

Success Orientation and its Relation to Risk-Taking

There was an inverse weak correlation between success orientation and risk-taking for males (Table 11). Using success orientation as a predictor of risk-taking the two-tailed Pearson correlation coefficient for males was -0.39. Figure 5 shows a
prominent negative fit-line indicating a success-orientated male would take fewer
risks as they gain in success orientation. The difficulty with the figure was there were
no success-oriented males in the data set. Why did males who were success oriented
not respond?

The fit-line for females on Table 5 shows a positive relation between success
orientation and risk-taking. The data did not render a significant finding nor did it
tend to leave a possible pattern.

**Uncertainty Orientation and its Relation to Success Orientation**

The strongest relationship found was that uncertainty orientation was a
significant predictor of success orientation. The correlation was significant and
positive (0.39) between success orientation and uncertainty orientation. Further the
probability of obtaining the results when the null hypothesis was true was 0.003
(Table 8). Therefore this study lends support for the concept that uncertainty
orientation as a personality trait dominates success orientation and may be predictive
of certain behaviors and personalities. The link was not shown by this study (for
males) but since uncertainty orientation predicted success orientation for both genders
and following Atkinson’s work (1957) that success orientation was predictive of risk-
taking then uncertainty orientation may be predictive of risk-taking for both genders.

Zuckerman (1994) believed sensation seeking was a normal trait. Uncertainty
orientation and sensation seeking may be closely related and may even be the same
trait with different names. Zuckerman suggested risk-taking behavior was a
correlative to sensation seeking but not an essential part of the definition.
Zuckerman’s believed most sensation seekers accept risk as part of the need or drive
to experience a sensation itself. Zuckerman (1990) believed risk-taking behavior was
dependent more on motivational or emotional states at the decision moment than on
the motivational or emotional traits. This research disputes his belief by finding
similar risk-taking in this study and in MacCrimmon and Wehrung’s 1986 findings,
each with common risk-taking by scenarios. If states determined risk-taking levels
the risk-taking should not have been similar across time and from different positions.

Other researchers (Farley, 1986; Keyes, 1985) wrote about the relationship
between risk-taking and sensation seeking. Farley proposed a model for people's risk-
taking tendencies. Table 1 showed the preferences for each group as presented by
Farley. The preferences for thrill seekers match what uncertainty orientation as a trait
defines. Farley considered thrill seeking to be a personality trait, yet he would not
discount the biological and environmental influences that may be present.

The implied argument leads to the conclusion that uncertainty orientation is
equivalent to thrill seeking also know as sensation seeking. Therefore uncertainty
orientation may be thought of as having two types just as thrill seeking does, a
positive type and a negative type. Further research should look at uncertainty
orientation and risk behavior whether the risk is negative or positive.
Uncertainty Orientation, Success Orientation and Risk-Taking Propensity

When the personality traits were taken together and separated by gender, uncertainty orientation and success orientation were predictive of risk-taking for both females and males ($R = 0.42$ and $R = 0.41$ respectively). Sorrentino et al (1992) advanced support for the idea that success orientation and uncertainty orientation both played a part in risk-taking propensity. This finding lends weak support for the theory and should be considered tenuous.

Recommendations

The implications remain that risk-taking may be predicted by both personality trait and situation. Principals' risk-taking should be further examined. Principals' personality traits uncertainty orientation and success orientation should be examined on a much larger scale without the volunteer sampling problems. Volunteers are likely to differ from non-volunteers (Isaac, & Michael, 1985). The low probabilities found should be considered exploratory and therefore confirmation using a large-scale non-volunteer sample should be developed.

The initial findings from this study indicated males had inverse relationships from their personality traits to their risk-taking propensities. The question why females and males differ in their relationships between personalities and risk-taking begs to be studied. One possible explanation may be that success oriented females long kept from principal positions may have taken greater risks to obtain the
“coveted” positions. Once in the principal positions the female's patterns of risk-taking have continued. On the other hand the males once obtaining the principal positions may feel successful and then begin to reduce their risk-taking to hold their positions.

One intriguing finding noteworthy of guiding further study came from the personality trait uncertainty orientation. If uncertainty orientation and sensation seeking relate further research may be explored using Zuckerman's (1994) work. Zuckerman believed motivational or emotional states at the decision moment drove risk-taking. Certainty more analysis of situational factors would aid in the attempt to understand individual differences and predictability between personality traits and risk-taking behaviors.

Since many questions associated with risk-taking prevail it is clear risk-taking research will continue to be exciting for some time. Situations and individual characteristics likely both play a part in risk-taking behavior. Perhaps states at decision moments also contribute to risk behavior. Yates (1992) suggested likely a "supertheory" could emerge to answer the question as to what contributes to the lion's share of variance in risk-taking. For school superintendents and school boards the implications are huge; knowing desires to chart course for change then being able to match principals to desires would be of great advantage.
Appendix A

Personnel Demographic Information Questionnaire
PERSONAL INFORMATION (To be kept anonymous)

1. The respondent is:
   
   _____ Male
   _____ Female

2. The respondent is:
   
   _____ African-American
   _____ Alaskan Native
   _____ American Indian
   _____ Asian-American
   _____ Caucasian
   _____ Hispanic
   _____ International/Non-US Resident
   _____ Multiracial
   _____ Pacific Islander
   _____ Other ________

3. What is your age?
   
   _____ Years old

4-5. You are an: For how many years?
   
   _____ Elementary principal _____ years
   _____ Middle school principal _____ years
   _____ High school principal _____ years
   _____ Other _____________ _____ years

6. Total number of years in your present position?
   
   _____ Years

7. Number of different principal positions you have held?
   
   _____ Total (including present position)
8. How old were you when you first became a principal?

____ Years

9. Check the highest degree you have received.

____ Bachelors
____ Masters
____ Specialists
____ Doctorate

10. Check your present salary range (optional).

____ $00,000-29,999
____ $30,000-49,999
____ $50,000-69,999
____ $70,000-89,999
____ $90,000-up
Appendix B

Sentence Leads for Measuring Uncertainty and Achievement
Sentence Leads

1. A PERSON IS THINKING: AN IMAGE OF A CROSSROADS IS IN THE PERSON’S MIND.

2. A PERSON IS SITTING, WONDERING ABOUT WHAT MAY HAPPEN.

3. A YOUNG PERSON IS STANDING: A VAGUE OPERATION SCENE IS IN THE BACKGROUND.

4. TWO PEOPLE ARE WORKING IN A LABORATORY ON A PIECE OF EQUIPMENT.

Questions Asked After each Lead

1. What is happening? Who is (are) the person(s)?

2. What has led up to this situation? That is, what has happened in the past?

3. What is being thought? What is wanted? By whom?

4. What will happen? What will be done?
Appendix C

Demographic Tables and Figures for Principals
### Table

**Descriptive Statistics for Male Principals N= 31**

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Years in position</th>
<th>Years in present position</th>
<th>Number of different positions</th>
<th>Age at first principalship</th>
<th>Salary range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>48.54</td>
<td>5.538</td>
<td>3.987</td>
<td>1.75</td>
<td>42.42</td>
<td>3.38</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>5.84</td>
<td>3.658</td>
<td>3.274</td>
<td>1.01</td>
<td>7.12</td>
<td>.70</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>36</td>
<td>1.0</td>
<td>.2</td>
<td>1</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>59</td>
<td>13.0</td>
<td>13.0</td>
<td>5</td>
<td>54</td>
<td>5</td>
</tr>
</tbody>
</table>

### Table

**Descriptive Statistics for Female Principals N= 26**

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Years in position</th>
<th>Years in present position</th>
<th>Number of different positions</th>
<th>Age at first principalship</th>
<th>Salary range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>48.55</td>
<td>10.589</td>
<td>6.617</td>
<td>2.87</td>
<td>35.42</td>
<td>3.61</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>7.31</td>
<td>8.508</td>
<td>5.943</td>
<td>3.44</td>
<td>7.00</td>
<td>.62</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>29</td>
<td>1.0</td>
<td>.5</td>
<td>1</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>69</td>
<td>30.0</td>
<td>26.0</td>
<td>20</td>
<td>49</td>
<td>5</td>
</tr>
</tbody>
</table>
Gender 1 = Males 2 = Females

Risk-Taking of Principals by Gender.

Risk-Taking of Principals Versus Age.
Appendix D

Sample of Certainty Inferred from Authoritarianism Questionnaire
Sample Questions from the Authoritarian Questionnaire

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statements, you can be sure that many people feel the same as you do.

Circle +3, +2, +1, or -1, -2, -3, depending on how you feel in each case.

+1: I AGREE A LITTLE  -1: I DISAGREE A LITTLE
+2: I AGREE SOMEWHAT  -2: I DISAGREE SOMEWHAT
+3: I AGREE VERY MUCH  -3: I DISAGREE VERY MUCH

1. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his or her parents.
   +3  +2  +1  -1  -2  -3

2. An insult to our honor should always be punished.
   +3  +2  +1  -1  -2  -3

3. Books and movies ought not to deal so much with the unpleasant and seamy side of life; they ought to concentrate on themes that are entertaining or uplifting.
   +3  +2  +1  -1  -2  -3

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix E

Sample of Test Anxiety Questionnaire used to Infer Failure Avoidance
Sample of Test Anxiety Questions used to Infer Failure Avoidance

QUESTIONNAIRE ON ATTITUDES TOWARD
GROUP TESTING SITUATIONS

The value of this questionnaire will in large part depend on how frank you are in stating your opinions, feelings, and attitudes. Needless to say, your answers to the questions will be kept anonymous.

When you are answering each scale, however, please put your mark somewhere between the dots on the line, not on the dots.

for example, mark / .x. . . . , not / . x . . . /

THERE ARE NO “CATCH” QUESTIONS IN THIS QUESTIONNAIRE. PLEASE READ EACH QUESTION AND EACH SCALE VERY CAREFULLY. THERE IS NO TIME LIMIT.

THE MIDPOINT IS ONLY FOR YOUR GUIDANCE. DO NOT HESITATE TO PUT A MARK (X) ON ANY PLACE ON THE LINE AS LONG AS THAT MARK REFLECTS THE STRENGTH OF YOUR FEELING OR ATTITUDE

1. How valuable do you think group intelligence tests are in determining a person’s ability?

/ ____________________________ / ____________________________ /

Very valuable  Valuable in some respects  Valueless and valueless in others

2. Do you think that group intelligence tests should be used more widely than at present to classify students?

/ ____________________________ / ____________________________ /

Should be used  Should be used  Should be used less widely as at present more widely

3. Should people (you) be willing to stake their continuance in college on the outcome of a group intelligence test which has previously predicted success in a highly reliable fashion?

/ ____________________________ / ____________________________ /

Very willing  Uncertain  Not willing
Appendix F

Human Subjects Institutional Review Board Permission Letter
Date: 16 June 1998

To: David Cowden, Principal Investigator
    Bruce Evans, Student Investigator

From: Richard Wright, Chair

Re: HSIRB Project Number 98-04-13

This letter will serve as confirmation that your research project entitled "Can Principals' Personality Traits Predict Their Risk Taking: Uncertainty and Success Orientation as They Relate to Risk Propensity" has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 16 June 1999
BIBLIOGRAPHY


Personnel Management/Institute of Manpower Studies.


