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Andrews University

School of Education

INTUITIVE DECISION MAKING AND LEADERSHIP STYLE
AMONG HEALTHCARE EXECUTIVES IN
THE UNITED STATES

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Cherie Chartier Whiting

July 2005

UMI Number: 3182016

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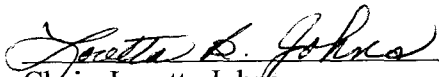
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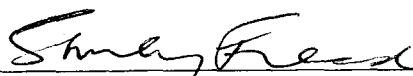
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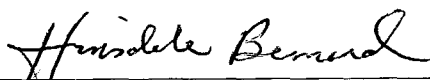
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ABSTRACT

INTUITIVE DECISION MAKING AND LEADERSHIP STYLE
AMONG HEALTHCARE EXECUTIVES
IN THE UNITED STATES

by

Cherie Chartier Whiting

Chair: Loretta Johns

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: INTUITIVE DECISION MAKING AND LEADERSHIP STYLE AMONG
HEALTHCARE EXECUTIVES IN THE UNITED STATES

Name of researcher: Cherie Chartier Whiting

Name and degree of faculty chair: Loretta Johns, Ph.D.

Date completed: July 2005

The purpose of this two-phased, sequential, exploratory, mixed-methods study was to survey a sample of Fellows in the American College of Healthcare Executives in the United States and then interview selected individuals who scored in the highly intuitive category on the intuition survey to explore how they made intuitive decisions. In the first phase, quantitative research questions addressed the relationship between leadership style and the potential to make intuitive decisions, as well as the relationship and interaction between the potential to make intuitive decisions and age, gender, and size of company. In the second phase, qualitative interviews were used to explore how highly intuitive executives used intuition to make their decisions.

The Leadership Style Survey and Agor's Intuitive Measurement Survey (AIM) were mailed to 498 Fellows in the American College of Healthcare Executives. The 113 valid surveys were analyzed using chi-square and ANOVA to evaluate the relationships noted above. Of the completed valid surveys, 8 of the 13 participants scored in the highly intuitive category on the AIM Survey with scores between 10 and 12 and were interviewed to further probe how they made intuitive decisions.

The results of this research study showed that there was no relationship between leadership style and the potential to make intuitive decisions, between intuitive decision making and age, intuitive decision making and gender, or intuitive decision making and size of company the executive worked in. In addition there was no interaction found between intuitive decision making and age, gender, or size of company.

The 8 interviews about how these highly intuitive executives make their intuitive decisions resulted in five emerging themes: (a) There is a sensing of one's intuition, (b) Intuition comes from life experiences and knowledge, (c) The tensions of logic, intuition, and making the right decision usually exist, (d) Intuitive decision-making processes are often present, and (e) Mentoring and teaching intuition have an important role. From these interviews it was noted that the credibility intuitive decision making lacked in the past appears to be changing, and there is a need to encourage and mentor intuition in new managers and executives.

Dedicated to
my mother, Donna Jean Chartier,
who always encouraged me
to be the best I could be.

TABLE OF CONTENTS

LIST OF TABLES.....	viii
ACKNOWLEDGMENTS.....	ix
Chapter	
I. INTRODUCTION.....	1
Background of the Problem	1
Statement of the Problem.....	6
Purpose Statement.....	7
Significance of the Study	7
Research Questions.....	8
Conceptual Framework.....	9
Split-Brain Theory.....	9
Leadership Style.....	12
Research Hypotheses	13
Definition of Terms.....	14
Delimitations.....	15
Limitations.....	15
Summary	15
Outline of the Study.....	16
II. REVIEW OF LITERATURE.....	18
Introduction.....	18
The Split Brain Theory.....	18
Decision Making and Its Models.....	25
Intuitive Decision Making.....	27
Intuitive Decision Making in Specific Settings.....	41
Academic Administration Setting.....	41
Military Setting	45
Healthcare Setting.....	47
The Case Against Intuitive Decision Making.....	50
Leadership Style.....	52
Trait Theories.....	53
Behavioral Theories	53
Ohio State Studies.....	54
University of Michigan Studies	54

Blake and Mouton Managerial Grid	54
Scandanavian Studies.....	55
Contingency Theories	55
Neocharismatic Theories	57
Charismatic Leadership	57
Transformational Leadership	58
Visionary Leadership	58
Current Research and Thoughts on Leadership Style.....	59
Intuition and Leadership Style	60
Summary.....	65
III. METHODOLOGY.....	67
Introduction.....	67
Research Rationale.....	67
Population and Sample	69
Pilot Study.....	71
Quantitative Methods.....	71
Research Questions and Null Hypotheses	72
Data Collection.....	73
Styles of Leadership Survey	73
Agor's Intuitive Measurement Survey.....	76
Sampling Procedures... ..	77
Data Analysis.....	78
Qualitative Methods.....	80
Research Question	80
Data Collection.....	80
Data Analysis.....	80
Trustworthiness Issues.....	81
Human Subjects and Ethics.	82
Summary.....	83
IV. RESULTS.....	85
Introduction.....	85
Quantitative Results.....	85
Description of the Participants.....	86
Descriptive Statistics of the Sample	87
Null Hypothesis Related to Research Question 1	87
Null Hypothesis Related to Research Question 2	88
Null Hypothesis Related to Research Question 3	89
Null Hypothesis Related to Research Question 4	89
Null Hypothesis Related to Research Question 5	92
Qualitative Results.....	92
Qualitative Research Question.....	93
Description of Participants.....	94

Randy.....	94
Catie.....	96
Lilly.....	97
Bill.....	98
Sheila.....	100
Mark.....	101
Andrew.....	102
Donna.....	103
There is a Sensing of your Intuition in a Physical Way.....	105
Intuition Comes from Life Experiences and Knowledge	106
The Tensions of Logic, Intuition, and Making the Right Decision Usually Exist.....	107
Intuitive Decision-Making Processes are Usually Present	108
Mentoring and Teaching Usually Play a Role	111
Summary.....	112
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	114
Introduction.....	114
Statement of the Problem.....	114
Purpose of the Study	115
Overview of the Review of Literature	115
Split-Brain Theory	115
Decision Making and Intuition	116
The Case Against Intuitive Decision Making.....	117
Intuitive Decisions in Healthcare Settings.....	117
Intuitive Decisions in Military Settings.....	117
Leadership Style.....	118
Leadership Style and Intuition.....	118
Methodology.....	119
Summary of the Results	120
Quantitative Results.....	120
Research Questions, Null Hypotheses and Results.....	121
Qualitative Results.....	122
Discussion of the Findings.....	123
Quantitative Discussion	123
Qualitative Discussion	125
Conclusions.....	129
Implications.....	130
Recommendations.....	132
Further Research.....	133

APPENDIX

A. Qualitative Survey Questions.....	134
B. Agor’s Intuitive Measurement Survey	135
C. Permission Letter to Use AIM Survey.....	138
REFERENCE LIST.....	139

LIST OF TABLES

1.	Relationship Between Leadership Style and Intuition.....	90
2.	Relationship Between Gender and Intuition.....	90
3.	Relationship Between Age and Intuition.....	91
4.	Relationship Between Size of Company and Intuition.....	91
5.	Interaction Between Age, Gender, Size of Company, and Intuition.....	93

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And finally, and most importantly, I recognize and thank my Father in heaven and my Savior, Jesus. Through my study of how the brain works, I have become even more awed by the magnificence of our human body and its Creator. It is a most loving and gracious God whom we serve.

CHAPTER ONE

INTRODUCTION

Healthcare in the United States is no small business. It is personal to us as practically every American will use healthcare in any given year. It costs on the average \$4,000 per person per year, more than education, defense, welfare, pensions, and justice (Griffith, 1999). The decisions made in healthcare are important and personal to us as well. In urgent care situations the difference between a good and bad decision may mean life or death. The decisions made at the executive level are just as important to us as well, though the results may not be so quickly realized. The allocation of resources in the ever and rapidly changing healthcare environment will determine what technology we invest in, what programs are instituted, and what people are developed. These decisions will shape healthcare in the future.

Background of the Problem

Until fairly recently the idea that executives used their intuition, that is, knowledge gained without rational thought (Rowan, 1986), to make effective decisions was not recognized as a legitimate or accepted concept for decision making. In the textbook, *Organizational Behavior*, Stephen Robbins (2001) writes, “The optimizing decision maker is rational” and he notes a six-step model for making consistent, maximized choices: (a) define the problem, (b) identify the decision criteria, (c) allocate

weights to the criteria, (d) develop the alternatives, (e) evaluate the alternatives, and (f) select the best alternative. Later in the discussion of decision making, Robbins (2001) agrees that the use of intuition has come into some respectability. He cites growing evidence that rational analysis has been overestimated and that relying on intuition can actually improve decision making. That evidence came from the work of Weston H. Agor (1984, 1986, 1989). Based on Agor's work, Robbins (2001) lists the following conditions in which people are most likely to use intuitive decision making:

1. When there is little precedent to draw on
2. When variables are less scientifically predictable
3. When "facts" are limited
4. When facts do not clearly point the way to go
5. When analytical data are of little use
6. When there are several plausible alternative solutions from which to choose

with good arguments for each

7. When time is limited and there is pressure to come up with the right decision, and a high level of uncertainty exists.

Prior to Agor, researchers had little dialogue around the notion of intuition except a few, such as Chester Barnard and Herbert Simon. Chester Barnard (1938) in his essay, "Mind in Everyday Affairs," contrasted what he thought to be logical and non-logical processes for making decisions. His thesis was that executives do not often have the luxury of using a rational analytical method for making their decisions and depend on intuition to make decisions. Herbert Simon (1976) took the subject a bit further in his discussion of the evidence of the split-brain theory. Simon argued that the two

hemispheres of the brain operate differently in the task of decision making with one side of the brain being logical and the other non-logical. This tied in nicely with Barnard's idea (1938) which states:

By "logical processes" I mean conscious thinking, which could be expressed in words or by other symbols, that is, reasoning. By "non-logical processes" I mean those not capable of being expressed in words or as reasoning, which are only made known by a judgment, decision or action. (p. 302)

Simon (1976) went on to discuss what he believed to be the fallacy of contrasting "analytic" and "intuitive" styles of management. Simon said, "Hence intuition is not a process that operates independently of analysis; rather, the two processes are essential complementary components of effective decision making systems" (p. 62).

Little is said in the literature between the time of Simon's work on decision making and the beginning of the work started by Dr. Weston H. Agor in the 1970s. His extensive studies of executives and their potential to use intuition broke the long silence in regard to intuition as a legitimate way to make decisions. His findings (Agor, 1984) showed that intuition is a skill used more often as managers climbed up the management ladder with the highest amount of intuition used by the top managers. It was also significant that when these top managers used intuition to make a decision they believed to be correct, they felt a feeling of excitement, almost euphoria, a total sense of commitment, confidence, and enthusiasm for the solution. Conversely, if they sensed an impending decision was an incorrect one, they spoke of feelings of anxiety, discomfort, and sometimes an upset stomach. His research also showed that there was a statistically significant difference in regard to men and women making decisions with intuition. Women consistently scored higher on the intuition scale than men in every group sampled. It was during this research that Agor developed his tool for assessing the

tendency and potential for executives to use intuition in their decision making activity: The Agor's Intuitive Measurement Survey (The AIM Survey). This survey, designed to measure the executive's potential to make intuitive decisions has been used to survey over 5,000 executives since its development.

According to Agor (1984) there are three broad types of management styles for making decisions: left-brain style which emphasizes rational analysis and logic, right-brain style which emphasizes feelings before facts when making decisions, and integrated style which employs both left- and right- brain skills interchangeably as the management situation demands.

About the time Agor was immersed in intuition research, Gary Klein started researching how people made decisions under extreme pressure and time constraints and published the results in his book, *Sources of Power*, (1999). He studied firefighters and from his research developed the Recognition-Primed Decision Model (RPD). The RPD Model fuses two processes: the way decision maker's size up the situation to recognize which course of action makes sense, and the way they evaluate that course of action by imagining it. These firefighters frequently made life and death decisions with only 90-120 seconds of time in which to think. The decision makers sometimes looked at several options yet never really compared any two of them. There was no time to analyze and choose between alternatives – they just seemed to “know” what to do. It is getting to this “knowing” that the RPD Model illustrates. This led Klein to declare in his book, *Sources of Power*, (1999) that “intuition grows out of experience” (p. 33). He also notes that people are most likely to use what Klein calls the “singular” approach to decision making; choosing the first option that will work. Singular evaluation is distinguished

from comparative evaluation and means evaluating each option on its own merits, even if cycling through different possibilities. Klein (1999) notes that decision makers are most likely to use this “singular” or “satisficing” approach to decision making, that is, using the first option that will work in the following situations:

1. When time pressure is great
2. When people are more experienced in the domain
3. When the conditions are dynamic
4. When the goals are ill defined (p. 95).

The idea of singular and comparative evaluation is linked to the research of Herbert Simon. Simon (1976) identified the decision strategy he called “satisficing,” that is, selecting the first option that works. Satisficing is different from optimizing, which means coming out with the best strategy. Optimizing takes a long time; satisficing most likely does not.

Individual studies in the past decade have resulted in more discourse on intuition, and some affirmation of much of what we had already learned (Familoni, 2002; Horton, 1993; Jeter, 2003; Keen, 1996; Kerlin, 1992), but there are still unanswered questions. Very little research (Familoni, 2002) has been done to look at any relationship that might exist between leadership style and the potential to make intuitive decisions. As well, we know that fire fighters under high-pressure time deadlines choose the singular approach (first workable option) to determine the solution to their problem – but how about senior executives in healthcare organizations? Do they choose the first workable solution as well? And finally, what about the confidence executives have after making an intuitive decision? Do they feel the need to back up that decision with data after the decision has

been made? Robbins (2001) notes: “Although intuitive decision making has gained in respectability, don’t expect people – especially in North America, Great Britain, and other cultures in which rational analysis is the approved way of making decisions – to acknowledge they are using it” (p. 138). People with strong intuitive abilities do not usually tell their colleagues how they reached their conclusions. Since rational analysis is considered more socially desirable, intuitive ability is often disguised or hidden. As one top executive commented, “Sometimes one must dress up a gut decision in ‘data clothes’ to make it acceptable or palatable, but this fine-tuning is usually after the fact of the decision” (Agor, 1986, p. 9).

Research completed on intuition within the healthcare setting has been focused on the study of nurses (Cooper, 1994; Hemsall, 1996; Nixon, 1995), but no studies were found in regard to the intuitive decisions that senior healthcare executives make. Because of the lack of research in this area and because I am a senior executive in the healthcare setting, I have chosen that population for my study.

Statement of the Problem

Intuitive decision making is starting to gain recognition as a legitimate way to make decisions (Agor, 1984, 1986, 1989) even though many schools of business still believe rational decision making to be the preferred style of decision making (Rowan, 1986). Studies have shown under which circumstances intuition is used to make decisions (Agor, 1984), and some have shown that even though decision makers are trained in analytical decision making, in practice they do not use it that often (Klein, 1999). More often decision makers use their intuition to make a decision based on the first solution that will work (Klein, 1999), and often find data to back up the decisions

they have made (Agor, 1986). Very little research has been done to investigate the relationship between leadership style and the potential to make intuitive decisions (Familoni, 2002). The problem of this study is to see whether or not a relationship does exist between intuitive decision making and intuition, and if the circumstances in which intuition is used has remained the same as previous research.

Purpose Statement

The purpose of this two-phase, sequential, exploratory, mixed-methods study was to obtain statistical, quantitative results from a sample of Fellows in the American College of Healthcare Executives in the United States and then follow up with a few highly intuitive individuals to explore those results in more depth. In the first phase, quantitative research questions addressed the relationship between leadership style and the potential to make intuitive decisions, as well as the relationship and interaction between the potential to make intuitive decisions, and age, gender, and size of company. In the second phase, qualitative interviews were used to explore how highly intuitive executives use intuition to make their decisions.

Significance of the Study

Healthcare organizations are structured to be bureaucratic organizations by design (Griffith, 1999, p. 149). Decisions in bureaucratic organizations are also sequential by design, starting at the most strategic and universal level of the organization and working out in detail among many small groups (p. 165). According to Griffith (1999), "Real decisions require substantial checking, both up and down and back and forth across the rows and columns of the figure" (p. 165). The organization is not designed for executives

to take risks. This leads to slow decisions, decisions made by committee or consensus and often failure to make decisions or changes at all. The decisions are made with stacks of data to back up the decisions. This ensures that the decision maker has a good “reason” if the decision ends up being an ineffective one.

In this fast-paced environment in which all industries must strive to succeed, decisions must be made quickly and with the highest level of effectiveness. Being made with limited data these decisions usually have an element of risk. They must be made quickly and under circumstances in which the decisions that are made may be risking a large investment of capital funds.

In order to take this slow-to-change environment which is risk-adverse, and get decision makers to maximize their decisions, we must first understand more about how executives make decisions and how they feel about making intuitive decisions. Once we know this information we can use it to educate healthcare executives on the most effective decision-making approaches. We can define their leadership style, diagnose which behaviors they need to improve on and what decision-making tools they need to make the most effective decisions. We can educate and train the executives so that they can lead their organizations into the fast-paced future, armed and ready to succeed.

Research Questions

The following research questions sought to understand how leadership style is related to the potential to make intuitive decisions. In addition, the questions of how intuitive decision-making potential is related to the age, gender, and size of company of the executive are presented. Finally, the qualitative question introduces the search for information on how the intuitive executives make decisions.

1. What is the relationship between leadership style and the potential to make intuitive decisions?
2. What is the relationship between gender and the potential to make intuitive decisions?
3. What is the relationship between age and the potential to make intuitive decisions?
4. What is the relationship between the size of the company the executive works in and the potential to make intuitive decisions?
5. Is there interaction between age, gender, and size of company with intuitive decision-making potential?
6. How do healthcare executives use intuition to make their decisions?

Conceptual Framework

This study is based on the foundation of two separate pillars: knowledge regarding how the mind makes rational and intuitive decisions, and knowledge regarding leadership style. Each will be looked at separately.

Split-Brain Theory

The human mind is perhaps the greatest wonder of the human body and Roger Sperry spent his adult lifetime studying that wonder. Under the acclaimed biologist, Paul Weiss (Horowitz, 1999), Sperry researched Weiss's widely accepted theory that the vast neural network connecting the sense organs and muscles to the brain originates as an undifferentiated mesh of randomly connected nerve fibers. Weiss believed that this mesh of connected nerve fibers later transformed, under the influence of experience and

learning, into the highly coordinated, purposeful system. This theory came as the result of careful experimental work. After working with Weiss, Sperry spent the next 10 years disproving this theory. Sperry's research showed that the experiments were right, but the interpretation was wrong. In his experiments, which have now become famous, Sperry found the brain to be intricately "hardwired" during embryonic development and that the function of the cell was not modified afterwards. It was for this research on the brain that Sperry was awarded the Nobel Prize in 1981, the discovery of split brains (Horowitz, 1999).

In the split-brain theory, Sperry showed that if the two hemispheres of the brain are separated by severing the corpus callosum (the large band of fibers that connects them), the transfer of information between the hemispheres ceases, and the coexistence in the same individual of two functionally different brains can be demonstrated. Conversely, the two brains, which have separate functions, when attached by the corpus callosum are usually in agreement; that is, they work together as one brain (Horowitz, 1999).

The left side of the brain has long been understood to be responsible for speech, writing, main language center, and calculation, with the right side for spacial construction, simple language comprehension, and nonverbal ideation (Sperry, 1983). This corresponds to Barnard's theory that the two kinds of decision making- the analytical (logical) and intuitive or creative (non-logical)- are tied to the sides of the brain from which those functions originate. And so, when the brain functions as one brain, intuition is not a process that operates independently of analysis, but rather two processes

are essential, complementary components of effective decision-making systems (Barnard, 1938).

Roy Rowan (1986) studied Sperry's research as the backdrop for his extensive studies of intuition among corporate American executives. He concluded:

Business schools, of course, still put heavy emphasis on developing left-brain talents. As a result of most business school training, the articulate incompetent may simply be suffering from acute left-lobitis. The lesson of all this for business leaders is, don't let the left, monitoring side of your brain overanalyze problems or talk you out of moving intuitively into an exciting new venture. (pp. 26, 27)

As well, Dr. Weston H. Agor used the basis of Dr. Sperry's work to base his work and research in regard to right-, left-, and integrated-brain decision making. Agor (1984, 1986, 1989) used his survey instrument to determine how intuitive managers appeared to be, if they used their intuition on the job and if intuitive ability varied by sex, ethnic background, and by occupational specialty. He found that certain professions prefer the intuitive style of management and that as managers move up the management ladder within their occupational specialties, their preference for intuitive management increases. Also, he found that Asian managers had a higher level of intuitive ability than the average respondent and that African-American managers had a lower level of intuitive ability than the same average respondents. Women consistently scored higher on the right-brain scale for intuition than men in every group sampled.

It is this split-brain theory by Roger Sperry and his subsequent research regarding the conscious and unconscious brain working together that forms the theoretical basis for the decision-making portion of my research.

Leadership Style

The leadership style theory upon which my research is based is the Blake and Mouton Theory of Leadership Style, commonly referred to as the Managerial Grid. The Blake and Mouton Theory is one of the behavioral theories of leadership that looks at unique ways in which effective leaders behave to define their leadership style (Bass, 1981).

Behavioral theories are based on the idea that there are particular behaviors that define effective leadership and that behaviors can be changed with education and modeling. The Blake and Mouton Managerial Grid is based on the behaviors “concern for people” and “concern for production.” The Grid has nine possible positions along each axis, creating 81 different positions in which the leader’s style may fall. The grid shows the dominating factors in a leader’s thinking in regard to getting results (Hall, Harvey, & Williams, 1995). According to the theory, effective managers have a high concern for both people and production (Yukl, 2002). The leader’s basic philosophy determines how the two concerns, people and production, should be related in practice and the degree of concern he or she can realistically have for each. Different leaders view the relationship in different ways and the particular view held by a given leader will determine the strategies that the manager will employ to get the job done (Hall et al., 1995).

The Blake and Mouton Model focuses on five different styles of leadership practice. Each is based on different strategies for dealing with people and purpose and stems from leaders’ personal beliefs about what is and what is not possible concerning the two. The five different styles of leadership practices are directive, supportive, bureaucratic, strategic, and collaborative leadership (Hall et al., 1995).

Since according to Agor (1984), integrated decision making (using both analysis and intuition) is the most effective type of decision making, and since Blake and Mouton (Bass, 1981) theorize that understanding the behavioral theories of leadership style will help the organization choose the most effective leader, I wondered if there could be a relationship between the two. If we know that leadership style and the potential to make intuitive decisions are related, we can be even more effective in our hiring and training efforts when it comes to finding and developing effective managers and leaders.

Research Hypotheses

The following hypotheses were proposed for the quantitative portion of this study:

Hypothesis 1. There is a significant relationship between leadership style and the potential to make intuitive decisions.

Hypothesis 2. There is a significant relationship between gender and the potential to make intuitive decisions.

Hypothesis 3. There is a significant relationship between age and the potential to make intuitive decisions.

Hypothesis 4. There is a significant relationship between size of company executive works in and the potential to make intuitive decisions.

Hypothesis 5. There is significant interaction between age, gender, and size of company the executive works in and intuitive decision-making potential.

Definition of Terms

The following terms are defined for use in this study:

Intuition: Quick and ready insight (Merriam-Webster, 1995); a way of knowing, recognizing the possibilities in any situation (Vaughan, 1979); knowledge gained without rational thought (Rowan, 1986); a feel for patterns, the ability to generalize based on what has happened previously (Greenleaf, 1977).

Intuitive Decision Making: reliance placed primarily on feelings before facts when making a decision (Agor, 1984).

Healthcare Executive: A senior-level executive working in healthcare who has met the criteria and requirements to obtain Fellow status in the American College of Healthcare Executives. This includes high moral character and ethical conduct, active participation in healthcare management, professional and education activities, a master's degree plus 2 years' healthcare management experience or a bachelor's degree plus 5 years' healthcare management experience, a Diplomate for at least 3 years, employed by an acceptable healthcare organization influencing the operations, growth, and development of the organization, and completion of an appropriate Fellow project.

Leadership Style: Leadership is viewed as one's capacity for influencing others to achieve purpose through people. The manner in which a given leader will exercise leadership is determined by his or her philosophy and the resulting practice of leadership is considered their style of leadership (Hall, et al., 1995).

Specific for this study - Leadership Style: The behavior of a leader, resulting from his/her beliefs in regard to people and production.

AIM (Agor's Intuitive Measurement Survey): The survey developed by Dr. Weston H. Agor to test the potential to make intuitive decisions. The instrument has been used to test over 5,000 executives.

Delimitations

This study was confined to surveying healthcare executives in the United States who have obtained the level of Fellow in the American College of Healthcare Executives, and may not be generalizable to those executives outside of healthcare. In addition, the study was limited to healthcare executives at the senior level and may not be generalizable to executives at less than senior level.

Limitations

The low response rate of 22.74% was a limitation to this study. This may have been because the leadership survey looked complicated and time consuming, and when combined with the busy schedule healthcare executives keep, became a deterrent. As participants were located across the United States, they were interviewed by telephone rather than face-to-face. This was also a limitation to this study.

Summary

Until fairly recently, the idea that executives used their intuition to make effective decisions was not recognized as a legitimate or accepted concept for decision making. Rational decision making was considered the optimal way to make decisions, but research is starting to show that intuition is being used to make executive decisions. Very little research has been done to find the relationship between leadership style and intuition, and none has been done with healthcare executives. The purpose of this study

was to obtain a sample of Fellows in the American College of Healthcare Executives in the United States and investigate the relationship between leadership style and the potential to make intuitive decisions. In addition, the relationship and interaction between the potential to make intuitive decisions and age, gender, and size of company the executive works in was studied. Following the quantitative portion of the study, interviews were used to explore how the highly intuitive executives use intuition to make their decisions. Once we understand the relationship between leadership style and intuition and how executives make their decisions, we can best educate our managers and executives to make optimal decisions.

Outline of the Study

Chapter 1 included an introduction to the background of the problem, a statement of the problem, and a statement of the purpose of the study. The significance of the study, research questions, and conceptual framework were then stated. Finally, the research hypotheses, definition of terms, delimitations, and limitations were presented in preparation for chapter 2 and the review of literature.

Chapter 2 reviews the literature pertaining to the split-brain theory, intuition, decision making, and leadership style.

Chapter 3 describes the research methodology used to gather data, the type of study, population, selection of the sample, instruments employed in the study, procedures of data collection, and procedures of data analysis in regard to both the quantitative and qualitative portions of the study.

Chapter 4 presents the results, based on the research questions and the quantitative and qualitative analysis.

Chapter 5 comprises a summary of the study, discussion, conclusions, and recommendations.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

The business environment of today is far different from the one we worked in five years ago. It seems that the speed with which we must operate, change, adjust, and make decisions is increasing at an exponential rate (Gates, 1999). The change in the business environment has necessitated that we rethink everything we do, including how we communicate, design staff productivity, and most importantly how we make our decisions. We no longer have the luxury of time to gather all of the resources and data, nor the time needed to make what has historically been considered “rational”, analyzed decisions. Besides not having the luxury, research is showing us that we may no longer have the need to use that analytical-based method of decision making every time we need to come up with an answer. Perhaps the best-kept secret of the Executive Suite has been the use of intuition to make those really important decisions (Rowan, 1986). This literature review looks at The Split-Brain Theory, Decision Making, and Leadership Style.

The Split-Brain Theory

Roger W. Sperry, winning the Nobel Prize for medicine and physiology, began his career in the humanities. Graduating with his bachelor’s in English, Sperry obtained

his master's degree in psychology. Here he developed his lifelong interest in the brain and mind studies. He switched to biology for his doctoral degree and began studying under the well-known Dr. Paul Weiss at the University of Chicago. Weiss was working on a theory of how the brain worked. Weiss believed that the brain functioned independent of specific neuron connections. Sperry's work with Weiss and immersion in Weiss's theory actually led him to a rival theory, the chemo-affinity theory. Sperry's chemo-affinity theory was tested and proven to be accurate. Sperry proved that those nerve cells (neurons) that direct behavior are wired into the brain under the precise chemical guidance of the genes during embryonic development and not later when the person gained experience, as Weiss believed. This radical work in regards to brain function formed the basis for all of Sperry's later work (Horowitz, 1999).

Sperry's next work was to refute another prevailing theory of cortical equipotentiality; that is, that each part of the cortex is equally well suited to take over any task. Sperry's work in this area led to the now famous work in regard to split brains.

Previous to 1950, it was widely accepted that the corpus callosum (the largest network of millions of neurons in the brain connecting the right and left hemispheres of the brain) served no known purpose. It was reported that cutting the corpus callosum created absolutely no symptoms. Sperry and his team of researchers, under meticulous surgical experimentation on monkeys and cats, were able to show that each side of the brain perceives, learns, and remembers separately, as if two conscious minds exist within one cranium. They did this by surgically separating the corpus callosum from the brain hemispheres and were thus able to show that the two hemispheres of the brain perceive, remember, and learn separately from each other. Also, animals whose corpus callosum

had been separated could perform equally and mutually contradictory mental tasks at the same time (Horowitz, 1999).

Human subjects became available in the 1960s when surgeons performed commissurotomies (separation of the corpus callosum from the hemispheres) to relieve intractable seizures. This gave the opportunity for exhaustive studies on the higher faculties in humans as they relate to each hemisphere. As expected, the left hemisphere showed dominance in speech, writing, and calculation. However, a surprise came in regard to the right hemisphere which had so far been thought to be relatively unconscious. The right hemisphere showed superiority in regards to important aspects of thought, including visual-spatial tasks, music, etc. Each side of the brain had distinctly different approaches to problems. The left side took an analytical, step-by-step approach, while the right side looked at a situation with an all-in-one view. Perhaps the most fascinating results showed that the newly discovered mute right-brain faculties played a dominant role in forming the basis of atheistic, emotional and religious perspectives, which are basically inaccessible to logical analysis. According to Sperry, the right hemisphere was a conscious system within its own right, perceiving, thinking, remembering, and reasoning, and that both the left and the right hemisphere may be conscious simultaneously, in different, even mutually conflicting, mental experiences (Horowitz, 1999).

Henry Mintzberg, professor in the Faculty of Management at McGill University, has written extensively on the manager and his work. Mintzberg (1976) discusses the role that each hemisphere of the brain has on determining which job a person should have - that of planner or manager. Mintzberg cites the split-brain research of severing the

corpus callosum as the basis for his discussion. Interestingly, he cites that an individual may be smart and dull at the same time, simply because one side of his or her brain is more developed than the other.

Some people – probably most lawyers, accountants, and planners have better developed left-hemispheric thinking processes, while others – artists, sculptors, and perhaps politicians – have better developed right-hemispheric processes. Thus an artist may be incapable of expressing his feelings in words, while a lawyer may have no facility for painting. Or a politician may not be able to learn mathematics, while a management scientist may constantly be manipulated in political situations. (Mintzberg, 1976, p. 52)

In addition, Mintzberg (1976) reflects on the fact that we know a lot about the left-brain hemisphere, as its thought processes are linear, sequential, and analytical; and at the same time we know little about the right hemisphere. That is because the left hemisphere cannot articulate what the right hemisphere knows. Taking it a step further, Mintzberg (1976) says, “It may be that management researchers have been looking for the key to management in the lightness of logical analysis whereas perhaps it has always been lost in the darkness of intuition” (p. 53).

Formal planning is a process close to those identified with the brain’s left hemisphere’s work – systematic and well-ordered. However, managing is more effective for the organization if it is done using the brain’s right hemisphere. “Effective managers seem to revel in ambiguity; in complex, mysterious systems with relatively little order” (Mintzberg, 1976, p. 53).

Mintzberg (1976) has conducted his own extensive research and published his findings in the *Business Review*:

1. The chief executives Mintzberg observed strongly favor verbal media of communication over written forms.

2. A great deal of the manager's information inputs are soft and speculative – impressions and feelings about other people. The analytical inputs, and reports, seem to be of relatively little importance to many managers.

3. The manager tends to be the best informed member of his organization, but has difficulty disseminating his information to the employees.

4. The managers actively exhibit a preference for interrupted work and a lack of routine.

5. The most important managerial roles identified and described in the research were isolated as leader, liaison, and disturbance handler, instead of the roles of figurehead, monitor, disseminator, spokesman, negotiator, and resource allocator. These identified important roles are most effective using the right side of the brain.

6. While diagnosis of problems and design of solutions are the two most-noted roles of the manager, again, little is known about them. The diagnosis must have been made most of the time, yet it is mentioned as a step towards decision making only half of the time.

7. The existence and profound influence of dynamic factors was found in the research, yet very little mention of it is made in managerial science.

8. In the research pertaining to strategic decisions, only 18 out of 83 choices were made using explicit analysis.

9. A strategy represents the mediating force between a dynamic environment and a stable operating system. It is the organization's conception of how to deal with its environment.

10. Creative, integrated strategies seem to be the product of single brains, perhaps of single right hemispheres.

Mintzberg (1976) says,

Truly outstanding managers are no doubt the ones who can couple effective right-hemispheric processes (hunch, judgment, synthesis, and so on) with effective processes of the left (articulateness, logic, analysis and so on). But there will be little headway in the field of management if managers and researchers continue to search for the key to managing in the lightness of ordered analysis. Too much will stay unexplained in the darkness of intuition. (p. 57)

In 1996, Dew used the split-brain theory to discuss maximizing the effectiveness of how we think and process information. He wrote:

At the most fundamental level, you must be aware of how you think and process information and appreciate other people's different approaches. When people cling to their comfortable thinking processes, they restrict themselves in the manner by which they will be able to define a problem or situation. As it is often said among quality professionals, 'If the only tool you have is a hammer, every problem looks like a nail.' By effectively harnessing both sides of the brain's thinking processes, you can shift from one thinking process to another as the situation warrants. For example, right-brain thinking can be used to develop a broad strategic quality plan. Left-brain thinking can be used to analyze a problem. When the problem has been analyzed, right-brain processes can be called on to develop possible solutions. Left-brain concepts can help plan how to implement a solution into the work system, while right-brain thinking can sell the solution to the organization. (p. 92)

Dew calls this "whole-brain thinking." He recommends determining which side of the brain is dominant in a manager and then using that information to recognize patterns in thinking and using those patterns of weakness and strength to deal with information. He also recommends obtaining training for the side of the brain not dominant. By this training and effective harnessing of both sides of the brain's thinking processes, the manager can shift thinking to the side of the brain that the situation warrants.

The split-brain theory was also the basis of the study done by Airhart in 1983 to examine the learning experiences of nursing students in the National League for Nursing-accredited baccalaureate program in nursing and its relationship to the right and left hemisphere. Selected hemisphere activities were identified and evaluated. The descriptive-correlational method was used to survey 399 National League for Nursing-accredited baccalaureate programs in the United States. Of the 399 programs, 247 participated in the study by returning completed research instruments. Two research instruments were used in the study which included The General Data Form and the Learning Experience Evaluation Instrument. Response frequencies and descriptive statistics were used to analyze the data and determine the frequency of occurrence of right- and left-hemisphere learning experiences in National league for Nursing-accredited baccalaureate programs. Right-hemisphere learning experiences were described as occurring between a moderately low and moderately high degree. In comparison, left-hemisphere learning experiences were reported as occurring between a moderately high and high degree. The data were also analyzed using the Spearman rank correlation coefficient. The findings of the study suggested that symmetrical cerebral learning experiences were provided in National League for Nursing accredited baccalaureate programs. However, the data also demonstrated that one right-hemisphere learning experience, intuition, was severely lacking. The study reinforced the concern that nurses must learn to use intuition in the problem-solving process.

Several research projects in the last five years have supported the split-brain theory and one study was found questioning its validity. Petrov (1998) studied right- and left- brain dominance in regard to creativity in art, while Saleh (2001) studied the brain

hemispheres to show hemisphere dominance as it related to academic majors in college. Kay (2003) studied the left versus right brain from a marketing viewpoint, while Marney (1996) reminded readers that smart marketers will appeal to both sides of the brain. Bower (2002) reported research on a patient with a surgically split-brain to show that recognition of familiar faces depends largely on the right side of the brain. An interesting study by Connell (1999) showed that musical perception is divided between the hemispheres and that people who started musical training before turning seven years old developed a thicker corpus callosum (nerve fibers connecting the hemispheres), which may improve motor control by speeding up communication between the hemispheres. Only Moorby (2002) wrote of needing to expand past the “profound limitations” of left- and right- brain thinking and purported the study of neurochemicals and their effects on how humans think and learn.

Decision Making and Its Models

Decision making begins with thinking. Jonathon Baron, in his book, *Thinking And Deciding* (2000), brings us to the basics of thinking and its importance in our lives:

Thinking is important to all of us in our daily lives. The way we think affects the way we plan our lives, the personal goals we choose, and the decisions we make. Good thinking is therefore not something that is forced upon us in school: It is something that we all want to do, and want others to do, to achieve our goals and theirs. This approach gives a special meaning to the term ‘rational’. Rational does not mean, here, a kind of thinking that denies emotions and desires: it means the kind of thinking we would all want to do, if we were aware of our own best interests, in order to achieve our goals. People want to think ‘rationally’ in this sense. (p. 5)

Baron speaks here of rational as defined by Merriam-Webster as “having ~~safety~~” (p.278). This should not be confused with the rational decision making ~~model~~ which we will discuss later on in the paper. According to Baron, a decision is a choice of action ~~and~~

is made to achieve goals. Decisions are based on beliefs about what actions we need to take to reach those goals and cannot be done without thinking.

Managers generally use three broad types of styles for making decisions. They are, left brain or rational, right brain or intuitive, and integration of both rational and intuitive decision making (Agor, 1984).

Left- brain or rational theories of choice assume decision processes are consequential and preference based. That is, the action depends on anticipation of the future effect and this consequence is a function of the preferences of the decision maker (March, 1994). Rational decision-making models are essentially processes to make decisions. The following model is rational (Welch, 2002,) :

1. Identify your objective.
2. Do a preliminary survey of your options.
3. Identify the implicated values.
4. Assess the importance of the decision.
5. Budget your time and energy.
6. Choose a decision-making strategy.
7. Identify your options.
8. Evaluate your options.
9. Make your choice (p. 62).

Right-brain or intuitive decision making is one that Agor (1984) describes as “The ability to make practical management decisions successfully on the basis of feelings – even in the face of conflicting facts or with totally inadequate information” (p. xii). The right side of the brain does not think sequentially or in a linear way but thinks in a

holistic way. For that reason creating a model of intuitive decision making is difficult. However, Klein (1999) was able to create his Recognition-Primed Decision Model by studying decisions made in the naturalistic environment during critical events in which the decision maker often had only 60-90 seconds to make a decision. His model fuses two processes: the way decision makers size up the situation to recognize which course of action makes sense and the way they evaluate that course of action by imagining it. The important difference of this model from the rational model is that in Klein's model, the decision maker recognizes the situation as typical along with the course of action that matches the situation, while the rational decision maker first looks at the goals or expectations in order to figure out the nature of a situation.

Integrated decision making is described by Agor (1984) as a decision-making style that uses both right and left brain skills interchangeably as the management situation demands. The managers using the integrated decision-making model are comfortable dealing with both facts and feelings when making decisions. They tend to make major decisions guided by intuition after scanning the available facts.

Intuitive Decision Making

The power and importance of logical decision making has long been strongly supported and widely accepted within our business schools in the United States. "Big organizations and that includes governments, unions, and corporate oligopolies that submerge the individual, are clearly intuition's enemy" (Rowan, 1986).

In the text on organizational behavior by Stephen Robbins (2001), the author states "The optimizing decision maker is rational." Current literature does not agree with that statement.

Chester I. Barnard, a successful executive in his own right, wrote his book in 1938, *The Functions of the Executive*, now considered a classic book on organization, management, and leadership. Even then, long before the split-brain theory was discovered, Barnard believed in the importance of using both the logical and non-logical portions of the mind when thinking and making decisions in the business world. I quote Barnard from his paper, which he presented in 1936 and then later included in his book:

I have found it convenient and significant for practical purposes to consider that these mental processes consist of two groups which I shall call “non-logical” and “logical.” In ordinary experience the two classes of intellectual operations are not clearly separated but meld into each other. By “logical processes” I mean conscious thinking which could be expressed in words, or other symbols, that is, reasoning. By “non-logical processes” I mean those not capable of being expressed in words or as reasoning, which are only made known by a judgment, decision or action. This may be because the processes are unconscious, or because they are so complex and so rapid, often approaching the instantaneous, that they could not be analyzed by the person within whose brain they take place. The sources of these non-logical processes lie in physiological conditions or factors, or in the physical and social environment, mostly impressed upon us unconsciously or without conscious effort and study. This second source of non-logical mental processes greatly increases with directed experience, study and education. (Barnard, 1938, p. 302)

Barnard was speaking of what we would later learn to be right- and left- brain functions. He was possibly the first to document and write of that portion of the brain needed so desperately to make decisions when logic fails: decisions which we now term “intuitive.”

Dr. Frances Vaughan wrote her book, *Awakening Intuition* (1979), which became recognized for its theoretical treatment of intuition. Vaughan (1979) writes that intuition is a mode of knowing that is essentially available to everyone.

Experiences which are commonly called intuitive also include discovery and invention in science, inspiration in art, creative problem solving, perception of patterns and possibilities, extrasensory perception, clairvoyance, telepathy, precognition, retrocognition, feelings of attraction and aversion, picking up “vibes,”

knowing or perceiving through the body rather than the rational mind, hunches, and premonitions. (p. 57)

Intuition is often associated with having a hunch or a strong feeling of knowing what is going to happen. Dr. Vaughan (1979) writes that intuition is a part of all of us, with some people choosing to develop their intuition and others not. She also affirms the common thread seen throughout much of the literature and research regarding decision making with intuition: “Intuition is not opposed to reason, but works with it in a complementary fashion. Typically, flashes of intuitive insight follow the exhaustive use of logic and reason” (p. 150).

Nobel Prize winner for economics Dr. Herbert Simon (1987) has written much on administrative behavior and the study of decision-making processes within the administrative organization. In his 1987 journal article, “Making Management Decisions,” Simon describes how he believes intuition works:

First, experts often arrive at problem diagnoses and solutions rapidly and intuitively without being able to report how they attained the result. Second, this ability is best explained by postulating a recognition and retrieval process that employs a large number – generally tens of thousands or even hundreds of thousands – of chunks or patterns stored in long term memory. (p. 58)

It is the work and writings of these three giants, Barnard, Vaughn, and Simon, which form much of the basis in literature for understanding and studying the human mind in regard to decision making and intuition.

Dr. Weston H. Agor is a modern-day thought leader on intuition. In his research of over 5,000 executives (1984, 1986, 1989), Agor brought to the research table much information on intuition. Agor tested managers across the United States in a wide variety of organizational settings (business, government, education, military, and health) at all levels of management responsibility. He used an instrument he had developed, the

Agor's Intuitive Measurement Survey to determine just how intuitive managers appeared to be, if they used their intuition on the job, and if intuitive ability varied by sex, ethnic background and by occupational specialty. The instrument had two parts. The first part measured the management style (left, right, integrative) that executives said they actually used on the job to make decisions. This portion of the test contained 15 total questions selected from the Mobius Psi-Q 1 Test (Agor, 1984). The second part of the test measured executives' underlying ability to use intuition to make management decisions. This portion of the test consisted of 12 questions selected from the Myers-Briggs Type Indicator, a psychological instrument that, among other things, measures your ability to use intuition, as contrasted from thinking ability, to make decisions. He selected these instruments as resources for constructing his own test because they have been used extensively to test managers across the country and have been proven to have a high degree of reliability and validity as test instruments. Scales were constructed for both parts of the test so that each manager could be ranked exactly from top to bottom on how they scored individually and also how they compared to other managers taking the test.

Agor (1984) found that certain professions such as general administrators and policy makers clearly prefer the intuitive style of management as compared to professions such as financial management and law enforcement. Other findings (Agor, 1984) include job satisfaction. Nearly 6% of the managers were not happy in their position and the common thread through the data appeared to be that the majority of these unhappy managers had selected an occupational specialization that did not match their management style preference. Findings regarding ethnic background showed that Asian managers had a higher level of intuitive ability than the average respondent and that

African-American managers had a lower level of intuitive ability than the same average respondents. Agor (1984) considered his findings extremely important regarding gender differences. Women consistently scored higher on the right-brain scale for intuition than men in every group sampled. It is significant to note that the women's overall management intuition score approximates that of the top managers.

Based on his research, Agor (1989) found that top leaders of organizations find their intuition particularly helpful under the following circumstances:

1. where there is a high level of uncertainty
2. where there is little previous precedent
3. where reliable "facts" are limited or totally unavailable
4. where time is limited and there is pressure to be right
5. where there are several plausible options to choose from, all of which can be plausibly supported by "factual" arguments (p. 11).

The work of Roy Rowan (1986) was done close to the time of Agor's work, but with no apparent connection. Rowan spent years doing field work interviewing top corporate executives across the United States. Based on his studies of these executives, he wrote his book, *The Intuitive Manager* (1986). Rowan talks about intuition in terms of what he calls The Eureka Factor. The Eureka Factor, that sudden, illuminating, "I've found it" flash, has been referred to again and again by scientists attempting to describe the key element in their discovery process. Most are quick to admit that scientific breakthroughs do not seem to evolve slowly from a sequence of deductions. They spring finally from hunches that cannot be completely explained. In his book Rowan cites examples of high-profile leaders/entrepreneurs who changed the world around them with

their intuitive decisions: Ray Kroc, Cornelius Vanderbilt, John Teets, Ross Perot, Mary Kay Ash, and Eleanor Friede, just to name a few (p. 114).

Based on his studies, Rowan (1986) states the following:

What is this mystical power, magical facility, this guardian angel that is smarter than we are and can take care of us, provided it is allowed to function? Intuition is knowledge gained without rational thought. And since it comes from some stratum of awareness just below the conscious level, it is slippery and elusive, to say the least. Under hypnosis the unconscious can recall incredible things that we have no idea are being collected. These subconsciously perceived factors are sorted out and integrated into retained impressions that often can't even be verbalized though they guide our actions. New ideas spring from a mind that organizes experiences, facts, and relationships to discern a path. Intuition compresses years of learning and experience into an instantaneous flash. (p. 114)

Agor's research was duplicated in 1996 by Thomas Keen (1996) and had varying results from Agor's. It is noted that the instrument had been refined since Agor's original work in the 1980s. Keen used Agor's instrument, the AIM Survey, to sample 108 business executives in marketing from a database of 6,000 managers. Keen studied professional managers who operate in a range of industries and were members of the American Marketing Association. The sample was selected by the random stratified method, and 267 subjects were sent a questionnaire, of which 108 were returned valid. His results showed that 89% of the executives used intuition to guide their decisions. Keen's overall mean score was 7.0, while Agor's (1989) was 6.4. In comparing gender difference, Keen found that his score for women matched Agor's but the men's score was different. Keen's score for males was 7.4 as compared to Agor's of 6.3. Keen's response rate of managers with an ethnic background was too low to be meaningful. As well, the occupational specialty could not be compared. The management level portion of Keen's study showed that all levels of management had an increased ability to make intuitive decisions as compared to Agor's study; however, the level of management is still as

Agor's studies had shown; that is, the higher up the ladder, the greater the ability to use intuition. I have noted that the sample size of the study seemed low in relation to the size of the population under study. A larger sample size may have provided more meaningful result, especially in regards to the measurement of intuition based on gender, ethnic background, and occupational specialty.

While Agor and Keen looked at the executives' potential to make intuitive decisions, Anderson (2000) investigated to what extent managers are intuitive and asked the question, "Is intuition in managers related to effectiveness in organizations?" He sampled 222 managers from a population of all managers in eight Swedish industrial companies. The data were collected from managers working in various industrial trades, on different levels, in charge of different functions, who were geographically spread over the country. The study was conducted to determine if managers have the creative and innovative ability needed for their organizations to survive in an increasingly competitive environment. The hypothesis was that managers with a decision-making behavior based on intuition and supported by thinking style were related to the effectiveness of their organizations. Anderson (2000) used two test instruments that were based on Carl Jung's work related to psychological types. The instruments were the Myers-Briggs Type Indicator (MBTI) and Keegan's Type Indicator (KTI). While the MBTI is one of the most applied psychological instruments in use today, the researcher believed the extensiveness of the 94-item instrument was an obstacle. The KTI instrument contained only 32 test items and was an easier instrument to administer but was less verified regarding reliability and validity with no written documentation on test results existing. The MBTI is a general test of Jungian typology, while KTI is a test for managers

measuring decision-making styles based on Jungian-type theory. Data were collected quantitatively from the 222 managers. Thirteen of the managers did not have a distinct decision-making style. The remaining respondents were divided into two crude categories. One part consisted of those managers with intuition as the dominant or auxiliary function, and the other half consisted of the managers without any tangible intuition. Managers with intuitive traits made up 48% of all respondents and those without intuition made up 52%.

Anderson's (2000) study of decision function and effectiveness was limited to only one company from the eight companies participating in the study. This one company was the only service sector company represented and was used because the effectiveness definition and measurement for the service company was precise and not subject to some of the reservations that might be raised concerning the data from the manufacturing companies. Based on data from 33 managers in the service company, their decision-making style scores and the degree of effectiveness of their department, the analysis aimed at assessing the degree of relationship between intuition in managers and their effectiveness. The covariance between effectiveness and less effectiveness for the intuitive managers was 1.5, while the covariance for other managers was 0.5. The Fisher exact two-tailed test was used and had a p -value of 0.26. The difference was not significant.

The decision-making style with more effective managers than less effective, is sensing with feeling, intuition with thinking, and thinking with sensing as auxiliary function. The decision-making style, which is a combination of dominant intuition and thinking as auxiliary function, is denoted as the creative, innovative decision-making

style. The covariance between effectiveness and less effectiveness for the managers with the combination intuition with thinking was 4, while the covariance for the other managers was 0.6. The Fisher exact two-tailed test was used and the p -value was 0.14. The difference was not significant. While the results found that 25% of the managers used intuitive problem solving as the primary method of making decisions, no significance was found as to whether or not these managers were more effective than others.

Sanchez's (1997) research project used Dr. Agor's AIM Survey. Sanchez modified the AIM Survey to measure intuitive ability among managers, administrators, and executives from a wide variety of public- and private-sector organizations. The modification of one item in the survey made possible its use for the subjects of this study, which were higher education administrators. The population consisted of all managers and administrators from higher education institutions in the El Paso, Texas, region. Subjects were randomly selected using computer-generated random numbers. A random sample of 217 was selected in an attempt to achieve a reflection of the actual demographics of the population with balanced coverage for female, male, ethnicity, and academic representation across disciplines and all levels of administration. Both parts of the AIM Survey were used as discussed in the Keen Study. Data were analyzed using the statistical tests of ANOVA and t -tests. The results of the study produced a mean score for the profession of higher education administrator, and it was determined that higher education administrators did not have a statistically significant mean score on the intuition survey when compared by descriptive variable such as gender, ethnicity, and administration level. It was also determined that higher education administrators did

have significantly higher mean scores when compared to the professions such as health, financial management, engineering, and law enforcement.

Breen (1990) analyzed the decision-making styles of American and Chinese executives. His phenomenographic approach had interesting results. The study showed American executives preferring a linear decision-making style, whereas Chinese executives were more apt to use a non-linear approach. The researcher discussed the disadvantage Americans will have in the global workplace if they do not adapt their decision-making style away from a dominantly linear decision-making style.

Taylor (1988) made inquiry into the experience of intuition in management decision making. The objective was to clarify, consolidate, and provide a model for the use of intuition as a valid alternative to traditional rational models for managers to use. The study explored the intuitive decision-making experiences of 10 managers through in-depth case analyses. A questionnaire was utilized along with an empirical phenomenological methodology to generate and analyze various types of data that described the phenomenon of intuition in management decision making. Specifically, the data pertained to the profile characteristics, organizational climate, and attitude regarding intuition, intuitive predisposition, and recent management decisions of the participants. From the interviews with participants, 10 Individual Phenomenological Descriptions (IPD) were analyzed. The IPD's and their themes yielded four informational categories, 64 themes and four general themes for analysis.

The research found that intuition was experienced by middle and top managers in their decision-making processes and that the experience was influenced by the quality of participants' managerial experiences and their relationship with their organizations by

their rational tendencies and rational forces in the environment by their intuitive predispositions and by their degree of intuitive development. It was found that intuition was manifested in various forms that were associated with certain levels, and occurred on a continuum of proactive and reactive phases. Overall, intuition inevitably occurred around certain kinds of management decisions involving people judgments, decision making in a situation where no problem-solving precedent had been established, and around incomplete problem scenarios.

Another groundbreaking researcher in the intuition field was Gary Klein. Klein and his team of researchers did extensive research to find out how people tackle challenging decisions in difficult, non-routine situations, which Klein (1999) referred to as happening in naturalistic settings. His work on naturalistic decision making, that is, the study of how people use their experience to make decisions in field settings, sought to understand how people handle all the typical confusions and pressures in their natural work environment, such as missing information, time constraints, vague goals, and changing conditions. The extensive research was completed using firefighters, paramedics, and pilots, and is described in detail in his book, *Sources of Power*. Klein (1999) describes his research and the results as he writes:

We have found that people draw on a large set of abilities that are sources of power. The conventional sources of power include deductive logical thinking, analysis of probabilities, and statistical methods. Yet the sources of power that are needed in natural settings are usually not analytical at all—the power of intuition, mental simulation, metaphor, and storytelling. The power of intuition enables us to size up a situation quickly. The power of mental simulation lets us imagine how a course of action might be carried out. The power of metaphor lets us draw on our experience by suggesting parallels between the current situation and something else we come across. The power of storytelling helps us consolidate our experiences to make them available in the future, either to ourselves or to others. (p. 3)

Fall (2002) studied the work of police individuals. The intuitive abilities of police individuals were compared to non-police individuals. The 234 participants were tested for intuition using the Social Intelligence Quotient Test. The results showed a significantly higher level of intuition in police individuals as compared to non-police individuals. There was no significance among the variables of gender, age, and years of experience.

Intuition and decision making have been studied and discussed in more generalized environments. Bechara & Damasio (1997), Harper (1988), Hayashi (2001), Holloman (1992), and Isenberg (1984), write about intuition and management.

Bechara and Damasio (1997) reported their findings on the role of intuition in the making of wise decisions in their journal article published in *Science Journal*. They based their research on the idea that deciding advantageously in a complex situation is thought to require overt reasoning or a declarative knowledge; namely, facts pertaining to the premise, and options for action. They investigated an alternative possibility; that overt reasoning is preceded by a nonconscious biasing step that uses neural systems other than those that support declarative knowledge.

Normal participants and patients with prefrontal damage and decision-making defects performed a gambling task in which behavioral, psychophysiological, and self-account measures were obtained in parallel. Normals began to choose advantageously before they realized which strategy worked best, whereas prefrontal patients continued to choose disadvantageously even after they knew the correct strategy. Moreover, normals began to generate anticipatory skin conductance responses (SCRs) whenever they pondered a choice that turned out to be risky, before they knew explicitly that it was a

risky choice, whereas patients never developed anticipatory SCRs, although some eventually realized which choices were risky.

Results suggest that “in normal individuals, nonconscious biases guide behavior before conscious knowledge does. Without the help of such biases, overt knowledge may be insufficient to ensure advantageous behavior” (Bechara & Damasio, 1997, p. 1293).

Isenberg (1984) reports on his research on how managers think. Isenberg studied 12 executives by conducting intensive interviews, observing them on the job, reading documents, talking with their colleagues and, in some cases, subordinates, and engaging them in various exercises in which they recounted their thoughts as they did their work. Reports of the observations were given back to the participants for feedback. Isenberg reported that senior managers tend to think about two kinds of problems: how to create effective organizational processes and how to deal with one or two overriding concerns, or very general goals. He found that managers use intuition in five very distinct ways. First, they use intuitive sense when a problem exists. Second, managers rely on intuition to perform well-learned behavior patterns rapidly. A third function of intuition is to synthesize bits of data and experience into an integrated picture. This is often seen as an ‘aha!’ experience. Fourth, managers use intuition as a check on rational analysis. Fifth, managers use intuition to by-pass analysis to come up with a quick solution. Isenberg states,

By now it should be clear that intuition is not the opposite of rationality, nor is it a random process of guessing. Rather, it is based on extensive experience both in analysis and problem solving and in implementation, and to the extent that the lessons of experience are logical and well-founded, then so is the intuition. Further, managers often combine gut feel with systematic analysis, quantified data, and thoughtlessness. It should also be clear that executives use intuition during all phases of the problem-solving process: problem finding, problem defining, generating and choosing a solution, and implementing the solution. In

fact, senior managers often ignore the implied linear progression of the rational decision-making model and jump opportunistically from phase to phase, allowing implementation concerns to affect the problem definition and perhaps even to limit the range of solutions generated. The higher you go in a company, the more important it is that you combine intuition and rationality, act while thinking, and see problems as interrelated. (Isenberg, 1984, p. 86)

Alden M. Hayashi (2001), senior editor at the *Harvard Business Review*, writes about when to trust your gut with decisions. He bases his article on a review of current research and interviews of top corporate leaders. Consistent with previous findings in this literature review, he found the use of intuition to make decisions as one moves up the management ladder not only happens frequently, but is actually essential to being a successful senior level manager. In other words, intuition, is the x factor that separates the “men” from the “boys”. One of the respondents, Richard Larson, CEO of Johnson and Johnson, states:

Very often, people will do a brilliant job up through the middle management levels, where it's very heavily quantitative in terms of the decision-making. But then they reach senior management, where the problems get more complex and ambiguous, and we discover that their judgment or intuition is not what it should be. And when that happens, it's a problem; it's a *big* problem. (quoted in Hayashi, 2001, p. 61)

However, Hayashi (2001) cautions that intuitive decisions should be checked, and when mistakes are found to have been made, the executive should change the decision quickly. He believes that one of the advantages of intuitive decisions is that they are usually made quickly, and recovery from a wrong intuitive decision can also be quick. He warns not to “fall in love” with your intuitive decision. Intuitive decisions, along with everything an executive does, should be fluid and adjustable to change.

Holloman (1992), in his journal article on using both the head and heart in managerial decision making, also cites the research of various intuitive decision-making

authorities. Holloman argues that a decision cannot be considered irrational just because it involves emotional elements. He says, “For the effective manager, it is a choice of using the analytical method when it is needed and feasible and having the courage to be intuitive when analysis is no longer feasible” (p. 34).

Stephen C. Harper (1988), a professor of management and marketing at the University of North Carolina – Wilmington, writes about intuition, claiming that it is intuition that separates executives from managers. Effective use of intuition is also the reason that CEOs command salaries four to five times more than vice-presidents – because these CEOs possess intuitive skills that provide them with different perspectives and different approaches for managing in what are turbulent times. Harper (1988) uses the understanding of split brains to state that “the answer to the question, which side of the brain is more important, is that both sides are equally important” (p. 17). He goes on to say, “Certain situations may lend themselves better to quantitative analysis. Other situations may necessitate intuitive interpretation. Few situations, however, are likely to be exclusively right or left brain problems” (p. 17). Executives and managers will need to develop and utilize a combined-hemispheres mental framework if they are to successfully meet the challenges ahead.

Intuitive Decision Making in Specific Settings

Academic Administration Setting

Brown (1990)[↑]; Fraser (1993)[↑]; Jeter (2003)[↑]; and Sinkkonen (1991)[↑] all looked at intuition at the level of principal, administrator, or superintendent, within the public school system. Sinkkonen (1991) utilized survey research to investigate the relationship

of intuition and the use of intuition in the situational decision making of public school principals. Fifty-eight principals were asked to complete a mailed questionnaire which consisted of Agor's Intuitive Measurement Survey (AIM). They were also asked to volunteer for a follow-up face-to-face interview. Six principals were interviewed. Analysis of variance was applied to demographic variables such as gender, years of experience as a principal, and age as they related to the principals' intuitiveness level as measured on the Agor Intuitive Measurement Survey.

Results showed no significant difference was found between the intuitiveness levels of men and women. Years of experience as a principal were not significantly related to intuitiveness. Age was a factor in intuitiveness, with older respondents stating that they preferred the freedom to solve problems, as opposed to being told a solution, and that they enjoyed daydreaming, which according to the Agor's Intuitive Measurement Survey are indicators of intuitiveness. Responses from the questionnaires were compared with interview data, and the comparison found that principals acknowledge that they use intuition in situational decision making, and that they visualize behaviors or actions which would result from the decision.

Jeter (2003) examined urban middle school administrators' perception of how they use intuition in decision making within the four frames conceptualized by Bolman and Deal and the Classical decision making theory. Jeter believed the study to be significant in that it was a new area of research that examined intuitive decision making from the urban middle school administrators' experience within the context of the organization.

An urban school district in Connecticut serving approximately 25,000 students was chosen as the site for the study. Ten of the 12 administrators in the district agreed to participate in this qualitative study, and data were collected from interviews, surveys, and decision journals kept by the participants. A total of 143 decisions were examined and classified. The data indicated that urban middle school administrators perceived that intuitive decisions were made in the areas of: goals, division of labor, human needs, personality and the organization, interpersonal dynamics, coalitions, power and decision making, culture, and ceremony.

Fraser (1993) studied the level of intuition and frequency of intuitive decisions among elementary principals in six school districts in Southern California. Fraser looked at the relationship between level of intuition and frequency of intuitive decision making and the gender of the principal, and the principal's years and service at the school site. There was no relationship between either time on site or size of the school and level of intuition or frequency of intuitive decision making. No relationship was found between perceived control over selected management functions and frequency of intuitive decision making. The researcher concluded that there was not a supportive environment for the use of intuition among principals and women in particular; that increased time on a school site and increased school size resulted in the principal's reliance on rational decision-making processes; and that principals felt compelled to justify their decisions about management functions and rely on rational processes in their justification.

Brown (1990) in a study of the use of intuition in the decision-making processes of public school superintendents found results varying from those of Fraser. Brown's purpose was to identify the intuitive tendencies of public school superintendents, to

identify superintendents with the highest scores on the intuitive scale of the Myers-Briggs Type Indicator (MBTI) and then conduct a more in-depth, on-site study of their decision making. His goals were to identify whether or not there were commonalities among superintendents who show high intuitive dominance in decision making and draw conclusions based on their decision-making patterns.

The population used for this study was the public school superintendents included in the districts served by the Region IV Educational Service Center. The instrument was sent to 56 superintendents with a response of 52. Based on the administration of the MBTI to 52 superintendents, there was follow-up with on-site field observation of four of these superintendents.

The following results were identified:

1. Thirty-three percent of the respondents measured as intuitive dominant in their personality style.

2. Observations totaling 20 days in length in four school districts compared the decision-making styles of two superintendents who scored highest in the intuitive category with those of two superintendents who scored highest in the sensing category. Intuitive superintendents generally verbalized their unexplained feelings a great deal and fostered a climate where intuitive thinking styles were nurtured, and displayed a more concerned and caring attitude toward personnel and less concern about facilities and finances. They also appeared more visionary and creative in their approach to decision making and displayed a tendency for impatience with routine detail work, and a preference for new challenges.

Military Setting

The military's interest in intuitive decision making is interesting in light of the importance the military must put into operating according to specific expectations. However, much like the people Klein (1999) studied in the naturalistic setting, military personnel often must make crucial decisions almost instantaneously. This, of course, is the setting of intuition. There have been several studies done by the military in regard to intuition including McClean (1995); Reinwald (2000); and Rogers (1994).

McClean (1995) examines the role of intuition in the military decision-making cycle. He reviews the anatomy of intuition, intuitive thinkers as subject-matter experts, the basis of U.S. Army decision-making processes, and discusses the development of a commander's intuition.

The article uses the split-brain theory to explain the physiology accompanying the anatomy of the brain and its functions. It is noted that the disadvantage of intuitive decision making is that there is an inability to document the related intuitive thought processes. Commanders' decisions, especially those involving risk to life, are increasingly subject to intense scrutiny and criticism. When there is no sound proof to support a decision, it tends to decrease the credibility of the decision. The U.S. Army, however, recognizes the role and importance of intuition in decision making. A strong advantage of intuitive decision making in the military is the speed at which these decisions can be made. The Army then advocates a strong development of a commander's intuition. This can be done through mental exercises and techniques. The Army recommends the following:

1. Allow intuition to work

2. Encourage commanders to develop a full awareness of their cognitive selves
3. Identify current intuitive abilities through tests such as the Myers-Briggs Type Indicator (MBTI) test (p. 98).

Rogers (1994) also looks at the necessity of commanders to use intuition to make decisions, especially on the modern battlefield. Rogers notes the known activities of the two sides of the brain's hemispheres as fundamental to understanding the intuitive decision-making process. He notes that "gut feelings" or "intuitive feelings" stem from the subconscious level, or right hemisphere of the brain. Rogers concludes the article by saying:

However, in the final analysis, it seems that in peacetime we tie ourselves to decision making by procedures which stifle intuitive decisions on the battlefield. This encourages commanders to be predictable, slow and laborious in their decision making. If we wish to succeed in maneuver warfare, then we must train and educate our officers in intuitive thought that emphasizes the 'art' in command rather than the 'science'. We must not use procedures as decision-making tools but more as staff checks. Officers should spend as much time as possible with troops and in the teaching and training environment. Finally, we should encourage responsibility without overbearing supervision, remembering that an honest mistake is a lesson well learned. (p. 47)

Reinwald (2000) focuses on the significance of a military leader's intuition to battlefield supremacy. He believes that the tactical commander's intuition stands out as critical to past, present, and future combat operations. In this article Reinwald says,

Tactical intuition is critically necessary for combat commanders in the future force. It is the essence of battle command and is neither a mystical trait nor an unattainable faculty. Variously described as *coup d'oeil*, a sixth sense, a vision, a hunch or a gut feeling, intuition enables combat leaders to perform critical command and control functions during intense periods of planning or operations. It affords leaders the capacity to make timely, rational decisions based upon extensive experience, memorized skills and concepts, and subconscious pattern recognition. Intuition's technical and mental processes are complex; its development and utilization are not. Regardless of the technological, doctrinal and organizational changes which lie ahead, a commander's intuition maintains its importance to the conduct of war. (p. 79)

The tactical intuition's importance demands that it be cultivated and improved among the forces. The method he proposes is simple:

1. Repetitive troop assignments, beginning as a lieutenant
2. Demanding and realistic collective training in non-virtual-reality environments to encourage original, audacious, and creative solutions to tactical problems
3. Substantive, concentrated, professional education, founded on military history, and theory, tactical, and operational art, and the environment of war
4. Broad personal education that breeds creative thought, focusing on the moral and physical environments of war (p. 80).

Healthcare Setting

Within the healthcare setting, nursing has captured the most attention in the quest to learn more about intuitive decision making. Hemsall (1996); Kerlin (1992); King & Appleton (1997); King & Clark (2002); McCutcheon & Pincombe (2001); and Roberts (1990), all have studied and written about intuitive decision making in the healthcare setting.

King and Appleton (1997) explore the concept of intuition in nursing from an acute-care and evidence-based community nursing perspective. Their examination of the research in intuition caused them to conclude:

We would argue that in this era of practice, nurses can no longer ignore the growing body of empirical research which requires nurses to recognize intuition and utilize it effectively in nursing practice. Knowledge is a trigger for nursing action and/or reflection and thus has a direct bearing on analytical processes in patient/client care. If intuition continues to be ignored it will be at the peril of the nursing profession. Practitioners will become entrenched in standardized

procedures and routines of care and there will be little opportunity for the flare and skill of nursing judgment to flourish. (King & Appleton, 1997, p. 201)

In 2002, King and Clark studied nurses, looking this time at intuition and the development of expertise in surgical ward and intensive care nurses. A field study and interviews of 61 nurses showed that intuition in these nurses became increasingly powerful as the expertise of the nurse increased. While both the non-expert and expert nurse had the presence of intuition in their decision making, the expert nurse's ability to use intuition was much more skillful and effective. Of greatest interest was the observation that the nurses used their intuitive awareness of change that occurred without conscious effort to initiate a response of analytical thinking to investigate the cause of concern. I found no other research that showed intuition being used before rational decision making.

Nurses were again studied by McCutcheon and Pincombe (2001), who used focus group interviews and The Delphi Survey to evaluate the role of intuition, nurses understanding of intuition, and their perceptions of their use of intuition. The nurses spoke of their use of intuition with examples from their practice but said that they rarely, if ever, documented the use of intuition in the medical record. Emerging from the study was the theory that knowledge, expertise, and experience are mutually dependent and interact to yield an effect greater than their sum.

Hempsall (1996) studied the role of intuition in the decision-making process of expert critical care nurses in providing healthcare for hospitalized patients. A descriptive correlational design was used to sample 172 registered nurses working in critical care areas. The sample was a non-probability convenience sample. Data were obtained by a questionnaire developed by the researcher. Ninety-five nurses (55.2%) responded. Data

analysis included a comparison of the relationship of expert nurses' total scores and the total scores of the non-expert nurses. No statistically significant difference was found in either the expert or non-expert group based on gender or initial nursing education. However, a significant difference was found based on the respondents' years working in critical care and years as a registered nurse.

Kerlin (1992) studied the perceptual preferences of nurse executives and examined the decision-making practices of sensing and intuitive nurse executives. The study population consisted of 118 members of the Forum for Nurse Executives with a sample size of 66 nurse executives. The research was conducted utilizing the Myers Briggs Type Indicator (MBTI) and an interview schedule as instruments for data collection. Results showed that 60% of the nurse executives sampled preferred intuition whereas 39% preferred sensing.

The interview schedule was administered to a sub sample of 10 sensing and 10 intuitive nurse executives. Findings from the study indicated that both sensing and intuitive nurse executives used intuition to make decisions, willingly acknowledged using intuition to others, and trusted intuition in decision-making situations.

Roberts (1990) used a descriptive survey to study and describe the characteristics of the intuitive decision-making process used by the nursing academic administrator. One hundred and nineteen nursing academic administrators were sampled by the non-probability sampling method. A three-part questionnaire was used to gather data on the intuitive potential, intuitive ability, and selected personal characteristics of the sample.

The data presented the nursing administrators as highly intuitive in their decision making. They were aware that intuitive ability was used, but did not generally attempt to

enhance their intuitive ability. The data did not suggest any correlation nor did it provide support for variability of potential intuitive ability due to age, years in nursing administration, geographic region, ethnic background, or gender.

The Case Against Intuitive Decision Making

Although the use of intuition in decision making is gaining acceptance and increased popularity, there remains a contingency of people concerned with decisions made through intuition. Eisenhardt (1989); Gross & Brodt (2001); Kahneman (2004); and Marino (2000), all caution against the use of intuitive decision making.

Eisenhardt (1989) went to great lengths in her study of making fast strategic decisions in high-velocity environments, to show how quickly strategic decisions can be made in the rational/analytical decision-making environment and how effective they can be. In the study, eight microcomputer firms were studied using a multiple case design that treated each series of cases as a series of experiments with the goal of finding out how executive teams make rapid decisions in the high-velocity microcomputer industry. Each case served to confirm or disconfirm the inferences drawn from the others. The study focused on each firm at three levels: top management, strategic decision, and firm performance. Members of the research group conducted interviews with every member of the top management team of each firm, including CEO's and the heads of major functions such as sales, finance, and engineering. There were four data sources:

1. Initial CEO interviews
2. Semi-structured interviews with each member of the firm's top management team
3. Questionnaires completed by each member of the team

4. Secondary sources (p. 546).

Data analysis included team level scores of conflict and power calculated and analyzed for patterns. Qualitative responses were combined using profiles of the decision climates and of each executive from the descriptions each member of the top management teams had given. Traits mentioned by more than one executive were included in the profiles. Decision stories were developed by combining the accounts of each executive into a time line that included all events. Data from this research showed that executive teams making fast decisions used extensive information – often more information than the slower decision makers used. This information was real-time information. Also the data from this research showed that faster decision making was associated with more, not fewer, alternatives. Also, the sequencing of alternatives was crucial to the pace. Rapid decisions were characterized by simultaneous consideration of multiple alternatives, and the slower decisions were characterized by sequential consideration of fewer alternatives (Eisenhardt, 1989).

In his article on relying on science, not your gut, Marino (2000) talks about the importance of the decision-making ability of an executive as one of the most important business skills the executive possesses. He believes that feeling right about a decision may be good for the psyche, but being right about it is better for your reputation. Intuition and gut feeling are costly substitutes for logical, systematic and informed thinking. No empirical evidence in the article backs up the premise for the article.

Gross and Brodt (2001) write about the psychological aspects of “projection” and the effect that project has on intuition, that executives attempt change and that their “social projection” gets in the way. Projection involves making intuitive judgments

about other people and places, based on one's own beliefs, rather than on anything objective.

In a 2004 article from the *Economist*, Kahneman discusses the idea that human intuition is a bad guide to handling risk. Kahneman (2004) and his colleagues have studied for some time the idea of applying psychological insights to economics and business decisions. He believes that the lessons he has learned from studying bad decisions has shown that these mistakes are systematic and predictable. He lists the following as the root to bad decisions:

1. Over-optimism
2. The anchor effect; that is, initial encounters that have a strange effect on the mind, which is hard to break
3. Stubbornness
4. Getting too close
5. Winning and losing phenomenon
6. Misplaced priorities
7. Counterproductive regret.

Kahneman concludes that “people are consistently bad at dealing with uncertainty. Surely there must be a better way than using intuition.” (p. 5).

Leadership Style

In his book, *Leadership Is an Art*, Max DePree (1989) writes, “Many managers are concerned about their style. They wonder whether they are perceived as open or autocratic or participative. As practice is to policy, so style is to belief. Style is merely a consequence of what we believe, of what is in our hearts” (p 27).

Leadership is viewed as one's capacity for influencing others to achieve purpose through people. The manner in which a given leader will exercise leadership is determined by his or her philosophy, and the resulting practice of leadership is considered his or her style of leadership (Hall, et al. 1995). The following theories of leadership style are the textbook and research based ideas that are taught today (Robbins, 2001):

Trait Theories

Trait theories of leadership identify people and then describe them in terms such as charismatic, enthusiastic, and courageous. The underlying premise of trait theories is that these 'traits' are basically inborn. Leaders identified in these terms are Lee Iacocca, Margaret Thatcher and Nelson Mandela. The search for personality and social, physical, or intellectual attributes that describe leaders and differentiate them from non-leaders goes back over 70 years. These traits increase the likelihood of success as a leader, but do not guarantee success. Some key leadership traits are: moral integrity, courage, common sense, grasp of economics, intellectual excellence, and social concern (Gibson, Ivancevich & Donnelly, 1982).

However, the trait theories have lost momentum as research has found major limitations to the theories (Robbins, 2001).

Behavioral Theories

Behavioral theories are built on the premise that certain behaviors identify leaders. The underlying assumption is that behaviors can be implanted into people through training. There are four top behavioral studies (Robbins, 2001).

Ohio State Studies

The research from these studies identified two categories that substantially account for most leadership behavior: initiating structure and consideration. The initiating structure is about behavior that organizes work, work relationships, and goals, while the consideration describes the extent to which a person is likely to have job relationships characterized by trust, well-being, status, and satisfaction (Hemphill, 1949).

University of Michigan Studies

The research from these studies came up with two dimensions of leadership behavior which they labeled as employee-oriented and production-oriented. Leaders who were behavior-oriented emphasized interpersonal relations, took a personal interest in their employees, and accepted differences between members. Production-oriented leaders emphasized, in contrast, technical or task aspects of the job as their main concern (Gibson, et al. 1982).

Blake and Mouton's Managerial Grid

Blake and Mouton (1978) proposed a managerial grid based on the styles of concern for people and concern for production. This theory was essentially representing the Ohio State dimensions and the University of Michigan dimensions in a graphic way. The grid has nine possible positions along the axis and creates 81 different positions in which the leader's style may fall. The grid does not show results produced but, rather, the dominating factor in a leader's thinking in regard to getting results. Please note that it is an adaptation of the Blake and Mouton Managerial Grid which is used in this study (Blake & Mouton, 1978).

Scandinavian Studies

Recent work has been done in Scandinavia that proposes there is a third dimension to the Ohio State Studies. That dimension is development-oriented behavior, which responds to the belief that our current leadership environment demands a more dynamic style, adaptive to new ideas and change. This work is in its early stages and looks promising (Lindell & Rosenqvist, 1992).

Contingency Theories

Contingency theories look at situational variables that have proven to be more successful than others in order to pinpoint which leadership traits/behaviors are the most effective. A lead contingency theory, the Fiedler Model, proposes that effective group performance depends upon the proper match between the leader's style and the degree to which the situation gives control to the leader. Fiedler believes that a key to leadership success is the manager's basic leadership style (Fiedler as reprinted in Chemers & Ayman, 1993). He created the least preferred co-worker questionnaire (LPC) for this purpose. The questionnaire contains 16 contrasting adjectives and asks respondents to think of all the co-workers they have ever worked with and describe the one person they least enjoyed working with by rating that person on a scale of 1 to 8 for each 16 sets of adjectives. Using this tool, the respondent is then labeled as relationship-oriented or task-oriented. Fiedler assumes that an individual's leadership style is fixed, and that a leader must be matched with his/her style to the type of situation that will be optimally effected by that match. Fiedler has identified three contingency dimensions that he believes define the key situational factors that determine leadership effectiveness. These are

leader-member relations, task structure, and position power. With knowledge of the individual's LPC and an assessment of the situational factor, the Fiedler Model proposes matching them for maximum effectiveness.

Overall, the major studies that tested the validity of Fiedler's Model are positive. There are some problems with the LPC and the practical use of the model, and the contingency variables are complex and difficult for practitioners to assess (Chemers & Aymar, 1993).

The Situational Leadership Theory (SLT) as developed by Blanchard (2005) is a model that has gained a strong following and has been used in a majority of the leadership training programs of Fortune 500 companies. The SLT is based on a focus on the followers of an organization. That is, the effectiveness of a leader and his/her actions depends on the followers. The most effective behavior depends on the followers' ability and motivation. Blanchard (2005) identified four specific leader behaviors, from highly directive to highly laissez-faire. SLT has an intuitive appeal because it acknowledges the importance of followers and the leader's ability to compensate for the lack of abilities and motivation in the followers. However, research has not yet been able to support the theory due to internal ambiguities and inconsistencies in the model itself.

The Leader-Member Exchange Theory is based on the premise that leaders will establish a special relationship with a small group of followers and that these individuals will be the in-group. The rest of the followers are in the out-group. It is not clear how the in-group is chosen, but we know that those in the in-group receive more leader attention, greater rewards, and more resources than those in the out-group. Evidence has shown that the in-group is more effective than the out-group, and that is not surprising

given that the in-group receives more attention, resources, and the prophecy that they will succeed (Chemers & Aymar, 1993).

The Path-Goal Theory, developed by Robert House (House, 1974), extracts key elements from the Ohio State leadership study. The essence of the theory is that it is the leader's job to assist followers in attaining their goal and to ensure that the achievements of the follower's goals are consistent with the goals of the organization. House has identified four leadership behaviors: the directive, the supportive, the participative, and the achievement-oriented leader. House believes that a leader can be flexible and can display any of these four behaviors depending on the situation, and that the leader makes up for deficiencies in either the employee or the work setting. Research evidence generally supports the logic underlying the Path-Goal theory (House, 1974).

Neocharismatic Theories

The Neocharismatic Theories stress symbolic and emotionally appealing leader Behaviors and attempts to explain how certain leaders are able to achieve extraordinary levels of follower commitment. They de-emphasize theoretical complexity and look at leadership much the way the average person would view the subject. There are three major neocharismatic theories (Robbins, 2001).

Charismatic Leadership

The Charismatic Leadership Theory has been mainly directed at identifying those behaviors that differentiate the charismatic leader from the non-charismatic leader. The best documented study has isolated five such characteristics of charismatic leaders: vision, willingness to take risks to achieve that vision, sensitivity to environmental

constraints, follower needs, and behaviors that are out of the ordinary. The charismatic leader influences followers by articulating an appealing vision, providing a sense of continuity for followers by linking the present with a better future, communicating high performance expectations, and expressing confidence that followers can obtain the expectations. The leader conveys a new set of values by their behavior and sets an example for followers to imitate. And finally, the charismatic leader makes self-sacrifices and exhibits unconventional behavior to demonstrate courage and conviction about the vision. Thought leaders in regard to charismatic leadership are Post (1986) and Hogan, Raskin, & Fazzini (1990). They look at charismatic leadership from the positive as well as the negative “dark” side, that is, the abuse of charismatic power.

An increasing amount of research shows an impressive correlation between charismatic leadership and high performance and satisfaction among the followers. People working for charismatic leaders are motivated to work with extra effort and express greater satisfaction (Conger and Kanungo, 1998). Examples of charismatic leaders include John F. Kennedy, Lee Iacocca, Martin Luther King, and Mary Kay Ash.

Transformational Leadership

Transformational leaders also inspire followers to transcend their own personal self-interests for the good of the organization. The leaders who lead under one of the contingency theories are considered transactional leaders. Transformational leadership is built on top of transactional leadership and produces followers who go beyond the performance that would usually occur with transactional leadership alone.

Transformational leadership is more than charismatic because the successful

transformational leader will attempt to instill in followers the ability to question established views and even those established by the leader.

The evidence supporting transformational leadership is overwhelming and indicates that transformational leadership is strongly correlated with lower turnover rates, higher productivity, and higher employee satisfaction than that of transactional leadership (Bass & Avolio, 1994).

Visionary Leadership

Visionary leadership goes beyond charisma and is the ability to create and articulate a realistic, credible, attractive vision of the future for an organization or organizational unit which grows out of and improves upon the present. Visionary leaders have three main qualities: the ability to explain the vision to others, the ability to express the vision not just verbally but through the leader's behavior, and the ability to extend the vision to different leadership contexts (Nanus, 1992).

Current Research and Thoughts on Leadership Style

Currently the discussion and research around leadership style is centered around five different styles: Participatory, Situational, Visionary, Change, and Personalized Leadership. Richardson (1999) believes that competitive markets now demand a participatory style of leadership, which she believes is the current trend. She talks about participatory style being a favorite of women but still sees the need to shift styles as change necessitates. This is closely related to the discussion of situational leadership. The importance of situational leadership is stressed by Ireh & Bailey (1999) and Silverthorne & Wang (2001). They use the work of Blanchard (2005) as the theoretical

basis to study the use of situational leadership. The studies by Ireh & Bailey (1999) led them to the conclusion that a single ideal type of leader behavior seems unrealistic. Silverthorne & Wang (2001) reported from their research that adaptive styles of leadership produce greater levels of productivity and that adaptive leadership is related to successful organizations. O'Shea (2000) discusses the changing composition of leadership to the visionary leader. She believes that a new leadership ethic has formed around the issues of innovation, creativity and the ability to think in different ways. Bowman (2000) and Hutton (2004) emphasize that leading needs to be about facilitating change within an organization. These leaders foster and develop a culture of team play and establish goals that are worthwhile, attainable, challenging and realistic. The new leadership concept emerging is to stop looking at leadership in a 'cookbook' way and develop a personalization leadership style (Aldrich, 2003; Smith, 2004). The idea is that leadership must be modeled, power must be shared, and in order to be productive, leaders must moderate tension in the workplace. In conclusion, Aldrich (2003) writes that leadership requires timing, intuition and personalization and that these skills are essential for everyone. Leaders must rise above the fray and influence the larger pattern of power, tension, ideas and commitment to work.

Intuition and Leadership Style

There is very little research related to intuition and leadership style. The Ross study (1990) looks at the topic indirectly through brain dominance and leadership style. Basi (1998) discusses leadership style as a function of organizational culture and administrative level. Finally, in a study similar to this study, Familoni (2002) looks for the relationship between leadership style and intuition.

The Ross study (1990) purposed to investigate the relationship between brain dominance and leadership style. Brain dominance was identified as the tendency for one hemisphere to control the processing of information in a particular task. The population consisted of all 239 public school superintendents in Arkansas. The instruments used were Torrance and Taggart's Human Information Processing Survey and Hersey and Nagemeyer's Problem Solving and Decision-making Style Inventory: Perception of Self. Two hundred and nineteen surveys were returned, with 204 accepted for accuracy and used in the analyses. All analyses were done using chi-square.

An analysis of the data (Ross, 1990) indicated that Arkansas superintendents are predominantly left-brained in orientation, that they are predominantly characterized by leadership style A (authoritative), and that there is a positive correlation at a significant level between these variables. The data also indicated that there is a negative correlation between left-brain dominance and leadership styles C (facilitative) and D (delegative). Right-brained dominance and leadership style A (authoritative) related negatively, while right-brain dominance and leadership style B (consultative) related positively. Integrated brain dominance showed a relationship that has a negative correlation to leadership styles A and B. Integrated brain dominance and leadership style C exhibited a positive correlation. Also shown was a significant difference in the decision-making styles of left-, integrated-, and right-brained superintendents.

Left-brain dominance has a positive correlation to leader-made decisions and a negative correlation to collaborative and follower-made decisions. However, right-brain dominance showed a negative correlation to leader-made decisions, and right-brain dominance also indicated a positive correlation to collaborative decision making.

Integrated brain dominance showed a negative correlation to leader-made decisions. Integrated brain dominance had a positive correlation to follower-made decisions. There was no significant correlation found to brain dominance or leadership style when comparing male and female participants. Also, age and educational level of participant did not seem to be a factor. In regard to years of administrative experience, there did not seem to be a relationship with the leadership style or decision-making style of the superintendents, although years of administration experience did seem to reflect some relationship with brain dominance.

Basi (1998) argues that the type of decision is a function of administrative level, and the style is a function of organizational culture. Basi writes that decisions made at the executive level are often made in an environment of uncertainty, and although done in spite of the availability of a wide variety of decision tools, are likely to be intuitive or judgmental, born out of seasoned backgrounds and informed perspectives. The executive's decisions are apt to be strategically significant. Basi believes that executives cannot be effective in the long run unless they are adept at making intuitive decisions. On the other hand, Basi lists coordination as the main function of the manager. Decisions of executives are often compromises and exhibit a good deal of judgment, while managers make computational decisions.

While the types of decisions made are a function of the administrative level, Basi also believes that the styles of making decisions are a function of organizational culture. He defines culture as the norms, beliefs, rituals, activities, institutions, decision making, communication patterns, and traditions identifiable with a group of people. Basi makes the following propositions about the organization's cultural effect on decisions:

1. Paternalistic organizational cultures require that in order to be effective, administrators make most decisions themselves.
2. Bureaucratic organizational cultures require that in order to be effective, administrators make most of the decisions, but are subject to feedback from stakeholders.
3. Synergistic organizational cultures require that in order to be effective, administrators define the decision parameters for decisions to be made, in conjunction with stakeholders (p. 232).

Familoni (2002) examined the relationship between leadership styles, business culture, and places of origin of the leaders and business owners with the aim of determining the relationship among intuitive decision making and other factors. The population was from the Fate Foundation in Nigeria, and the National Minority Development Supplier Council in the United States. The random sampling was implemented in three steps:

1. The population of leaders and decision-makers was divided into two groups: those from Nigeria and those from the United States.
2. Random number generators were employed to limit the study to 30 subjects in each group.
3. Three survey instruments were used in the study. Agor's Intuitive Measurement Survey (AIM) was used to determine the intuitive ability of the leaders, The Integrated Cultural Framework Survey was used to measure organizational culture, and The Leadership Style Survey by Teleometrics was used to measure leadership style.

The results showed the following using the Pearson Correlation Coefficient:

1. There was no significant relationship between leadership style and intuition among leaders in the United States.

2. There was no significant relationship between the business culture of Nigerian leaders, United States leaders, and their use of intuition in decision making.

3. There was no statistically significant difference in the use of intuition among leaders in Nigeria as related to the United States.

Two other studies, Watts (1997) and Adye (2004), took a different look at intuition and leadership. While these studies were not necessarily looking at the variables from a relational point of view, they offered interesting perspectives on the subject.

Watts (1997) purposed to study any relationship between the extent women administrators in higher education favored the employment of intuitive behaviors in the workplace as they related to leadership duties. The study concluded that all women administrators favored the use of intuition in the execution of their administrative duties. There was no significance seen in the academic preparation of the administration or organizational structure of the organization the participant worked in.

Adye (2004) used qualitative methods to study the role of intuition in managing significant organizational problems and how intuition can be nurtured in learners. The learners were in the Master of Arts program in Leadership and Training at Royal Roads University. The results surrounded the following themes: (a) Intuition plays a significant role in managing significant organizational problems, (b) intuition is a process that flows in and throughout the decision-making process, (c) leaders with a high degree of self-

awareness listen to their intuition simultaneously while reflecting upon a problem in a rational way. Recommendations were made to nurture intuitive skills in learning leaders.

Summary

The literature review was organized around three general areas: The Split-Brain Theory, Decision Making, and Leadership Style.

The Split-Brain Theory is vital to this study, as it provides the framework for how the two sides of the brain function and most importantly, how they make decisions. Dr. Sperry (1983) changed the thinking of the world when he discovered that the two sides of the brain function separately and have different skills and functions, but when joined together work together to perform the functions of the brain. These functions are joined together in such a way that we don't notice that the functions are occurring complementary of each other. Dr. Sperry won the Nobel Prize for this discovery and many researchers since that time have based their work on the foundation of Sperry's Theory.

Even before Sperry, it was noted by some that the brain had two ways to make a decision; logical and non-logical. Barnard (1938) discussed it in regard to executive functions. Most business schools teach rational decision making, but the idea of using intuition as a credible way to make a decision has come into its own through the work of Rowan (1986), Klein (1999) and Agor (1984). These thought leaders have shown us that intuition is used in decision making more often than previously thought. They have studied intuition in acute and non-acute settings and have learned much about the use of and the potential to use intuition when making decisions.

Other researchers have looked at intuitive decision making in the public school system, in the acute care setting with nurses and in the military. These studies have shown that intuition is being recognized as a necessary skill, but has generally not been developed and that more work is needed to be done in that area.

In contrast, a small contingent of researchers still feel very strongly that intuitive decision making is risky at best and dangerous at worst (Eisenhardt, 1989). They passionately argue against intuitive decisions and for rational decisions because they believe that ego and psyche play a role and may over-ride a correct decision.

Agor (1984), after his study of over 5,000 executives drew the conclusion that the most effective decision is an integrated one. That is that we should use both sides of the brain to make a decision, as the situation warrants. Mintzberg (1976) and Simon (1987) agree.

The second foundation and basis for this study is that of leadership style. There are dominant theories of leadership style, with the behavioral theory by Blake and Mouton (1978) being the model used for this study. The model is based on studying the behaviors of executives and managers with their concern regarding people and production. The belief of the model is that these behaviors are not inherent, but can be improved and changed through education and training.

There has been little research correlating the relationship between leadership style and intuition. The work of Familoni (2002) looked at leadership style and intuition using the same instruments as this study and found no correlation. No studies were found that looked at the relationship between leadership style and the intuition of healthcare executives.

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to investigate the relationship of leadership style and the potential to make intuitive decisions among senior-level healthcare executives in the United States. In the second phase of the study, qualitative interviews were used to probe the significant quantitative findings by exploring intuitive decisions made by the healthcare executives. This chapter consists of a description of the research design, criteria for using the strategy, population and sample, instrumentation, procedures for data collection, and data analysis.

Research Rationale

The design of this research was a mixed-methods approach to the data collection and analysis; that is, to study the subject from both quantitative and qualitative perspectives. Mixed methods as an approach to research is defined by Creswell (2003):

A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information. (p. 18)

Using the sequential procedure strategy, I expand the findings of one method with the other method.

This research was best approached by diverse types of data collection to provide a better understanding of the problem. Creswell (2003) states that, “for the mixed methods researcher, pragmatism opens the door to multiple methods, different worldviews, and different assumptions as well as to different forms of data collection and analysis in the mixed methods study” (p. 12). It is this pragmatic approach that I employed using the sequential procedures strategy of inquiry.

The implementation of data collection was determined to be quantitative first and then followed by qualitative so that individuals with a high potential to make intuitive decisions could be identified, and then interviewed. It was the identification of these individuals who had a high potential to make intuitive decisions that formed the population from which the participants for the qualitative portion of the study were drawn. In the second phase of the data collection and qualitative exploration came further exploration of how and under what circumstances intuitive decision makers make intuitive decisions.

This study began with a quantitative look at leadership style and the potential to make intuitive decisions. The research design for that portion of the study was survey research design. A survey design was used because it provided a quantitative or numeric description of the attitudes of my population through the study of a sample of that population (Creswell, 2003). The survey research was used to examine (a) leadership styles and the potential to make intuitive decisions; (b) the relationships between the use of intuition and gender, age, and size of company the executive worked in. Survey

research design was the preferred data collection procedure for this study because of the economy of the design, and the advantage of identifying attributes of the large population from a small group of individuals. The form of data collection was self-administered questionnaires.

The quantitative portion of the study was then followed with a detailed qualitative exploration of the research question with eight individuals. This was accomplished by interviews with the healthcare executives scoring in the high category on the intuitive survey to probe aspects of intuitive decision making. Qualitative data collection allowed me to delve further into the subject of intuitive decision making and to develop a level of detail unavailable through the use of quantitative data collection. The theoretical orientation of the qualitative research was phenomenology as I attempted to build the essence of experience from the participants (Creswell, 2003). Integration of the two types of data was completed at the analysis and interpretation stage of the research.

Population and Sample

The subjects of the study were healthcare executives at the senior level. In order to ensure that subjects met the criteria, the population chosen was that of Fellows in the American College of Healthcare Executives. By virtue of meeting the requirement to obtain Fellow status, there was assurance that the subject was a healthcare executive at the senior level. The requirements to obtain Fellow Status, as listed in the *Reference Guide for the American College of Healthcare Executives* (American College of Healthcare Executives, 1996), require the candidate to submit evidence of:

1. High moral character and ethical conduct.

2. Active participation in healthcare management, professional, and education activities.

3. A master's degree plus 2 years' healthcare management experience or a bachelor's degree plus 5 years healthcare management experience.

4. Being engaged in a healthcare executive management position or healthcare management-related position of equal responsibility.

5. Being a Diplomate in good standing for at least 3 years.

6. Being employed by an acceptable healthcare parent or subsidiary organization or program or acceptable organization or program influencing the operations, growth and development of organizations, services and/or programs of the health delivery system.

7. Complete a Thesis, Write Case Reports, or Conduct a Mentorship.

The study took a stratified sampling from the database of all Fellows in the American College of Healthcare Executives working in the United States. There were 3,260 Fellows in the United States. A sample of 497 individuals was chosen through the use of stratified sampling. The sample size recommended for populations with finite sizes as adapted from Krejcie and Morgan (1970) and as published by Mildred L. Patten in her text, *Understanding Research Methods* (2002), for the population size of 3,260 was 346. However, to increase the number of possible responses, the higher number of 497 was chosen. The data were stratified by gender and sampled using the proportional random number sampling method. The size of the sample from each stratum was proportional to the size of the stratum in the population.

Pilot Study

A pilot study was completed with three healthcare executives to test the procedures of the study and to look for possible errors and areas in which to improve interaction with the participants. The executives were purposefully chosen and were not necessarily Fellows, although they were senior-level healthcare executives. A packet was mailed to each executive containing the letter to the participant, an informed consent, the two test instruments, and a \$1 certificate to McDonalds. A self-addressed stamped envelope was also included for the participant to use in returning the test instruments to me. Upon completion of the surveys, the participant with the highest intuition score was chosen to participate in the qualitative interview.

From the pilot study, I made improvements in the letter to the participants, including adding more explicit instructions on how to use the instruments and to quickly return them. Improvements were made to the coding of the instruments so that the participants could be identified, if needed. The pilot of the qualitative interview confirmed that the questions asked were open-ended enough to encourage the participant to talk about their intuitive decision-making experiences. The interviewed participant also commented that the questions provoked a lot of thought and consideration of the topic of intuitive decision making. The research began upon completion of the pilot study.

Quantitative Methods

In the following section I review the research questions, null hypotheses, data collection, and data analysis of the quantitative portion of this study. The data collection portion includes a description of the two instruments used in collection of the data, and

the validity and reliability of those instruments.

Research Questions and Null Hypotheses

1. What is the relationship between leadership style and the potential to make intuitive decisions?

There is no relationship between leadership style and the potential to make intuitive decisions.

2. What is the relationship between gender and the potential to make intuitive decisions?

There is no relationship between gender and the potential to make intuitive decisions.

3. What is the relationship between age and the potential to make intuitive decisions?

There is no relationship between age and the potential to make intuitive decisions.

4. What is the relationship between the size of the company the executive works in and the potential to make intuitive decisions?

There is no relationship between the size of the company the executive works in and the potential to make intuitive decisions.

5. What is the interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions?

There is no interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions.

Data Collection

Two instruments were used to do the relational study of leadership style and the potential to make intuitive decisions. Each instrument is described in the following paragraphs.

Styles of Leadership Survey

The instrument used to study leadership style was the Styles of Leadership Survey: A Self-Assessment of Your Leadership Practices. The format of the test was a 60-item, paper/pencil self-report inventory assessing leadership behavior in terms of the Blake-Mouton model of purpose-people concerns. The survey employed a 10-point Williams-Hall scale that combined rank-ordering with equal-interval scaling properties.

The Styles of Leadership Survey (Hall et al., 1995) is based on Robert Blake and Jane Mouton's Managerial Grid model. It addresses five different leadership styles and provides an assessment of general leadership orientation plus component assessments of philosophy, planning, implementation, and evaluation. For each of 12 items, the respondent was asked to place five possible answers on an equal-interval scale ranging from "completely characteristic" to "completely uncharacteristic." Each response choice was indicative of one of the five leadership styles, and the instrument yields one total and four component scores for each of those styles. By rank ordering total *t*-scores and computing the difference between first and second, second and third, etc., I learned the preferred leadership style of the participant.

The Grid measures two dimensions of leadership behavior: concerns for people and concerns for purpose. The inventory yields analysis of overall leadership style,

including four components of leadership: philosophy, planning, implementation, and evaluation. The grid approach to assessing leadership practices is based on four factors which have been found to be present in organizations, whether they are volunteer agencies, campus or community groups, and profit oriented, large or small. These four “organizational universals” are: purpose, people, power, and philosophy. Leadership is conceived of as reflecting the interplay among these four factors, and each style of leadership is characterized by a different interplay that the leader personally may initiate. This model focuses on five different “pure” styles of leadership practices. Each of these is based on different strategies for dealing with people and purpose and stems from leaders’ personal beliefs about what is and what is not possible concerning the two. The leaders’ style comes as a direct result of that person’s particular beliefs about the relationship between people and purpose. The five leadership styles are (Hall, et al., 1995):

1. Directive Leadership 9/1: The primary concern is for output. The leader views people only as contributors to the goals of the organization and expects people to carry out directions. People are not usually required to know or understand why, and they are not expected to contribute original ideas. This style stems from the belief that people and purpose are in conflict and mutually exclusive.

2. Supportive Leadership 1/9: This style focuses on people and relationships and gives little attention to purpose. In organizations where there are unspecific and indefinable goals or goals set too low, this leader finds it easier to let things go as they are. They are most concerned with how to work toward happiness and harmony, and not

in accomplishing any organizational goals. This style is essentially the opposite of the 9/1 style.

3. Bureaucratic Leadership 1/1: This leader seeks neither attainment of any real results or relationships. While the leader may appear to be making a good effort and often looks very busy, actual contribution is limited. Some people who have gone as high as possible may adopt this style, and sometimes organizations create these leaders through strict adherence to procedure as the dominant ethic and risk taking is severely penalized.

4. Strategic Leadership 5/5: This leader believes in compromise to deal with any conflict between people and purpose. While pushing for results, they yield enough to maintain a balance between people and their purpose. This leader achieves a balance with the idea that “you have to give a little to get a little”, but often is manipulative in these efforts. They attempt to make people believe that the “right way” was their idea and while they believe in both people and purpose, do not really believe you can get the best from either one.

5. Collaborative Leadership 9/9: This leader believes that work is healthy for people and that people have a need to work and must achieve around a task in order to feel good about themselves. People and purpose are interdependent and the organization can only achieve its purpose through contributions from people. This leader believes that most people are competent and responsible and that conflict is the natural outgrowth of people working together to achieve the goals of the organization. They believe that the involvement of others in the planning process is not only important but essential. This style is the most preferred style and this leader creates an environment where there is the

feeling of ownership and commitment to organizational goals and where feelings of high self-worth are created.

Good construct and concurrent validities have been established by a strong correlation with the Edwards Personal Preference Scale (EPPS) and Rokeach's Dogmatism Scale. The median coefficient of stability is greater than .70. The Styles of Leadership Survey is deemed suitable for both concept and diagnostic training and research purposes (Hall, et al., 1995, p. 16).

In the Styles of Leadership Survey instrument norms provide a reference point in the form of standardized T-scores. In order that a respondent can compare his or her leadership practices with those of others, T-scores have been generated from a substantial normative sample of individuals who have completed the Styles of Leadership Survey. The current normative sample is 2.84.

Agor's Intuitive Measurement Survey

The instrument used to measure the potential to make intuitive decisions was the AIM Survey (Agor's Intuitive Measurement Survey) Part I. The instrument consists of 12 questions selected from the Myers-Briggs Type Indicator (MBTI), and is used to test managers for their potential to make intuitive decisions. As the questions for the survey instrument are taken from the MBTI, Agor uses the reliability and validity of the MBTI as the reliability and validity for his instrument (Agor, 1984). Extensive documentation on the validity and reliability of the Myers-Briggs Type Indicator is found in the *MBTI Manual* (Myers, 2003).

The respondents were asked to pick from multiple choices of two possible answers for each question and to take the test as honestly and as quickly as they could.

The answers were then scored and placed within three categories of intuitive potential: (1) high, (2) medium, and (3) low. The test measures underlying potential ability to use intuition when making decisions based on the constructs of the Myers-Briggs Type Indicator of Thinking and Intuition. The measurement scales for scoring are constructed so that the respondent can be ranked as an individual and also be compared to other executives taking the test. From 1981-1988, Dr. Agor conducted extensive research of over 5,000 respondents in the private and public sectors, controlling key variables such as level of management, level of government, sex, occupational specialization, and ethnic background. The first stage of his research consisted of surveying a national sample of executives using Part I of the AIM Survey. The second stage involved a follow-up study among those executives who were found in the first study to score in the top 10% on intuitive ability who also were in top management positions. They were asked a series of open-ended questions designed to determine how they, in fact, used their intuitive skills to help guide their important positions (Agor, 1989). Based on the results of this research, Dr. Agor has written several books and numerous articles, and has become recognized as an authority on the subject of intuitive decision making and improving one's intuitive skills to become a more effective manager. It is with the express permission of Dr. Agor that the AIM Survey was used in this research (See Appendix C).

Sampling Procedures

Prior to beginning the research, approval was sought and obtained from the Institutional Review Board of Andrews University. The two survey instruments named above, along with a demographic questionnaire were mailed to a random stratified sample of the population of the Fellow Status Healthcare Executives living/working in

the United States. This population consisted of 3,260 individuals, of whom 497 were chosen by proportional, stratified, random number sampling. The sample size of 346 was recommended from the table of recommended sample sizes for populations with finite sizes (Patten, 2002); however, the sample size was increased to 497 in an effort to improve the number of possible responses. An introductory letter, with the consent form, was sent with the surveys, in addition to a \$1 gift certificate to McDonalds for a cup of coffee to drink while completing the surveys. A stamped, addressed envelope was included to facilitate return of the surveys. The surveys were coded for identification purposes so that the sampling of the respondents for the qualitative portion of the research could be accomplished. All data collection were treated with complete confidentiality so as to protect the participants. Participants were asked to return the surveys within two weeks.

Data Analysis

Chi-square represented the statistical method for Research Questions 1 through 4. This statistical technique was chosen because it provided the advantage of analyzing categorical data, and is capable of accurately predicting the outcome of a null hypothesis. Three-way Analysis of Variance represented the general framework for evaluating the interaction of age, gender and size of company with intuitive decision-making potential for Research Question 5. This statistical technique was chosen because it provided the advantage of analyzing multivariate data, and was capable of comparing several population means at the same time.

The Leadership Style Survey and Agor's Intuitive Measurement Survey were used to answer Research Question 1: *Is there a relationship between leadership style and*

the potential to make intuitive decisions? The survey and questionnaire results were analyzed to assign each respondent one of five leadership styles and one of three levels of potential to make intuitive decisions.

Agor's Intuitive Measurement Survey and the Demographic Questionnaire were used to answer Research Question 2: *Is there a relationship between gender and the potential to make intuitive decisions?* The survey and questionnaire results were analyzed to assign each of the respondents one of three levels of potential to make intuitive decisions and one of two gender types.

Agor's Intuitive Measurement Survey and the Demographic Questionnaire were used to answer Research Question 3: *Is there a relationship between age and the potential to make intuitive decisions?* The survey and questionnaire results were analyzed to assign each of the respondents one of three levels of the potential to make intuitive decisions and one of five age groups.

Agor's Intuitive Measurement Survey and the Demographic Questionnaire were used to answer Research Question 4: *Is there a relationship between the size of the company the executive works in and the potential to make intuitive decisions?* The survey and questionnaire results were analyzed to assign each of the respondents one of three levels of potential to make intuitive decisions and one of three levels of company size.

The Leadership Style Survey and Demographic Questionnaire were used to answer Research Question 5. *Is there an interactive effect between age, gender, and size of company the executive works in with intuitive decision-making potential?* The survey and questionnaire results were analyzed to assign each of the respondents one of three

levels of potential to make intuitive decisions, one of two genders, one of three levels of size of company and one of five age groups.

Qualitative Methods

In the following section I review the research questions, data collection procedures, data analysis and trustworthiness issues of the qualitative portion of this study. Those participants scoring in the high category of Agor's Intuitive Measurement Survey were asked to participate in interviews to further understand how these executives made their intuitive decisions.

Research Question

How do healthcare executives use intuition to make their decisions?

Data Collection

From the returned and completed surveys, all of the participants scoring in the high category of Agor's Intuitive Measurement Survey were asked to participate in the one-on-one interviews with the researcher. Out of the 13 participants scoring in the high category, 8 agreed to participate in the interviews. An honorarium of \$50.00 was paid to all participants in the one-on-one interviews. The interviews were conducted by telephone and taped with the permission of the participant. The interview protocol is given in Appendix A.

Data Analysis

Analysis began immediately upon interview. Once each interview was completed, it was transcribed. The data were analyzed for a general sense and tone of ideas. The

data were coded and categorized by themes which emerged from within each interview and between the eight participants. All data were coded and labeled into categories. Themes evolving from these categories were analyzed per individual and for cross individual similarities. The codes and themes which emerged were (a) There is a sensing of your intuition in a physical way, (b) Intuition comes from life experiences and knowledge, (c) The tensions of logic, intuition, and making the right decision usually exist, (d) Intuitive decision-making processes are often present, and (e) Mentoring and teaching intuition have an important role. These themes were categorized together as “Understanding how executives make intuitive decisions.”

Trustworthiness Issues

Consistent patterns of theme development were used to check for coherence. Strategies that were used to check the trustworthiness of the findings were peer review, the use of rich, thick description to convey the findings, triangulation, and clarification of the bias that the researcher brought to the study. Trustworthiness of the analysis was also increased by placing the data into the context from which they were generated.

The peer review consisted of a university professor, proficient in qualitative research, reading the interviews, coding and checking for meaning and understanding of the codes and categories. The professor, in addition to validating my codes and categories, suggested other possible themes which were noted, and taken into consideration when the final coding and categorizing were completed.

The eight participants interviewed allowed me to examine evidence from those different sources, building a coherent justification for the themes. This triangulation of the data increased the trustworthiness and internal validity.

My perceptions of healthcare executives, decision making, and intuition have been shaped by my personal experiences. For the past 20 years I have served as the senior level executive in a healthcare organization. As founder and CEO of the company, I have made decisions at every level of the organization as it has grown and expanded. Most of my decisions, especially in regard to personnel policy, quality issues, and marketing were made intuitively. I believe this understanding of the context and role of the healthcare executive enhances my awareness, knowledge, and sensitivity to the decisions healthcare executives make. Due to these previous experiences, I bring certain biases to this study. Although every effort has been made to ensure objectivity, these biases may shape the way I view and understand the data I collect and the way I interpret the participants' experiences. By identifying the bias, keeping aware of its possible effect and building in trustworthiness measures, I attempted to control for this bias. These trustworthiness measures were peer review, triangulation, use of thick rich description to convey the findings, and clarification of the bias.

It was my intent to delve into the notion of intuitive decision making among healthcare executives and look for emerging themes from and among the executives in the qualitative portion of this study. This was achieved through the interviews taken from the eight participants scoring highest in the potential to make intuitive decisions. The ideas, and themes which emerged from the interviews were consistent, and in some cases compelling. This will be further described in chapter four.

Human Subjects and Ethics

Prior to beginning the research, approval was sought and obtained from the Institutional Review Board of Andrews University. The participants were adults and

gave voluntary and informed consent to participate in the study. There were no foreseeable or potential risks, stress, discomfort, or invasion of privacy to any persons participating in this study. Subjects could have withdrawn at any time with no adverse penalties or effects. The subjects were coded numerically to ensure confidentiality and lack of prejudice.

Summary

A sample of healthcare executives living/working in the United States who are Fellows in the American College of Healthcare Executives were invited to participate in this study, which consisted of taking two surveys and completing a demographic questionnaire. The surveys were used to investigate the relationship between the potential to make intuitive decisions and leadership style among senior level healthcare executives living in the United States. There were 497 executives from a population of 3,260 Fellows who were sampled using proportional random stratified sampling.

A pilot was completed to test the procedures of the study and the research began upon completion of the pilot study. From the pilot study, improvements were made in the instruction letter to participants, the coding of the instruments, and the quality of the questions for the qualitative portion of the study were confirmed.

Following the analysis of the quantitative portion, those executives scoring as highly intuitive with scores of 10-12 were asked to participate in a one-on-one telephone interview. Eight participants agreed to be interviewed. The codes and themes which initially emerged were (a) There is a sensing of your intuition, (b) Intuition comes from life experiences and knowledge, (c) The tensions of logic, intuition, and making the right decision usually exist, (d) Intuitive decision-making processes are often present, and (e)

mentoring and teaching intuition have an important role. These themes were categorized together as “Understanding how executives make intuitive decisions.”

Consistent patterns of theme development were used to check for coherence. Strategies that were used to check the trustworthiness of the findings were peer review, the use of rich, thick description to convey the findings, triangulation and clarification of the bias that the researcher brought to the study. Trustworthiness of the analysis was also increased by placing the data into the context from which they were generated.

CHAPTER FOUR

RESULTS

Introduction

The overall purpose of this study was to investigate the relationship between leadership style and the potential to make intuitive decisions among senior-level healthcare executives in the United States. It was then the intent to delve further into how the highly intuitive executives use intuition to make their decisions. This chapter presents the results based on the research questions and the quantitative and qualitative analysis.

This study was conducted as a sequential, exploratory, mixed-methods study, and the results are reported in two main sections: quantitative and qualitative. The quantitative results provide a description of the research participants, descriptive statistics of the data, and results. The qualitative results provide a description of the research participants, and a description of the themes which emerged from the interviews of the participants.

Quantitative Results

Two instruments were required to do the relational study of leadership style and the potential to make intuitive decisions. The Styles of Leadership Survey: A Self-

Assessment of Your Leadership Practices was used to collect the quantitative data in regard to leadership style.

The instrument is based on Robert Blake and Jane Mouton's Managerial Grid model. The 60-item, paper/pencil self-report inventory assessing leadership employs a 10-point Williams-Hall scale which combines rank-ordering with equal-interval scaling properties. The AIM Survey (Agor's Intuitive Measurement Survey) Part 1 was used to measure the potential to make intuitive decisions. The instrument has been used over 5,000 times to test executives for their underlying potential intuitive ability by Dr. Weston H. Agor. The instrument consists of 12 questions selected from the Myers-Briggs Type Indicator (MBTI). The analyses of the quantitative data were completed using the chi-square test of independence for the first four research questions. Chi-square was chosen because it is designed for analysis of categorical data. In particular, the chi-square test of independence was used to determine whether two characteristics were related or independent. The three-way ANOVA or analysis of variance technique was chosen for the analysis of the fifth and last research question. This technique was chosen because it can be used to compare several population means at the same time.

Description of the Participants

The subjects of the study were healthcare executives at the senior level in the United States. In order to ensure that subjects met those criteria, the population chosen was that of the Fellows in the American College of Healthcare Executives. By virtue of meeting the requirement to obtain Fellow status, there was assurance that the subject was a healthcare executive at the senior level.

From the population of 3,260 Fellows in the United States, a stratified random sample was taken. The population was stratified by gender with 99 women and 398 men sampled to participate. This represented 15.24% from each gender. The sample size recommended for populations with finite sizes as adapted from Krejcie and Morgan (1970) and as published by Mildred L. Patten in her text, *Understanding Research Methods* (2002), for the population size of 3,260 is 346. However, to increase the number of possible responses, the higher number of 497 was chosen.

One hundred twenty-seven participants responded, with 113 of the participants completing valid surveys. The response rate of valid surveys was 22.74%. Of the 113 valid surveys, 24.8% of the senior-level executives were women and 75.2% were men. Executives responding between the ages of 20-30 were .9%, 5.3 % were between the ages of 31-40, 26.5% were between the ages of 41-50, 55.8% were between the ages of 51-60, and 11.5% were over the age of 60. Executives working in a company with revenue of \$0-99 million were 45.1%, 28.3% were from a company with revenue of \$100-300 million, and 26.6% were from a company with revenue over \$300 million.

Descriptive Statistics of the Sample

Tables 1 through 4 are contingency tables that include the frequency and percentage for each variable. Table 5 is an ANOVA table showing interaction between gender, age, size of company, and intuition.

Null Hypothesis Related to Research Question 1

Question 1. What is the relationship between leadership style and the potential to make intuitive decisions?

Null Hypothesis 1: There is no relationship between leadership style and the potential to make intuitive decisions.

Research Question 1 was answered through the use of Styles of Leadership Survey: A Self-Assessment of Your Leadership Practices and Agor's Intuitive Measurement Survey, Part 1. The results of the two surveys are shown in Table 1. The small number of participants in the low intuition category produced outliers which were eliminated because they stood apart from the general pattern of the data. Based on the analysis of the data with the chi-square test for independence using a significance level of .05, the null hypothesis 1 was retained ($\chi^2 = .583$, $df = 4$, $p = .965$). Therefore, there is no relationship between leadership style and the potential to make intuitive decisions.

Null Hypothesis Related to Research Question 2

Question 2. What is the relationship between gender and the potential to make intuitive decisions?

Null Hypothesis 2. There is no relationship between gender and the potential to make intuitive decisions.

Research Question 2 was answered through the use of the demographic portion of the survey and Agor's Intuitive Measurement Survey, Part 1. The results of the two surveys are shown in Table 2. The small number of participants in the low intuition category produced outliers which were eliminated because they stood apart from the general pattern of the data. Based on the analysis of the data with the chi-square test for independence using a significance level of .05, the null hypothesis 2 was retained ($\chi^2 = 1.368$, $df = 1$, $p = .242$). Therefore, there is no relationship between gender and the potential to make intuitive decisions.

Null Hypothesis Related to Research Question 3

Question 3. What is the relationship between age and the potential to make intuitive decisions?

Null Hypothesis 3. There is no relationship between age and the potential to make intuitive decisions.

Research Question 3 was answered through the use of the demographic portion of the survey and Agor's Intuitive Measurement Survey, Part 1. The results of the two surveys are shown in Table 3. The small number of participants in the low intuition category and 20-30 age category produced outliers which were eliminated because they stood apart from the general pattern of the data. Based on the analysis of the data with the chi-square test for independence using a significance level of .05, the null hypothesis 3 was retained ($\chi^2 = 4.538, df = 3, p = .209$). Therefore, there is no relationship between age and the potential to make intuitive decisions.

Null Hypothesis Related to Research Question 4

Question 4. What is the relationship between the size of the company the executive works in and the potential to make intuitive decisions?

Null Hypothesis 4. There is no relationship between the size of the company the executive works in and the potential to make intuitive decisions.

Research Question 4 was answered through the use of the demographic portion of the survey and Agor's Intuitive Measurement Survey, Part 1. The results of the two surveys are shown in Table 4. The small number of participants in the low intuition category produced outliers that were eliminated because they stood apart from the general pattern of the data. Based on the analysis of the data with the chi-square test for

independence using a significance of .05, the null hypothesis 4 was retained ($\chi^2 = .812$, $df = 2$, $p = .666$). Therefore there is no relationship between size of company the executive works and the potential to make intuitive decisions.

Table 1

Relationship Between Leadership Style and Intuition

Intuition	Leadership Style					Total
	1/1	1/9	5/5	9/1	9/9	
Medium	15 13.5%	20 18.0%	20 18.0%	20 18.0%	23 20.7%	98 88.3%
High	2 1.8%	3 2.7%	2 1.8%	2 1.8%	4 3.6%	13 11.7%
Total	17 15.3%	23 20.7%	22 19.8%	22 19.8%	27 24.3%	111 100%

Table 2

Relationship Between Gender and Intuition

Gender	Medium	High	Total
Male	75 67.6%	8 7.2%	83 74.8%
Female	23 20.7%	5 4.5%	28 25.2%
Total	98 88.3%	13 11.7%	111 100%

Table 3

Relationship Between Age and Intuition

Age	Medium	High	Total
31-40	4 3.6%	2 1.8%	6 5.5%
41-50	26 23.6%	3 2.7%	29 26.4%
51-60	54 49.1%	8 7.3%	62 56.4%
60+	13 11.8%	0 .0%	13 11.8%
Total	97 88.2%	13 11.8%	110 100%

Table 4

Relationship Between Size of Company and Intuition

Size of Company	Medium	High	Total
0-99 Million	45 40.5%	5 4.5%	50 45.0%
100-300 Million	26 23.4%	5 4.5%	31 27.9%
Over 300 Million	27 24.3%	3 2.7%	30 27.0%
Total	98 88.3%	13 11.7%	111 100.0%

Null Hypothesis Related to Research Question 5

Question 5. Is there interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions?

Null Hypothesis 5. There is no interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions.

Research Question 5 was answered using the demographic portion of the survey and Agor's Intuitive Measurement Survey, Part I. The results are shown in Table 5. The small number of participants in the low intuition category produced outliers which were eliminated because they stood apart from the general pattern of the data. Based on the analysis of the data with three-way ANOVA, the null hypothesis 5 was retained. Therefore, there was no interaction between age, gender, size of company and the potential to make intuitive decisions.

Qualitative Results

The qualitative section examines interview responses of the executives who responded to the surveys and scored 10 or higher on the Agor's Intuitive Measurement Survey. Scores of 10 or higher represent the highest level of the potential to make intuitive decisions. Only 10% of all executives tested by Dr. Agor scored 10 or above on the survey. This was consistent with the results of this study in which 11.5% of the senior level healthcare executives scored in the highly intuitive category of Agor's Intuitive Measurement Survey. The qualitative analysis is based on the themes that emerged from the interviews with the highly intuitive executives.

Table 5

ANOVA Table: Interaction Between Age, Gender, Size of Company, and Intuition

Source	SS	Df	MS	F	Sig.
Gender	8.342	1	8.342	2.412	.124
Age	18.420	3	6.140	1.775	.157
Size of Company	2.641	2	1.320	.382	.684
Gender and Age	13.168	3	4.389	1.269	.290
Gender and Size of Company	.852	2	.426	.123	.884
Age, and Size of Company	.627	5	1.254	.363	.873
Gender, Age and Size of Company	28.472	4	7.118	2.058	.093
Total	389.964	111			

Qualitative Research Question

How do highly intuitive healthcare executives make their decisions?

The Research Question was answered through the use of telephone interviews with each participant scoring 10 or higher on the intuitive survey who responded to the request to be interviewed. Eight of the 13 highly intuitive participants responded to the request for an interview and agreed to be interviewed by telephone. Each interview was tape recorded and transcribed for analysis. All data were coded, labeled into categories,

and analyzed for a general sense and tone of the ideas. Themes evolving from these categories were analyzed per individual and for cross-individual similarities.

Description of Participants

The subjects of the qualitative portion of the study were senior-level healthcare executive Fellows who scored in the high category on the Agor's Intuitive Measurement Survey and agreed to participate in this portion of the study. There were 13 qualifying participants: 8 male and 5 female. Of those 13 participants who qualified, 8 agreed to be interviewed, of which 4 were women and 4 were men. Each participant is described below and the names have been changed for anonymity.

Randy

Randy is between the ages of 51-60 and works in a healthcare organization with net revenue greater than \$300 million a year. His leadership style is 1/1 – bureaucratic leadership style. His undergraduate education is in engineering, and he describes his training and nature of his life experiences as logically based. Scientific problem solving is his approach to handling issues that need decisions. He talked of looking at the signs and symptoms of a problem, looking at all the alternatives, choosing an alternative, and then re-looking at that alternative again. Then he said, "It is in the selection of the choices where this intuition, I believe, comes into play."

Randy works in an organization that has international connections and is involved in work with nations very diverse from the United States, including Russia. He noted that he is currently working on a decision to hire someone for a position, and that three of the applicants are from the other side of the Atlantic. He is depending on his intuition to

help him sort through emails, writings, and conversations to distinguish the real motives of individuals and place the right person in this job. He also talked about using his intuition to make value judgments. In working with organizations in different cultures and nations, he found that depending upon the value of that culture, a decision he may find right would not necessarily be right to the person in that other culture. This creates a struggle for him when he is making a decision that will affect a community in another culture.

Randy describes himself as a logical thinker, yet he spoke frequently of using his intuition, especially when it concerned human resource decisions. He believes his decisions to be usually right and sometimes the first decision that would work instead of the best decision possible. The one decision he described as a bad decision was one in which he took his logical choice over his “gut” feeling, and the decision ended up being one he regretted. The team he worked within made the decision to shut down a business line/project while his intuition told him to keep it open. They shut it down, and he wished he had “let his intuition drive that decision.”

Randy has a strong sense that his intuition is based on the sum total of his life experiences, and he looks for opportunities to add to his knowledge base. He believes he had a good mentor who helped him learn to make decisions and believes strongly in mentoring others, and helping direct their careers. He talked of allowing a mentee to make a decision that was different from the one he would make and the importance of letting them learn from their mistakes. He talked of values, and making intuitive decisions that were value based. His example of a value-based intuitive decision was the now-famous Tylenol decision. In the Tylenol decision, a few bottles were found tainted

with poison in Chicago, and the Tylenol CEO made the decision to pull all of the Tylenol off the shelves around the country. It was a decision that cost the company an enormous amount of money, but continues to be touted today as one of the great business decisions. As Rick put it, “Nobody is making that Tylenol decision anymore.”

Catie

Catie works in Brooklyn and is an attorney as well as having her Ph.D. She is between the ages of 31-40 and works in a company with net revenue between \$100-300 million a year. Catie’s leadership style is 1/1 - bureaucratic leadership. She told me that she had to rush back from a luncheon for our interview, and her colleagues asked why she was killing herself to get back to an interview with a doctoral student. She said she told them that she remembers how rough it was to get her dissertation done, and she wanted to do whatever she could to help another doctoral student. She was obviously a very busy person, and I was very appreciative of her consideration.

Catie asked for a clarification of what I meant by intuition, and expressed the wish to have had time to review the interview questions in advance. Catie, like Randy, gave an example of using intuitive decision making to make a human resource decision. In this case it was to determine who should be laid off. She believes that more and more of her decisions have to do with gauging people and coaching them in people management. She believes these decisions that she makes appear intuitive and are really a reflection of her experiences. She also believes these decisions to be usually right, and that whether or not she shares her intuitive decisions with her colleagues depends on the comfort and security she has with that person. She can certainly see the pressure to substantiate with numbers those decisions that were made with what she called “soft

science”. In addition she ties her intuitive decision making to her level of confidence.

“You have to be very confident in your decision-making style and you also have to be in a fairly supportive environment for that [intuitive decision making].”

Lilly

Lilly is the president of her organization which generates \$0-99 million per year in revenue. She is between the ages of 51-60 and has a 9/9 collaborative leadership style, which is the most preferred style (Hall, et. a, 1995). Her intuitive score was very high with 11 out of 12 possible questions being answered intuitively. Lilly not only has the potential to make intuitive decisions, she uses intuition in making most of her decisions. Even if a decision seems to have an obvious logical choice, she takes the time to look past the logic for more. She described her intuitive feelings more descriptively and interestingly than all of the other participants. Her intuitive feelings are “a heightened sense of excitement, like finding a piece of a jigsaw puzzle that’s been obscure. It’s like finally making the last connection so that the circle is joined and it makes a whole as opposed to a lot of disparate pieces.” When her intuitive feelings are negative, which Lilly says does not happen very often, she describes it “like I’m trying to force it, I’m trying to put on a jacket that’s too small, it just doesn’t feel right. It’s a discomfort, I don’t know if it’s a truly physical feeling; it just isn’t working, it doesn’t feel—well, it’s too hard; it’s not what I would like it to be.”

I found it very interesting that Lilly will often feel very intuitive about a decision and then explore what that intuition means. She gave an example of intuitively feeling that a certain business relationship was not wholly above board and honest. She then researched into her saved emails from this party and put them together into a sort of

“script”. From the script she re-looked at the facts that emerged and ended up confronting the party on what she thought was not right in what was going on. It ended up salvaging the relationship and business outcomes.

Lilly also believes her intuition has led her into life experiences which she would not have normally directed her path towards. An example was an opportunity to teach a college class in an area that she did not believe was her expertise, and that ended up to be a great new side career for her that she really enjoys. She thanks her intuition for that.

Lilly monitors how a peer feels about intuitive decisions before she shares that a decision she has made is intuitive. If the person she might be selling an idea to is not a convert to intuitive decision making, she finds data and logic to back up the intuitive decision she has made or would like to make. She also mentioned having a mentor who helped her learn how to make decisions, and she enjoys teaching and mentoring others. As she put it, “I try to flip their switch on intuition.”

Bill

Bill was the one person I was the most anxious to interview because he was the only participant to have a “perfect” intuitive score. Luckily he was most happy to be interviewed, though I was prepared to try very hard to convince him to participate. Bill is between the ages of 51-60 and works in a government hospital. His leadership style is 1/9 – supportive leadership style. His interview was the longest of all the interviews, being over 1 hour long.

Bill is very active in his local church and discussed the big role that plays in his life. However, he does not feel like his Christian perspective and faith have much to do with his confidence in trusting his intuitive feelings. He noted that his intuitive style

existed prior to his becoming a Christian. He did note that intuition is played out in all avenues of his life, including being a father, and that he has used his intuition in dealing with his son's issues. His son is very gifted.

Bill describes his intuition as something that helps him interpret things. He has learned he needs patience to let everything unfold. One time he charged ahead and did not let a situation "unfold" and he ended up creating an embarrassing situation in a meeting. He remembers what happened as "something I'll never forget". The person in charge of the meeting took him aside later and said "You were right, but you weren't wise". He remembers that situation as a valuable life lesson.

Credibility among his peers determines whether or not he feels he can share intuitive decisions with his peers. He does believe that the healthcare environment necessitates having data backup and being able to measure outcomes against proforma. On the other hand he is impatient to over study an issue and prefers action over "studying something to death". He likes to begin collecting data while making the decision, and then continuing data collection as he goes. If data along the way disprove the course he is on, he feels confident enough to make a course correction at that time.

Like Lilly, Bill believes his intuition has taken him along life paths that logically he would not have pursued, and he is most grateful for those paths as they have been very, very beneficial to him. One example he gave was the decision to join the military after college. This was after being in a college environment in which the college and students were embroiled in the Vietnam antiwar movement. His friends thought he was completely "nuts" when he joined the military, but he believes this to be one of the best decisions he ever made.

His father was a strong role model for him, an intuitive person and a risk taker. In addition, he described his father as having unending optimism. If a business risk was taken and did not work out, his father would let it go and move on to a new experience.

The entire interview was most interesting, and Bill was very open and helpful. At the end of the interview he requested a copy of my dissertation instead of receiving the \$50.00 honorarium offered to interview participants.

Sheila

Sheila is between the ages of 31-40 and works in a company with net revenue of \$100-300 million per year. Her leadership style is 5/5 - strategic leadership style. During the interview, in thinking of intuitive decisions she had made, she quickly thought of a human resources decision of hiring the right individual for a job. Sheila was the third executive interviewed to say that she used her intuition to pick candidates for a job. "I always tend to hire more on intuition and personality than I do experience or knowledge," was the way she put it. She believes those decisions to usually be right and has never regretted any of the people she has hired. In fact, they usually turn out better than expected.

Sheila works with a leadership team that is very accepting of her intuitive decisions, and most of them "go on their gut feelings" as well to make decisions. However, she must still back up these intuitive feelings with data and information because she is working in an institution with limited financial resources. To proceed with committing funds without looking at all the facts possible would be irresponsible. She spends a lot of time in strategic and business planning, and when she feels something is "doable," she can usually find a way to support the idea. She estimates that about 80% of

her ideas continue to the development stage. In her personal life, Sheila believes that her intuition plays a large role in making important decisions, and these decisions are usually on impulse. Her examples were buying a car, buying a house, adopting a baby, and marrying her husband. As she put it, "I've always made decisions very strangely."

Mark

Mark is between the ages of 51-60 and works in a \$0-99 million facility that is part of a much larger health system. His leadership style is 1/9 – supportive leadership style. He was very willing to participate in the interview as I was trying to get the interview scheduled, but on the day of the interview he seemed to be very busy, was matter-of-fact, and a man of few words. I think I probably caught him at a bad time and on a bad day. He had a hard time thinking of any intuitive decision that he had made, but finally thought of one he made a couple of years ago. This decision was in regards to hiring an individual out of several good candidates.

As we talked, Mark seemed to become more aware of possible intuitive decisions he had made. He remarked that "intuition to me is not to me just throwing up a coin, it's really the best of the facts that you have before you at any given point in time. Based on your historical experience, intuition comes into play." He is definitely not comfortable sharing with his colleagues that he has made an intuitive decision. He gets all the information possible before making a decision, but the reason is not to back up an intuitive decision with data, but because that is his strategy for making decisions. If the decision proves to be wrong, he is very confident to change the decision and modify his plans. However, he believes most of his decisions are usually the right decisions, and not just the first decision that would work. This interview was the shortest by far and ended

almost abruptly. Mark's closing thoughts were that he believes intuition to be an accumulation of experiences that one has over time.

Andrew

Andrew is the President and CEO of a large university hospital with net revenue of \$100-300 million a year, and is between the ages of 51-60. His leadership style is 9/9 – collaborative leadership style. Despite what he expressed as a hectic schedule, Andrew was most willing to talk about his decision making and we had a very good discussion which lasted about an hour. He remarked that he recently completed his doctorate from an English university located in the United Kingdom. During those 3 years of study he commuted to England periodically, and completed his doctorate in management in 2003. His special area of study was how complex ideas translate into human organizations. He considers himself non-traditional in his thinking.

The first decision we discussed was one in which Andrew believed there was a good logical reason to move forward with a project but felt his intuition told him to delay it. Even though it had been 6 months in the making, Andrew followed his intuition and delayed the project. Andrew said, "Most of the kinds of things that I do, and the position I have, making the decision is only part of getting it done. The delivery of the decision is often more difficult than the decision itself." He often uses rational thought to make the decision and intuition to deliver it.

When thinking back on whether his intuitive decisions were usually right or wrong, Andrew could think only of one major intuitive decision that ended up being a bad decision. That was a decision to merge two companies and place a physician in charge of both. It proved to be disastrous, and in retrospect he believes that he should

have stepped back and been a little more careful and realistic in his thinking. Andrew was in his mid-40s at the time and had been CEO for 12 years, which is amazing in itself, as most executives do not rise to that level while in their thirties. He referred to himself as having a naïve belief at that time, and did not think his intuitiveness and idealism served him well.

When talking about whether he needed to back up intuitive decisions with data, he remarked that sometimes he feels that is necessary. It is necessary because the traditional way we judge our organizational leaders is to expect them to pre-think what is going to happen. He believes there is a myth and fantasy that the organizational leaders can see the future and bring the future about through strengths of their own acts. He refers to it as amazing linear thinking that has translated from Western scientific thinking to organizational thinking and does not translate well. He hopes that the kind of work that he is doing, and I am doing will begin to make it acceptable to use our senses, and not look at everything in a linear fashion.

Donna

Donna is between the ages of 51-60 and works in a company with \$0-99 million net revenue per year. Her leadership style was 5/5 – strategic leadership style. From the very beginning of the conversation Donna talked about doing a lot of work with reflection, authenticity, and tuning into what was happening at the “gut level”. For seven and a half years she worked with a small group which had a broad area of responsibility, and they found that they could meet all kinds of targets because they tuned into their “gut feelings”. She explained tuning into her “gut” in a reflective way, as “In other words, if I can figure out what’s getting stirred up in my gut, and I can talk about it, I can change the

complexion of my relationships with others, I am able to feel more connected and engaged in the work that I do because I have a better awareness of what is going on.” She clarified that she does use a combination of rational and intuitive decision making, and that these decisions are usually right. If she does not listen to her intuition, she is always sorry.

Whether or not Donna feels comfortable sharing with colleagues that she has made an intuitive decision is situational. She gave the example of having at one time a very concrete-thinking boss, and because of that she talked about decisions and goals in terms in which he would be comfortable and in which she could “sell” the idea. She is careful to use language in these situations that will be credible to the person receiving the message. For example, she might say, “Looking at the facts, and my previous experiences, intuitively this is absolutely right” instead of “based on my previous experience and outcomes, intuitively this feels like the right [move].” She believes that intuitive decision making has its place, and that there needs to be more education on how it is developed. Donna was the second participant who talked about repackaging an idea in order to sell it to a party who would not as easily buy an intuitive decision. Both participants were female. Donna hopes that this study along with others will move intuition into the mainstream.

From the eight interviews there were themes that emerged. They are explored in the following pages, and while some of the themes that emerged were familiar and had been previously noted in the literature, there were interesting new ideas as well.

There Is a Sensing of Your Intuition in a Physical Way

Sensing your intuition was a theme that emerged often, yet did not come as a response to a direct question. There was a general sense among the participants that intuition came to you in terms of a “gut feeling”. As one participant put it, “You’re using a gut feeling, a sixth sense, something that sort of lightens itself to you during the process – it says this is the right direction you want to go instead of down the other path.” Going on this particular participant said, “It is in the selection of the choices where this intuition, I believe, comes into play.” Some sensed their intuition telling them what decision to make as “a heightened sense of excitement,” “finding a piece of a jigsaw puzzle.” One participant described intuition as feeling compelled to choose one option over two or three others. On the other hand, having your intuition tell you when not to do something were more like “trying to force it, trying to put on a jacket that’s too small, it just doesn’t seem to feel right.” It was a physical feeling, sometimes a discomfort that they should not move forward with a particular idea, or “it just didn’t feel good in my belly.” One participant had experiences where she felt a sudden impulse to do something, like buy a car, and marry her husband, which she believed to be intuition and these decisions most of the time ended up to be good decisions. Some verbalized that when they have equal choices, for instance in the hiring process when candidates have equal resumes, that they let their intuition make the choice for them. They let their (and as they put it) “gut” decide. It is that part of themselves that cannot tie a rational thought to the reason, but it feels right. One participant wanted to stress that this is not about tossing a coin up and making a choice. It is about using all the factors that come into

play including the facts you have, and then, based on your entire historical experiences, let intuition make the decision. Another believed they were “wired” to observe subtle cues and then make decisions others would not. One participant talked about “tuning in to their gut” to see if it felt right. Sometimes they expressed that their “gut gets stirred up” or they get anxiousness and they try to figure out what their “gut” or anxiety is trying to tell them. It’s getting a better awareness of what is going on within themselves. The general sense among the participants was that it is a phenomenal ability to tune into themselves, and as a result, changes the complexion of their relationships with others; they feel more connected and engaged in the work that they do because they have a better awareness of what is going on.

Intuition Comes From Life Experiences and Knowledge

More than half of the participants talked about intuition coming out of their life experiences and knowledge, though no questions were asked in an effort to elicit a response along this line of thought. One participant put it simply, “It’s the sum total of your life experiences.” Another participant had an interesting perspective, “It’s always, at least for me, a combination of past experiences, facts, etc., that all come so easily, and I’m sure it’s just because patterns repeat themselves.”

Another believed using experience and knowledge was like pulling together what she called a SWAT team. It was also expressed as “a reflection of experience,” “an accumulation of experiences that one has over time, and a part of getting older.” “As I get older and I have a lot more experience under my belt, the connections that I talk about come so easily, and I’m sure it’s just because patterns repeat themselves.”

The Tensions of Logic, Intuition, and Making the Right Decision Usually Exist

All of the participants were senior-level executives which really gave impetus to the theme of believing their decision is usually right. They have been in healthcare a long time and have risen to a senior level. By the time that occurs their decisions probably were mostly right, or they would not have advanced. In addition, they have added confidence and ego development, having reached such a level within their profession. It is not surprising then, that they felt their intuitive decisions were usually right and some of the participants could actually tie in their ego and confidence to the notion of being right.

Some of the participants reflected that when they went against their instinct to follow intuition and followed a logical decision instead, the decision ended up to be wrong. There was the thought that when they went against logic to make an intuitive decision, new opportunities and experiences happened to them that would not have occurred had they followed logic to make a choice. Sometimes the participants followed their instincts, or what they referred to as “gut feelings” to make a decision when that decision seemed “absolutely nuts” to those closest to them, and yet the decision ended up to be terrific in its outcome. One participant cited an experience where a major decision was made using intuition which proved to be almost disastrous. This person believed that they wanted this “thing” under discussion so much that it clouded what cold, hard analysis would have told him to do. This was the only experience cited in the interviews saying that intuitive decisions have been wrong. One participant believed that decisions she made using logic and intuition were usually right, and when she did not listen to

herself, she was always sorry, and more frequently would be wrong than right. One other participant reflected that he was only comfortable using logic and intuition together. For the most part, all the participants felt that their decisions, made with some level of intuition, were usually right.

One of the participants considered himself a very logical decision-maker, only using intuition after looking logically at a problem. This was especially interesting considering he scored high with the potential to make intuitive decisions. He believed that looking logically at the facts of a given situation, and then coming to a logical conclusion, were his duty and responsibility. In interviewing him, it became apparent that while he logically made decisions, he used his intuition to decide how to deliver the message of his decision. He believed the delivery of the decision to be more difficult than the decision itself. Another participant said he made intuitive decisions but could not recall one that he had made in a long time. These participants had the potential to make intuitive decisions, but for whatever reason, did not often use this potential to make their decisions.

Intuitive Decision-Making Processes Are Usually Present

For the most part, participants did not believe they needed to back up their decisions with data, and related that belief to the confidence they had in themselves, as well as the confidence their colleagues had in them. Their decision whether or not to have backup data was heavily influenced by their environment. If the community they worked in did not support non-data-based decisions, then they would yield to the community's wishes. Part of the motivation was the pressure this community

environment gave to substantiate a decision, especially should the decision prove not to be effective. One participant would get the rationale and data to back up a decision they had already made intuitively, if they believed it was needed to “sell” the decision to others. Another would get data “along the way” after a decision was made, to be sure they were traveling along the right path. If data did not back up what they were doing, they would change courses from the original decision, but initially believed analyzing the data caused too big a delay in getting a project moving. One participant believed that if he had to make a decision quickly, he would gather and look at all data available, but would not hold up a decision based on missing data. He made it clear that the data were not gathered to support his decision, but to gather information for himself. If the decision did not prove to be right he would change course, but apparently not out of fear for his position, but because the change was needed. A large amount of confidence and ego were apparent in the entire interview.

One participant verbalized a frustration in having to conform to traditional thinking when he was operating at least internally on a very non-traditional intuitive model. “I know there have been times when I’ve said certain things to my senior leaders, then felt necessary to turn around and try to put them into conventional words and processes for those who are looking at my work as a traditional, command and control position. I just don’t think of it that way, I haven’t for a long time, and it grates me to spend any time to try to translate back from the way I work into the way people think you should work. It doesn’t translate very well, it doesn’t feel honest, and yet to some degree that’s the environment that we currently live in.”

The idea of sharing intuitive decisions with colleagues was tightly linked to working with people who had gained trust and confidence in the executive and their decision making, and whether or not they felt comfortable in that environment sharing how they made those decisions. One executive did not feel comfortable at all in sharing that information even though he makes intuitive decisions with a high level of confidence in himself. For others, a certain level of credibility was necessary to feel comfortable in sharing that a decision was an intuitive one. One participant, in particular, believed that even in a trusting environment with colleagues, it still took a lot of courage to let the colleagues know a decision was based on intuition. She does not offer to her colleagues the information that she made her intuitive decisions, but if asked, she does not lie. She tells the truth about the decision because she considers herself fearless, and believes that sharing intuitive decisions with colleagues when you are not as far up on the organization hierarchy especially takes a lot of courage. One participant felt absolutely comfortable sharing his intuitive decisions and linked that comfort to his doctoral study of how complex ideas translate into human organizations. He considers his approach to organization and leadership to be non-traditional. He has promoted the theory of complex ideas so much in his work environment that people there have become comfortable with it and how it affects decision making. In general, the participants feel comfortable sharing how they made their intuitive decisions, if and when certain criteria were met.

The participants were each asked if they believed that their intuitive decisions were usually the best possible decision or the first one that would work. This question has its basis in the work of Gary Klein (1999) as described in his book, *Sources of Power*. In Klein's research of how firefighters, emergency room clinicians, and jet pilots made

their decisions, he concluded that these people made the first possible decision that would work. It did not matter if the decision was the absolutely best possible, as long as it worked. The environment Klein's participants worked in necessitated decisions to be made in 60-90 seconds. I wanted to see if the same principle translated from the urgent-care situation to those decisions healthcare executives generally make, which are not urgent.

The majority of participants in this study believed their decisions to be the very best possible decision at the time. Some gave a sense that anything less than the best possible decision would be wrong and found it unconscionable to think an executive would make a decision that was not the best possible. The two participants who definitely felt that a decision was the first that would work, also felt strongly about the urgency to move decisions and actions along. It was more important to get an idea moving before the "paralysis of analysis" took over. They would rather change course only after an idea was in action than to take too long analyzing the decision.

Mentoring and Teaching Usually Play a Role

A theme arose during the interviews that the idea of intuition had been and could be taught, modeled, and mentored. Some participants had mentors and significant people who modeled being intuitive, and were instrumental in how the participant responded to intuition now, while others found themselves mentoring younger and less experienced executives and staff. One participant coached staff in decision making in general, and specifically, intuitive decision making. One in particular mentioned working with staff to get past the logical answer. She worked to "flip their switch on intuition." Another tried to "instill" intuitive decision making into his staff. Some recognized that they had been

mentored by a father or executive ahead of them in career development. Teaching intuitive decision making was seen as a gap in the education of executives, an area once quite unrecognized, which is coming into its own and deserved some attention. There was almost a longing among participants that intuitive decision making gain credibility and become mainstream.

Summary

The overall purpose of this study was to investigate the relationship between leadership style and the potential to make intuitive decisions among senior-level healthcare executives in the United States. It was then the intent to delve further into how the highly intuitive executives use intuition to make their decisions.

Two instruments were used to do the relational study of leadership style and the potential to make intuitive decisions: (a) The Styles of Leadership Survey and (b) Agor's Intuitive Measurement Survey (AIM). The participants were Fellows in the American College of Healthcare Executives, and from a population of 3,260 Fellows, 497 were chosen by proportional, stratified, random sampling to participate in the study. The sample was stratified by gender. One hundred thirteen valid surveys were returned and the first four research questions were analyzed using chi-square and the fifth using three-way ANOVA. The research questions were answered as follows: There is no relationship between leadership style and the potential to make intuitive decisions, between the potential to make intuitive decisions and age, gender and size of company the executive works in and there is no interaction between the potential to make intuitive decisions and age, gender, and size of company.

Of the 113 valid surveys, 13 of the participants scored in the highly intuitive category on the AIM Survey. Of the 13 respondents, 8 agreed to be interviewed for the qualitative portion of the study. One-on-one telephone interviews were completed with those 8 participants in regard to how they make their intuitive decisions. The themes emerging from the interviews were categorized into five separate categories based on the sense, tone, and common thought or relationship of each idea. The following themes emerged: There is a sensing of your intuition in a physical way, intuition comes from life experiences and knowledge, the tensions of logic, intuition, and making the right decision usually exist, intuitive decision-making processes are often present, and mentoring and teaching intuition have an important role.

Chapter 5 presents a summary of the study, results, and a discussion of the findings. The conclusions, implications, and recommendations for further research are also discussed.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The overall purpose of this study was to investigate the relationship between leadership style and the potential to make intuitive decisions among senior level healthcare executives in the United States. This chapter consists of a summary of the study, a discussion of the findings, and the conclusions, implications, and recommendations for further study.

Statement of the Problem

Intuitive decision making is starting to gain recognition as a legitimate way to make decisions, (Agor, 1984, 1986, 1989) even though many schools of business still believe rational decision making to be the preferred style of decision making (Robbins, 2001). Studies have shown under which circumstances intuition is used to make decisions (Agor, 1984), and some have shown that even though trained in analytical decision making, in practice, decision makers do not use it that often (Klein, 1999). More often, they use their intuition, and make a decision based on the first solution that will work (Klein, 1999) and then find data to back up the decisions they have made. Very little research has been done to investigate the relationship between leadership style and the potential to make intuitive decisions (Familoni, 2002).

Purpose of the Study

The purpose of this two-phase, sequential, exploratory, mixed-methods study was to obtain quantitative results from a sample of Fellows in the American College of Healthcare Executives in the United States and then follow up with a few highly intuitive individuals to explore those results in more depth. In the first phase, quantitative research questions addressed the relationship between leadership style and the potential to make intuitive decisions, as well as the relationship and interaction between the potential to make intuitive decisions, and age, gender, and size of company. In the second phase, qualitative interviews were used to explore how those who scored highly intuitive used intuition to make their decisions.

Overview of the Review of Literature

The literature reviewed for this study was related to intuition and leadership style and include: split-brain theory, leadership style, decision making, and intuition.

Split-Brain Theory

The Split-Brain Theory developed by Dr. Roger Sperry, changed how the world viewed the functions of each side of the brain when he discovered that each side of the brain has distinctly different approaches to problems. The left side takes an analytical step-by-step approach, while the right side looks at a situation with an all-in-one view. The right brain plays a dominant role in forming the basis of atheistic, emotional, and religious perspectives (Sperry, 1983). Understanding how each side of the brain works in regard to decision making was a vital foundation to this study.

Decision Making and Intuition

Barnard (1938) was perhaps the first to recognize the value of decisions made using the non-logical right side of the brain. He recognized the non-logical processes as those the brain could not express in words or reasoning and that these processes were unconscious or so complex and rapid that they could not be analyzed by the person within whose brain they took place.

Vaughan (1979) gave the idea of intuition theoretical treatment and writes that intuition is a part of all of us, though some people do not choose to develop or use their intuition. She said, "Intuition is not opposed to reason, but works with it in a complementary fashion. Typically, flashes of intuitive insight follow the exhaustive use of logic and reason" (p. 58). Dr. Herbert Simon (1987) follows that line of thinking and tells us that intuition is not a process independent of analysis; rather, the two processes complement each other. And Rowan (1986) describes that moment intuition is used as "The Eureka Factor".

In his research of over 5,000 executives, Agor (1984, 1986, 1989) found that top leaders of organizations found their intuition to be helpful where there was a high level of uncertainty, where reliable facts were limited or unavailable, where time was limited and there was pressure to be right and where there were several plausible options to choose from.

Gary Klein (1999) determined that intuition played a large factor in making the first decision that would work rather than the best decision. Hayashi (2001), editor of the Harvard Business Review, writes that intuition is the X factor that separates the men from the boys.

The Case Against Intuitive Decision Making

There is a contingency of people concerned with intuitive decision making. Eisenhardt (1989) studied how quickly strategic decisions could be made in the rational/analytical decision-making environment, and cautioned against decisions made in any other style. Marino (2000) considers the decision-making ability of the executive to be one of their most important business skills and goes on to remark that feeling right about a decision may be good for their psyche, but it would better to be right. Gross and Brodt (2001) argued that projection affects intuitive judgment and will affect any objective decisions.

Intuitive Decisions in Healthcare Settings

Much of the research done on intuitive decision making in healthcare settings was done with nurses. King and Appleton (1997) explored the concept of intuition in nursing and concluded that nursing could no longer ignore the growing body of empirical evidence that nurses need to recognize intuition and utilize it effectively. King and Clark (2002) looked at nurses in the surgical ward, and intensive care, and observed that nurses in these settings showed that intuition increased powerfully as the expertise of the nurse increased. The studies showed that intuition in the nursing arena has an importance and that the nurse's intuitive ability increases with experience.

Intuitive Decisions in Military Settings

Hanze (2001) noted that an individual only becomes capable of making a decision if he or she associates feelings or emotions with a decision option. McClean (1995)

examined the role of intuition in the military decision-making cycle. Both Rogers (1994) and Reinwald (2000) focused on the significance of a military leader's intuition to battlefield supremacy. They found that intuition is important and vital to the military decision maker and that ways to teach intuitive decision making needs to be examined and implemented.

Leadership Style

There are several dominant theories on leadership as they relate to leadership style; however I have chosen the behavioral theory as the conceptual framework for the leadership style portion of this study, and specifically Blake and Mouton's Theory. The theory is built on the premise that certain behaviors identify leaders, and that these behaviors can be implanted into people through training. It is based on concern for people and production and is the theory that I use in practice. My use of the theory is for that reason.

Leadership Style and Intuition

Very few studies have been done to look at the relationship between leadership style and intuition. Basi (1998) argues that the type of decision is a function of administrative level and the style is a function of organizational culture. Ross (1990) investigated the relationship between brain dominance and leadership style. There was a significant correlation between left-brained analysis of data and the authoritative leadership style. Familoni (2002) examined the relationship between leadership styles, business culture, and places of origin of the leaders and business owners with intuitive decision making. No significant relationships were found.

Methodology

The design of this research was a sequential, exploratory, mixed-methods approach to the data collection and analysis. In the quantitative phase of the research, the relationship between leadership style and the potential to make intuitive decisions was studied along with the relationship between the potential to make intuitive decisions and age, gender, and size of company the executive worked in. In the qualitative portion, interviews were used to explore aspects of how the executives who scored in the highly intuitive category made their decisions.

The population consisted of 3,260 senior-level healthcare executives in the United States. A proportional, stratified by gender, random sample was drawn. Of the 497 executives sampled, 127 participants responded, with 113 of the surveys being valid. From the 113 valid surveys, the quantitative research questions addressing the relationship between leadership style and the potential to make intuitive decisions, as well as the relationship between the potential to make intuitive decisions and age, gender, and size of company worked in were studied. Five hypotheses were generated from the research questions and tested at the .05 level of significance using chi-square and three-way ANOVA.

The qualitative research question addressed how healthcare executives use intuition to make their decisions. Of all 113 valid surveys, 13 of the participants scored in the high category for the potential to make intuitive decisions, and 8 agreed to be interviewed. The interviews were analyzed for a general sense of tone of ideas, and were coded by themes that emerged from within each interview and between the eight participants.

Summary of the Results

The summary of the results include the result from the quantitative and qualitative portions of this study. This includes results from the Leadership Style Survey, Agor's Intuitive Measurement Survey, demographic data, hypotheses testing, and the qualitative interviews. The results are reported and analyzed in two main sections: quantitative and qualitative.

I recognize that my leadership and healthcare executive background as well as my experiences served as influencing factors in how I viewed and understood the data that were collected in this study. I attempted to control this potential bias by keeping aware of it, and by remaining as objective as possible. In addition, I used my trustworthiness measures to verify that my bias wasn't coming into the study. The measures were peer review, triangulation, the use of thick, rich description to convey the findings, and clarification of the bias.

Quantitative Results

The results of the Leadership Style Survey (Hall, et. al., 1995) and the Agor Intuitive Measurement Survey that were taken by the 113 respondents to this study indicated that there was no significant relationship between leadership style and the potential to make intuitive decisions. In addition, the results of the testing of the selected demographic data of age, gender and size of company the executive worked in, and the potential to make intuitive decisions indicated that there was no significant interaction between or among these variables.

Of the five hypotheses generated from the research agenda, the first four were tested through the use of chi-square. The fifth hypothesis was tested through the use of three-way ANOVA.

Research Questions, Null Hypotheses, and Results

1. What is the relationship between leadership style and the potential to make intuitive decisions?

There is no relationship between leadership style and the potential to make intuitive decisions.

Null hypothesis 1 was retained since no statistically significant relationship was found between leadership style and the potential to make intuitive decisions.

2. What is the relationship between gender and the potential to make intuitive decisions?

There is no relationship between gender and the potential to make intuitive decisions.

Null hypothesis 2 was retained since no statistically significant relationship was found between gender and the potential to make intuitive decisions.

3. What is the relationship between age and the potential to make intuitive decisions?

There is no relationship between age and the potential to make intuitive decisions.

Null hypothesis 3 was retained since there was no statistically significant relationship found between age and the potential to make intuitive decisions.

4. What is the relationship between the size of the company the executive works in and the potential to make intuitive decisions?

There is no relationship between the size of the company the executive works in and the potential to make intuitive decisions.

Null hypothesis 4 was retained since there was no statistically significant relationship found between size of company the executive works in and the potential to make intuitive decisions.

5. What is the interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions?

There is no interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions.

Null hypothesis 5 was retained since there was no interaction between age, gender, and size of company the executive works in and the potential to make intuitive decisions.

Qualitative Results

Of the 13 participants scoring in the high category for intuitive decision-making potential with a score of 10-12, 8 agreed to be interviewed regarding how they make decisions. It is noted that Dr. Agor found 10% of those executives he surveyed having an intuitive score in the high category. Of my 113 participants, 11.7% scored in the high category for intuition, keeping in line with the results of Dr. Agor.

The research question for the qualitative portion of the study was: How do healthcare executives use intuition to make their decisions?

The following themes emerged from those interviews: (a) there is a sensing of your intuition in a physical way, (b) intuition comes from life experiences and knowledge, (c) the tensions of logic, intuition, and making the right decision usually

exist, (d) intuitive decision-making processes are often present, and (e) mentoring and teaching intuition have an important role. Those themes are further explored next.

Discussion of the Findings

Quantitative Discussion

The findings of this study showed no relationship between leadership style and the potential to make intuitive decisions. There was also no relationship found between the potential to make intuitive decisions and age, gender, or size of company the executive works in. In addition, there were no interaction between the potential to make intuitive decisions and age, gender, or size of company the executive works in.

Very few studies have been done in regard to leadership style and intuition. Ross (1990) investigated the relationship between brain dominance and leadership style. Her findings included a significant relationship between an authoritative leadership style and left-brained dominance. There was no significant correlation in regard to gender, age, educational level, or years of administrative experience. While the Ross Study was built on a premise related to this study, it is difficult to measure the results on an equal plane because although brain dominance ties into logical and non-logical decision making, Ross used instruments very different from my study and she is not making the link to intuition. Familioni (2002) investigated intuition and leadership style using the exact same instruments as I did. He also found that there is no relationship between leadership style and the intuitive potential of the leaders in the study. Familioni studied the use of intuition among leaders in Nigeria as related to the United States, and the relationship between business culture of Nigerian leaders and United States leaders. Again, no relationships were found.

It is noted in my study that the potential to use intuition was spread fairly evenly over the entire variety of leadership styles. As well, the highly intuitive individuals also scored evenly in four of the five leadership styles. This spread of intuition over leadership styles was significant in its concurrence with the study of Famioloni (2002).

Putting leadership style aside, research questions 2 through 5 were concerned with intuitive potential and its relationship to age, gender, and size of company. The relationship of intuition to gender was initially studied by Dr. Weston H. Agor. He studied over 5,000 executives using his own instrument which he developed to measure the potential to make intuitive decisions. That same instrument was used to measure intuition potential in this study. Agor (1984) found that intuition appeared to be a skill that was more prevalent as one moves up the management ladder, and that women consistently scored higher than men for intuitive potential. Keen (1996) duplicated Agor's work, sampling 108 business executives from a population of 6000. Eighty-nine percent of the participants used intuition to guide their decisions. Women scored at the same level for Keen as they did for Agor, but the men scored higher as well for Keen. As a result, the intuitive difference between gender was not significant. Roberts & Wise (1990) also found no correlation between age, years in nursing administration, geographic regions, ethnic background or gender in their study of nursing administrators. As well, Fall (2002) found no significance among the variables of gender, age, and years of experience in his study of police individuals. Whereas Agor (1984) found that the potential for intuition increased as a manager rose up the corporate ladder towards the top, one could argue that the managers at the top of the corporate ladder would be older than the other managers. However, that was not specified in the research and therefore

no correlation has been made. There was no research found looking at the relationship between intuitive potential and the size of a company an executive worked in outside of this study.

While Agor (1984) found a significant correlation between women and their potential to make intuitive decisions, studies since that time have been unable to make the correlation. Keen (1996), in a duplication of Agor's (1984) study found no correlation between women and intuitive decision making, nor did Ross (1990) or Sanchez (1997) and neither did my study. These studies do not suggest that women have become less intuitive, but rather that men have increased in their potential to make intuitive decisions.

The return rate for this study was lower than expected at 22.74%. A possible reason that the return rate was lower than expected was that the leadership style instrument looked complicated and time-consuming. Coupled with the idea that senior healthcare executives perceive themselves as being very busy, I would suggest that those two reasons were enough to cause a lower than expected return rate. Several packets of surveys came back with 'I don't have time' apology. Fourteen surveys were returned incomplete or not completed correctly. If repeated, I would choose a different leadership style survey than the one I used in an effort to improve the response rate. Despite the low return rate, the results have similarity to current research.

Qualitative Discussion

The themes that arose from the interviews were sometimes in contrast to the current textbook thoughts on the subject. Robbins (2001) tells us not to expect people in the Western culture who are making decisions intuitively to acknowledge they are doing so. They usually will not tell, and then they back their decisions up with data to make it

acceptable. In addition, Robbins (2001) and Klein (1999) write that decision makers rarely seek an optimum solution, but rather a “satisficing” one, or the first choice that will work. However, my research differs from that of Robbins (2001) and Klein (1999).

Participants were very confident about how they sensed their intuition and almost universally intuition was perceived among the participants as a “gut” feeling. Often the participants gave additional descriptors for how they sensed their intuition, which gave additional creativity and excitement to their notion of intuition. It was almost always a physical feeling. This physical feeling is consistent with Vaughan (1979), where she lists physical sensations as one level of intuitive awareness.

At least half of the participants had a keen sense that intuition was the result of life experiences and knowledge. This is consistent with the work of Rowan (1986). Rowan explains intuition as knowledge gained without rational thought. Everything that ever happened to us has been cataloged and stored in the right side of our brain for future use. He also explains these intuitive hunches as intuition-compressed years of learning. Klein (1999) writes in his book, *Sources of Power*, that intuition grows out of experience. None of the participants believed it to be a mystical power they had been given and each tied it to their make-up and background as a person.

Almost unanimously, the participants believed their intuitive decisions to be right. More than one expressed that there had been times where they did not use their intuition to make a decision and were sorry as a result. Several of the participants used rational analysis and intuition to make their decisions, and according to Agor (1984), this style of decision making, or as he calls it, integrative decision making, is the most effective decision-making method. More than one participant talked about how confidence and

ego play a role in intuitive decision making. Vaughn (1979) cautions against letting ego or conscious thought get in the way of intuition. She believes that the more you want something, the harder it will be for your intuition to give you the cues you need to decide.

On the other hand, Kanter (2004) describes the importance of confidence. She puts it this way, "Confidence is a sweet spot between arrogance and despair" (p. 8).

Overconfidence leads people to overshoot or be delusionally optimistic.

Underconfidence may be even worse, especially when it starts eroding which can lead to a spiral down. This balance between over- and under-confidence seems to be the confidence the participants in this study spoke of. Perhaps it is the environment of confidence that creates the initiative, imagination, and innovation which energizes a corporation and supports intuitive decision making.

One of the most interesting variations from literature found in this study was that these participants, for the most part, did not believe they needed to back up their decisions with data. This is in contrast to the writing of Robbins (2001) who believes that executives do not usually tell colleagues how they reached their intuitive decisions and often disguised, hid, or dressed up their decision with data. This may be a changing of the perception regarding intuitive decision making. Some of the participants did package their decisions differently depending on the background of the person they were presenting to and whether or not that person embraced the idea of intuitive decision making. Also, the idea of sharing intuitive decisions with their colleagues was tightly linked to working with people with whom they had a trusting relationship.

In contrast to Klein (1999) and his work with people needing to make almost instantaneous decisions, and choosing the first decision that would work, these

participants believed for the most part that the intuitive decisions they made were the best possible decision at the time. Some even felt that making anything less than the best possible decision would be wrong and unconscionable. The difference here may be because the participants in Klein's Study (1999) did not have the time these executives had to make their decisions.

The idea of being mentored and being a mentor to someone else in association with making intuitive decisions was a common theme among the participants. That is - they had someone who really helped mentor them and now they would like to mentor others in return.

Mentoring has been recognized as important in our lives on many levels, including on a personal, academic, and work level (Daloz, 1999). According to Daloz, he found in his studies that mentors are especially important in the beginning of a person's career or at a crucial turning point in their lives. They become a guide, travel the journey with them for a while, and exert a powerful and moral impact on their lives (Daloz, 1999). In the business setting, "Mentoring means to facilitate, guide and encourage continuous innovation, learning, and growth to prepare the business for the future" (Johnson, 1997). Mentoring is also associated with wisdom. According to Johnson (1997), "without wisdom, mentoring is folly" (p. 295). The idea of wisdom and experience being tied to mentoring and intuitive decision making, was also woven into the interviews of the participants. It was evident in this research that the importance and impact of mentoring has made its way into the forum of intuitive decision making. Perhaps that is because there is so little formal education regarding intuitive decision making, and mentoring relationships have become the informal way someone can learn to

be intuitive. More research along these lines could be interesting and useful in assisting us to optimize intuitive decision making while we wait for the right-brained school curriculums to catch up.

It is of interest to note how the highly intuitive people interviewed compared in their leadership style to both the entire group of highly intuitive participants and the eight highly intuitive participants who were interviewed. In research question 1, it was found that there was no relationship between leadership style and the potential to make intuitive decisions, and that the five types of leadership styles were fairly evenly spread over the participants. Considering just the 13 highly intuitive participants, I noted that the spread was again spread fairly evenly over the participants with the 9/9 style increasing somewhat. Then looking at just the eight interviewed participants, none of the eight participants had the 9/1 style, and the remaining four styles were evenly distributed among the participants. I then examined the qualitative interview data, looking at the leadership styles of the individuals who not only had the potential for intuition but actually used their intuition a great deal in making decisions. There was one participant who did not use intuition very often, while the other seven did. The styles were spread evenly among the seven participants, again consistent with the quantitative data of this study. It is noted then, that the qualitative data did support the results of the quantitative analysis, increasing the trustworthiness of this research.

Conclusions

The following conclusions about the relationship between leadership style and the potential to make intuitive decisions can be drawn from the findings of this study:

1. There is no relationship between leadership style and the potential to make

intuitive decisions.

2. There is no relationship between gender and the potential to make intuitive decisions.

3. There is no relationship between age and the potential to make intuitive decisions.

4. There is no relationship between the size of company an executive works in and the potential to make intuitive decisions.

The following themes about how these senior healthcare executives make their intuitive decisions can be drawn from the findings of this study:

1. Healthcare executives sense their intuition as a physical feeling.

2. Healthcare executives believe intuition is the result of life experiences and knowledge.

3. Healthcare executives do not believe they need to back up their intuitive decisions with data most of the time.

4. Healthcare executives believe that when they make an intuitive decision that it's the best possible decision at the time.

5. Healthcare executives believe that a mentoring relationship is very important to developing and using intuition.

Implications

If how we think and decide is really the cornerstone to successful operations in any organization (Baron, 2000), and if integrated decisions are indeed the most effective decisions (Agor, 1984), then the education and training of those skills is imperative in the academic and corporate setting.

The data in this study consistently showed the need and desire for more education and training on how to use intuition in decision making. Most journal articles and research on intuitive decision making qualify this need but little is said on how it can be accomplished. Qualifying the use of intuition and the need for education to increase intuitive decision skills will hopefully draw attention to the idea. The more attention and research based answers that we can give about intuitive decision making, the more likely it will be added to the business school curriculum.

Agor's (1984) research showed a difference in intuition by gender, with women having significantly more intuition than men. Research since that time is showing that men are increasing their intuitive decision making so that there is no significant difference. This study was another verification that intuitive decision making by gender is essentially the same. Besides the idea that the 1990s brought more equality in the workplace (Keen, 1996), this may be indicative of the change in the decision making and general management style of men. This generation of men may be learning from women to use their more "feeling" side in managing people. One of the interviewed participants noted that men are now "beating us at our own game". This is what she was referring to.

Mentoring has already been proven to be an important tool to increase job satisfaction (Lacey, 2000). The findings of this study showed that mentoring was very important to those executives with high intuition and intuitive potential. Adding development of intuitive decision-making to the formal mentoring process within organizations would bring these two components together.

We are waiting for business schools to catch up and teach intuitive decision-making skills. Perhaps the understanding and encouragement of mentoring intuitive

decision-making on a formal and informal basis can take the place of this formal education in the interim.

Recommendations

Based on the findings of this study, and current limited research, the following recommendations are proposed:

1. Expand the research to executives in general.

2. Continue studying the relationship between leadership style and intuitive Decision making. Only two studies have been done to look at their relationship, and this is not significant enough to make generalizations. Understanding the relationship between the two, if it in fact exists, would be very beneficial in the hiring and education of executives.

3. Explore further what processes executives use to make effective decisions.

4. Explore further the relationship between intuition and mentoring.

Resources for most any company are limited, and it is one of the executive's responsibilities to optimize and efficiently use all resources of the organization. Decisions about use of company resources, including human resources, would be optimized by having the skill to use both rational and intuitive decisions.

Mentoring has already been proven to be an important tool to increasing job satisfaction among workers in the United States (Lacey, 2000). The findings of this study showed that mentoring was very important to those executives with high intuition and intuitive potential. Adding development of intuitive decision making to the formal

mentoring process within an organization would bring these two components together, and begin the education of intuitive decision-making.

Further Research

This study was only the second research project to look at leadership style and intuition in just this way. Such limited knowledge would warrant more research to increase the knowledge base of this and other populations of executives. In addition, more qualitative research is needed to probe and understand further how executives think about and use intuition. With a better understanding, we can better educate existing managers and executives and better develop new managers coming into the marketplace.

APPENDIX A
QUALITATIVE SURVEY QUESTIONS

The questions included but were not limited to:

1. Talk to me about a decision you've made in the last few days.
2. In what ways did you use your intuition?
3. Give me one or two examples of decisions you've made using intuition.
4. Tell me how those decisions proved to be right or wrong.
5. Tell me how you feel about sharing your intuitive decisions with your colleagues.
6. After you've made an intuitive decision, when do you feel it necessary (if at all), to back up that decision with data?
7. When you make intuitive decisions, do you believe the decision is the best possible decision?

APPENDIX B

AGOR'S INTUITIVE MEASUREMENT SURVEY

DIRECTIONS: Complete the following survey as quickly and honestly as you can. Choose one answer for each question. Circle your answers:

1. When working on a project, do you prefer to:
 - a) Be told what the problem is but left free to decide how to solve it?
 - b) Get very clear instructions about how to go about solving the problem before you start?

2. When working on a project, do you prefer to work with colleagues who are:
 - a. Realistic?
 - b. Imaginative?

3. Do you admire people who are:
 - a) Creative?
 - b) Careful?

4. Do the friends you choose tend to be:
 - a) Serious and hardworking?
 - b) Exciting and often emotional?

5. When you ask a colleague for advice on a problem, do you?
 - a) Seldom or never get upset if he questions your basic assumptions?
 - b) Often get upset if he questions your basic assumptions?

6. When you start the day, do you:
 - a) Seldom make or follow a specific plan?

- b) Usually make a plan to follow first?
-
- 7. When working with numbers, do you find that you:
 - a) Seldom or never make factual errors?
 - b) Often make factual errors?

 - 8. Do you find that you:
 - a) Seldom daydream during the day and really don't enjoy it when you do?
 - b) Frequently daydream during the day and enjoy doing so?

 - 9. When working on a problem, do you:
 - a) Prefer to follow the instructions or rules when they are given to you?
 - b) Often enjoy circumventing the instructions or rules?

 - 10. When you are trying to put something together, do you prefer to have:
 - a) Step-by-step written instructions for assembly?
 - b) A picture of how the item is supposed to look once it's assembled?

 - 11. Do you find the person who irritates you the most is the one who appears to be:
 - a) Disorganized?
 - b) Organized?

 - 12. When a crisis that you have to deal with comes up unexpected, do you:
 - a) Feel anxious about the situation?
 - b) Feel excited by the challenge?

APPENDIX C

PERMISSION LETTER TO USE AIM SURVEY

PERMISSIONS FORM FOR USE OF AIM SURVEY

This gives permission to Cherie C. Whiting to duplicate and use my *AIM SURVEY* under the following terms and conditions:

1. The bottom of the first page of the instrument should hold this citation, "*AIM SURVEY* used by permission of Weston H. Agor, Ph.D, ENFP Enterprises, 5525 N. Stanton St., #18-D, El Paso, TX. 79912-6406, © Copyright, 1989, 1992. *May not be further duplicated or used without written permission of the author.*"
2. Permission is for academic Ph.D. research outlined in your e-mail communication to me dated November 29, 2003 and December 1, 2003.
3. If further research/publication is developed using this instrument beyond that outlined in your e-mail communications above, further written permission must be obtained and fee paid as advised by me (e.g., trade book publication, workshops).
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Terms and conditions agreed to: Permissions granted/payment made of \$250.00:

Cherie C. Whiting
Cherie C. Whiting
12-28-03
Date Signed

Elizabeth Coleman, Exec. Asst.
Weston H. Agor, Ph.D. for W. H. Agor
01-05-04
Date Signed

REFERENCE LIST

- Adye, P. (2004). Intuition and leadership: The art of wise decision making. *Masters Abstracts International*, 42(06), 2000. (UMI No. MA89915)
- Agor, W.H. (1984). *Intuitive management: Integrating left and right brain management skills*. Englewood Cliffs: Prentice-Hall.
- Agor, W.H. (1986). *The logic of intuitive decision making: A research-based approach for top management*. New York: Quorum Books.
- Agor, W.H. (1989). *Intuition in organizations: Leading and managing productively*. Newbury Park: Sage Publications.
- Airhart, A.M. (1983). The relationship of right and left hemisphere learning experiences in National League for Nursing accredited baccalaureate programs. *Dissertation Abstracts International*, 45(01), 126. (UMI No. 8409202)
- Aldrich, C. (2003). The new core of leadership. *Technology and Development*, 57(3), 32-37.
- American College of Healthcare Executives. (1996) *Reference guide for the American College of Healthcare Executives*. Chicago: Health Administration Press.
- Anderson, J.A. (2000). Intuition in managers: Are intuitive managers more effective? *Journal of Managerial Psychology*, 15, 46-59.
- Baron, J. (2000). *Thinking and deciding*. Cambridge: Cambridge University Press.
- Barnard, C.I. (1938). *The functions of the executive*. Cambridge: Harvard University Press.
- Basi, R.S. (1998). Administrative decision making: A contextual analysis. *Management Decision*, 4, 232-242.
- Bass, B. (1981). *Stogdill's handbook of leadership: A survey of theory and research*. New York: Macmillan Publishing.
- Bass, B. & Avolio, B. (1994). *Improving organizational effectiveness through transformational leadership*. Thousand Oaks: Sage.

- Bechara, A., & Damasio, H. (1997). Deciding advantageously before knowing the advantageous strategy. *Science*, 275(5304), 1293-1296.
- Blake, R. & Mouton, J. (1978). *The New Managerial Grid*. Houston: Gulf Publishing.
- Blanchard, K. (2005). *Self leadership and the one minute manager: Increasing effectiveness through situational self leadership*. New York: HarperCollins.
- Bower, B. (2002). Left brain may shine spotlight on self. *Science News*, 162(8), 118.
- Bowman, R. (2000). Examining six different leadership styles in relation to constrained change at Winona State University. *Education*, 120(3), 455-460.
- Breed, R.S. (1997). Teachers' perceptions of principals' leadership practices and of teachers' involvement in decision-making. *Dissertation Abstracts International*, 58(03), 655. (UMI No. 9725112)
- Breen, F.F.L. (1990). Intuition versus analysis as a decision-making style: An intercultural comparison of American and Chinese executives using a phenomenographic approach. *Dissertation Abstracts International*, 51(11), 3606. (UMI No. 9110277)
- Brown, A.R. (1990). The use of intuition in the decision-making processes of public school superintendents. *Dissertation Abstracts International*, 52(04), 1139. (UMI No. 9118161)
- Chemers, M. & Aymar, R. (1993). *Leadership theory and research: Perspectives and directions*. San Diego: Harcourt
- Conger, J., & Kanungo, R. (1998). *Charismatic Leadership in Organizations*. Thousand Oaks: Sage.
- Connell, D. (1999). Music of the hemispheres. *Instructor*, 112(2), 28-30.
- Cooper, W.E. (1994). Meanings of intuition in nurses work. *Masters Abstracts International*, 33(04), 1042. (UMI No. MM03535)
- Cresswell, J.W. (2003). *Research design*. Thousand Oaks: Sage Publications.
- Daloz, L.A. (1999). *Mentor*. San Francisco: Jossey-Bass.
- DePree, M. (1989). *Leadership is an art*. New York: Dell Publishing.
- Dew, J.R. (1996). Are you a right-brain or left-brain thinker? *Quality Process*, 29(4), 91-94.

- Eisenhardt, K.M. (1989). Making fast strategic decisions in high velocity environments. *Academy of Management Journal*, 32(3), 543-576.
- Fall, R.K. (2002). Intuitive abilities: A comparison between police and non-police individuals. *Dissertation Abstracts International*, 63(01) 586. (UMI No. 3039556)
- Familoni, O.J. (2002). Intuition, the hidden intelligence: Factors that influence intuition in decision making of leaders from Nigeria and the United States. *Dissertation Abstracts International*, 63(11), 4005. (UMI No. 3069963)
- Fraser, R.D. (1993). A study if intuitive decision-making among elementary school Principals. *Dissertation Abstracts International*, 54(08A), 2819. (UMI No. 9400165)
- Gates, B. (1999). *Business at the speed of light*. New York: Warner Books, Inc.
- Gibson, J., Ivancevich, J., & Donnelly, J. (1982). *Organizations*. Plano: Business Publications, Inc.
- Greenleaf, R.K. (1977). *Servant leadership*. Mahwaha: Paulist Press.
- Griffith, J.R. (1999). *The well managed healthcare organization*. Chicago: Health Administration Press.
- Gross, R. L., & Brodt, S. E. (2001). How assumptions of consensus undermine decision making. *MIT Sloan Management Review*, 42(2), 86-95.
- Hall, J., Harvey, J.B., & Williams, M.S. (1995). *Styles of leadership survey*. Waco: Teleometrics International.
- Hanze, M. (2001). Ambivalence, conflict, and decision making: attitudes and feelings in Germany towards NATO's military intervention in the Kosovo war. *European Journal of Social Psychology*, 31, 693-706.
- Harper, S.C. (1988, September/October). Intuition: What separates executives from managers. *Business Horizons*, 13-19.
- Hayashi, A.M. (2001, February). When to trust your gut. *Harvard Business Review*, February, 59-65.
- Hempsall, K.A. (1996). Intuition and the decision making process of expert critical care nurses. *Masters Abstracts International*, 5(01), 208. (UMI No. 1380969)
- Hemphill, J. (1949). *Situational factors in leadership*. Columbus: Ohio State University.

- Hogan, R., Raskin, R., & Fazzini, D. (1990). The dark side of charisma. In K.E. Clark and M.B. Clark (Eds.), *Measures of leadership*. West Orange: Leadership Library.
- Holloman, C.R. (1992). Using both head and heart in managerial decision making. *Industrial Management*, 34(6), 7-11.
- Horowitz, N.H. (1999). *Roger Wolcott Sperry biography*. Retrieved April 12, 2004, www.rogersperry.info/bio.html.
- Horton, J. (1993). Intuition in decision-making (principals). *Dissertation Abstracts International*, 55(01), 24. (UMI No. 9412226)
- House, R. (1974). *A path-goal theory of leadership*. New York: Weiner.
- Hutton, W. (2004). Transforming the LDC is leadership style an issue for success? *Pipeline & Gas Journal*, 231(10), 38-39.
- Ireh, M. & Bailey, J. (1999). A study of superintendents' change leadership styles using the situational leadership model. *American Secondary Education*, 27(04), 22-32.
- Isenberg, D. J. (1984, November/December). How managers think. *Harvard Business Review*, 81-90.
- Jeter, T.R. (2003). Knowing without knowing: Urban public middle school administrators' perceptions of intuition in decision-making. *Dissertation Abstracts International*, 63(12), 4168. (UMI No. 3075272)
- Johnson, H.E. (1997). *Mentoring for exceptional performance*. Glendale: Griffin Publishing.
- Kahneman, D. (2004). Freud, finance and folly. *Economist*, 370(8359). 5.
- Kanter, R.M. (2004). *Confidence*. New York: Crown Press.
- Kay, D. (2003). Left brain versus right brain. *Marketing Magazine*, 108(36), 37.
- Keen, T. R. (1996). An investigation of the role intuition plays in the managerial decision-making process. *Dissertation Abstracts International* 57(06), 2566. (UMI No. 9633584)
- Kerlin, M.P. (1992). Decision-making practices of sensing and intuitive nurse executives. *Dissertation Abstracts International*, 53(05), 2247. (UMI No. 9226497)
- King, L., & Appleton, J.V. (1997). Intuition: A critical review of the research and Rhetoric. *Journal of Advanced Nursing*, 26, 194-202.

- King, L., & Clark, J.M. (2002). Intuition and the development of expertise in surgical war and intensive ward nurses. *Journal of Advanced Nursing*, 37(4), 322-330.
- Klein, G. (1999). *Sources of power: How people make decisions*. Cambridge: Massachusetts Institute of Technology.
- Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological measurement*, 30, 607-610.
- Lacey, K. (2000). *Making mentoring happen*. Warriewood: Business and Professional Publishing Pty Limited.
- Larson, D.R. (1989). Personality and leadership styles of school superintendents. *Dissertation Abstracts International*, 50(10), 3122. (UMI No. 8926518)
- Lindell, M., & Rosenqvist, G. (1992, Winter). Management behavior dimensions and development orientation. *Leadership Quarterly*, 355-377.
- March, J.G. (1994). *A primer on decision making*. New York: Free Press.
- Marino, S. (2000). Rely on science, not your gut. *Industry Week*, 249(2), 18.
- Marney, J. (1996, October). Using your head to reach their brains. Smart marketers take care to appeal to both sides of consumers' brains. *Marketing*, 101, 25.
- McClellan, B.C.W. (1995). Intuition in modern command philosophy. *Military Review*, 75(5), 96-99.
- McCutcheon, H., & Pincombe, J. (2001). Intuition: An important tool in the practice of nursing. *Journal of Advanced Nursing*, 35(3), 342-348.
- Merriam-Webster's pocket dictionary* (1995). Springfield: Merriam-Webster.
- Mintzberg, H. (1976, July/August). Planning on the left side and managing on the right. *Harvard Business Review*, 49-58.
- Moorby, E. (2002). Time to pick your brains. *People Management*, 8(15), 45.
- Myers, I.B., McCaulley, M.G., Quenk, N.L., & Hammer, A.L. (2003). *MBTI manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto: CPP, Inc.
- Nanus, B. (1992). *Visionary Leadership*, New York: Free Press.

- Nixon, A.J. (1995). Intuition and management decision making of the first-line nurse manager. *Masters Abstracts International*, 34(05), 1921.
- O'Shea, S. (2000). The changing composition of leadership. *Financial Executive*, 16(04), 35-39.
- Parker, C.R. (1996). The relationship between perceived leader effectiveness and cognitive style (situational leadership). *Dissertation Abstracts International*, 57(03), 2001. (UMI No. 9625072)
- Patten, M.L. (2002). *Understanding research methods*. Los Angeles: Pyczak Publishing.
- Petrov, V. (1998). The evolution of art: An investigation of cycles of left and right hemispherical creativity in art. *Leonardo*, 31(3), 219-238.
- Post, J.M. (1986). Narcissism and the charismatic leader-follower relationship. *Political Psychology*, 7, (675-688).
- Pruden, T.E. (1998). Principals and the decision-making process. *Masters Abstracts International*, 37(03), 721. (UMI No. MQ34462)
- Reinwald, B.R. (2000). Tactical intuition. *Military Review*, 80(5), 78.
- Richard, J.C. (1989). A comparison of the social characteristics, personalities, and managerial styles of managers and entrepreneurs. *Dissertation Abstracts International*, 52(11), 6122. (UMI No. NN60992)
- Richardson, H. (1999). Women lead in style. *Transportation and Distribution*, 40(4), 78-81.
- Robbins, S. (2001). *Organizational behavior*. Upper Saddle River: Prentice Hall.
- Roberts, V.E. (1990). A description of intuitive decision-making by nursing academic administrators. *Dissertation Abstracts International* 51(12B), 5811. (UMI No. AAG9107755)
- Rogers, C.T. (1994). Intuition: An imperative of command. *Military Review*, 74(3), 38-51.
- Ross, H.R. (1990). A study of the relationship of left and right brain dominance to leadership styles of public school superintendents in Arkansas. *Dissertation Abstracts International*, 52(02), 379. (UMI No. 9111258)
- Rowan, R. (1986). *The intuitive manager*. Boston: Little, Brown and Company.

- Saleh, A. (2001). Brain hemisphericity and academic majors: A correlation study. *College Student Journal*, 35(2), 193-200.
- Sanchez, P. (1997). Intuition and decision-making in higher education administration. (Masters Abstracts International, 39 (07), 40. (UMI No. EP05078)
- Silverthorne, C. & Wang, T. (2001). Situational leadership style as a predictor of success and productivity among Taiwanese business organizations. *The Journal of Psychology* 135(4), 399-412.
- Simon, H.A. (1976). *Administrative behavior: A study of decision-making processes in administrative organization*. New York: Free Press.
- Simon, H.A. (1987). Making management decisions: The role of intuition and emotion. *The Academy of Management Executive*, 1(1), 57-63.
- Sinkkonen, M.A. (1991). The relationship if intuition and the use of intuition in the situational decision-making of public school principals. *Dissertation Abstracts International*, 53(02A), 0369. (UMI No. 9210171)
- Smith, C. (2004). A model of leadership. *Principal leadership*, 4(5), 37-41.
- Sperry, R. (1983). *Science and moral priority*. New York: Columbia University Press.
- Taylor, E.D. (1988). The experience of intuition in management decision-making: A phenomenological inquiry and consolidation of a model. *Dissertation Abstracts International*, 49(09), 2729. (UMI No. 8824989)
- Vaughan, F.E. (1979). *Awakening intuition*. Garden City: Anchor Books.
- Watts, R.G. (1997). The hidden modality: Intuition and the female administrator in higher education. *Dissertation Abstracts International*, 58(04), 1173. (UMI No. 9729010)
- Welch, D.A. (2002). *Decisions, decisions*. New York: Prometheus Books.
- Yukl, G. (2002). *Leadership in organizations*. Upper Saddle River: Prentice Hall.