Executive Personality Types: A Comparison of Military and Civilian Leaders in a Single Organization

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EXECUTIVE PERSONALITY TYPES: A COMPARISON OF MILITARY AND CIVILIAN LEADERS IN A SINGLE ORGANIZATION

by

John Edward DeWald

A Dissertation Submitted to the Faculty of the Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Education Department of Educational Leadership

Western Michigan University Kalamazoo, Michigan April 1986
EXECUTIVE PERSONALITY TYPES: A COMPARISON OF MILITARY AND CIVILIAN LEADERS IN A SINGLE ORGANIZATION

John Edward DeWald, Ed.D.
Western Michigan University, 1986

Differences between comparable military and civilian upper-level leaders in a single military organization were examined in terms of personality types. The survey instrument used was the Myers-Briggs Type Indicator (MBTI), which was developed for use in personality assessment of normal individuals through the practical application of C. G. Jung's (1921/1971) theory of psychological types. Thirty pairs of executives were surveyed. Each participating pair consisted of a chief and his deputy, one military and one civilian, who shared the same office, authority, and responsibilities. Response to the survey was 100 percent.

Two sets of findings emerged from this study, the first covering the relationship between military and civilian MBTI types, and the second concerning MBTI type representation in different organizational units.

The distributions of MBTI types and type processes for the military officers in this study were essentially similar to those for the civilian executives. The most striking similarity was the large and identical percentage (80%) of both military and civilian participants who were thinking-judgers (TJs). The MBTI type and type process distributions for the military participants were
generally in line with expectation, as they closely paralleled those in prior studies of military program managers. The distributions for the civilian participants, however, were significantly different from those published for civilian managers and administrators, and, in fact, were more in accord with published distributions for military program managers.

Although the data did not indicate different distributions of personality types for the four organizational units studied, there was a significant difference in the expected direction on the sensing-intuition (SN) dimension. Research and Development and Support units were highly represented by intuitives, while the Readiness unit and Program Managers' Offices consisted chiefly of sensors.

It was concluded that the close similarity in types between the military and civilian executives has evolved from the military requirements of the organization. That is, the situational demands have dictated the selection of particular personality types for executive positions. In the same way, each of the four organizational units has attracted personality types compatible with its focus. Thus, situational demands are also responsible for the gravitation of particular personality types to organizational units having correspondingly similar orientations.
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A man's reach should exceed his grasp.

Robert Browning

DEDICATED TO:

My parents, John A. and Lillian E. DeWald
My wife, Ruth E. DeWald
My brother, George F. DeWald
My daughter and son-in-law, Diana and Stan Beckett and granddaughters, Hope and Beth Beckett
My daughter and son-in-law, Sue and Ron Cook, grandson, John Edward Cook, and granddaughter, Sarah Ann Cook

Without their loving support and influence, this grasp could not have been achieved.

John E. DeWald
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There seemed to be two critical stages in this study where a considerable number of people were needed for idea formulation and for guidance in idea consolidation. Evolution of the problem and evolution of the final document were those two crucial stages.

Approval of the idea for this study was obtained initially from Major General Oscar Decker, with final approval granted by Major General Arthur Holmes, Jr., Commanders, U. S. Army Tank-Automotive Command; without their approvals, this study would not exist.

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Recognition and appreciation of all those scholars who provided references, ideas, and quiet beckoning via the literature must be expressed. Complete response to a study survey is most unusual, so appreciation is due the sixty unidentified, but self-knowing, participants.
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CHAPTER I

PROBLEM STATEMENT AND RATIONALE FOR THE STUDY

Introduction

The concept of leadership has long been important to philosophers, who have attempted to understand the personal traits and mental qualities that characterize leaders (Runes, 1959). In early times, a leader was either a hereditary ruler or a superhuman being, a demi-god or folk hero, who was capable of tremendous feats that no ordinary man could hope to achieve. When Carlyle (1858) conducted the first formal study of leadership in the nineteenth century, he based his theory on historical records that appeared to support his premise that the lives of great men have altered the course of history. Later researchers tried to discover what qualities distinguished leaders from followers, an inquiry which produced the trait theories of leadership. More recently, the 1920s saw the beginning of scientific, empirical, data-based studies using structured tests.

Military studies of leadership have continued to emphasize the importance of the individual's personal qualities. During World War II, a new method of personality assessment was developed by Murray and his colleagues (US OSS, 1948) to determine whether a recruit had the potential to perform satisfactorily in future quasi-military assignments. The evaluation consisted of personality tests.
exhausting physical exercise, and performance in realistically simulated combat situations requiring both initiative and teamwork in support of the designated leader. Selection was based on the recruit's personality and leadership potential, as determined by Murray's testing procedure.

The present study compared military and civilian upper-level executives in terms of their personality types. Thirty pairs of executives were selected from within the same organization, the U. S. Army Tank-Automotive Command (TACOM) in Warren, Michigan. Each pair consisted of a military officer and a civilian executive in comparable organizational positions, where responsibilities and authority were effectively equal. This duality is standard Army management practice, established to ensure both an input to the organization from military field experience and maintenance of organizational continuity when the military officers are reassigned, which happens about every three years. This practice results in a military-civilian check and balance system which also provides dual lines of communication.

Statement of the Problem

A general opinion is prevalent at TACOM that there are appreciable differences in personality characteristics between military and civilian leaders in the upper levels of the organizational hierarchy. Professional training and career paths of the two groups are divergent. Military personnel within TACOM usually serve a three-year tour, which has been carefully planned so
that the officers gain managerial experience and leadership training at ever-increasing levels of responsibility. Civilian executives, on the other hand, progress by transfer into different assignments, not necessarily related, within the overall organization. Assignment of civilians is constrained by the authorized number of employees for the particular department. Although these practices suggest a basis for the presumed personality differences, when nineteen civilians and officers were questioned about actual experiences with recognizable personality differences, no evidence could be offered.

In order to either substantiate or negate the existence of the disparate personality types, the researcher was granted the opportunity to survey those particular chief executives at TACOM with deputies who actually shared the same executive responsibilities and thus had truly comparable status.

The research questions which provide the basis for this study were generated by the researcher's professional associations at the TACOM organization and from extensive review of the academic and military literature described in Chapter II. These questions have been phrased as follows: (1) Are there differences in personality types between military and civilian leaders? and (2) Are there differences in personality type associated with assignment to different organizational units? To address the questions, the participants' personality types were determined by the Myers-Briggs Type Indicator (MBTI), a widely used survey instrument for such purposes (Myers & McCaulley, 1985).
Significance of the Study

Comparison of the personality type profiles of military and civilian leaders at equivalent levels of authority has not been pursued previously to any extent, a data void indicated by the relatively few references discovered during the literature search. Guidance for selection and training of executives may evolve from such studies, with resulting impact on management practice and planning. In addition, the individuals who participated in this study may receive personal benefit through new understanding of their own individual leadership styles.

Limitations of the Study

This study surveyed a military organization, highly structured hierarchically, but with an unusual executive upper level of comparable military officers and civilians sharing the same managerial responsibilities. Chiefs of directorates or divisions and key staff officers were selected, together with their designated deputies. Persons holding lesser positions were not surveyed because individuals in those positions are not readily comparable and are likely to be more heterogeneous.

While such a study is unusual, the study conclusions may be directly generalizable to a number of other similar U. S. Army Command populations. However, such an extension of the results obtained here is outside the scope of this study, which has been limited solely to the TACOM organization. The mission orientation,
organizational policies and climate, and operational methodologies can be quite different for other organizations, even for other research-oriented Commands, when their technical work and products differ significantly from those of the groups studied here.

The survey instrument used, the Myers-Briggs Type Indicator (MBTI), is to some degree subjective in nature because the answers to the questionnaire are the participants' own qualitative choices. Nonetheless, the judgment and thinking patterns indicated by extensive application of the MBTI have been found to be reliably indicative of personality type (Carlyn, 1977; Carskadon, 1979; McCaulley, 1980; and Myers & McCaulley, 1985).

Overview of the Dissertation

Chapter I, Problem Statement and Rationale for the Study

Chapter I introduces the subject matter and provides the context needed to understand the research problem. The U. S. Army Tank-Automotive Command (TACOM), the single organization studied, is described to provide a general understanding of a government (military-civilian) operation. A delineation of the study itself, i.e., Statement of the Problem, Significance of the Study, and Limitations of the Study, rounds out the chapter.
Chapter II, Review of the Pertinent Literature

Chapter II presents a review of pertinent leadership literature relevant to the topic of personality differences between military and civilian leaders. The following four principal theories of leadership are examined: (1) the great man theory; (2) theory of personal traits; (3) situational demands theory; and (4) theories based on behavioral concepts. Personality theories and instruments are next addressed, followed by an extensive review of the characteristics of the MBTI, which led to its selection as the personality instrument for this study. Personality characteristics of military and civilians leaders are reviewed, including selections which introduce the idea of the military mind and describe the military and civilian MBTI types. The final section includes a discussion of MBTI types associated with executives and managers.

Chapter III, Methodology

The literature review leads to the logical development of the research hypotheses regarding relationships, identifiable characteristics, and predispositions derived from personality types. The resultant research hypotheses are formulated. The research design is presented, along with the method of analysis used. The implementation of the survey also is examined in detail, including selection of participants, scoring procedure for the MBTI, pilot testing, and data collection procedures.
Chapter IV, Results

Findings based on the research data are presented. Each of the hypotheses identified in Chapter III is examined.

Chapter V, Conclusions and Recommendations

Conclusions and recommendations are presented.
CHAPTER II

REVIEW OF THE PERTINENT LITERATURE

This chapter reviews the topics basic to an understanding of the question of personality differences between military and civilian leaders. Thus, the literature review first examines the principal theories of leadership. Next, the major theories of personality are addressed, with special emphasis on Jung's typology. The several tests developed to assess personality from the perspective of the various theories are discussed, and the survey instrument, the MBTI, is extensively reviewed. Research on personality characteristics of leaders in both civilian and military sectors is discussed next, along with MBTI type data from a data bank of a quarter million individual MBTI records. An examination of MBTI types associated with executives and managers concludes the chapter.

Leaders and Leadership

Four definitive studies of leadership are the primary sources for this discussion: Smith and Krueger (1933), Stogdill (1948), Jennings (1960), and Bass (1981). These studies are particularly valuable because their findings are applicable not only to leadership in the field of education but also to leadership in business, military, and governmental organizations.
The Great Man Theory

According to Jennings (1960), "The parent of our modern approach to leadership is the great man theory" (p. 3). This theory, formulated by Carlyle (1858), is based on the premise that historical events are the direct result of the influence and activities of a handful of outstanding individuals. American philosopher William James (1880) subscribed to a modified version of the great man theory but emphasized in addition that leaders are characterized by boundless energy and by an extremely strong will to succeed. Woods (1913) studied the progress of several European countries and concluded that a particular country's success, relative to that of other nations, was tied to the personal attributes of that country's hereditary ruler or king. There arose a philosophical requirement to identify what there was about great men that made them great, as well as to learn whether they possessed identifiable personal attributes, characteristics, or traits which distinguished them from ordinary individuals and enabled them to manifest leadership qualities.

The Trait Theory of Leadership

Ross and Hendry (1957) stated that the earliest studies of leadership concentrated on the leader as a person. For centuries, leadership was considered to be a matter of inheritance; leaders were born, not made. However, when Napoleon ended the feudal system in Europe, the French egalitarian democracy demonstrated that
leaders could be made, and were not solely born to that status. An individual's personal qualities were primarily responsible for his success in becoming a leader and in remaining in a leadership position. Thus, the great man theory was followed by the trait theory, instigating studies which purported to identify those elusive, distinctive qualities which were resident in the individual leader.

Smith and Krueger (1933) devoted ten full pages of their pioneering study on the literature of leadership to the subject of traits of leaders. The personality traits they identified included knowledge, substantial physical as well as mental energy, enthusiasm, originality, initiative, imagination, purpose, persistence, and speed of decision. One of their references, Cowley (1931), in his paper on leaders in face-to-face situations, stated that speed of making decisions, coupled with the ability to grasp the situation quickly and make a firm decision based on the circumstances, characterized dynamic leaders, particularly military officers.

Stogdill's (1948) monumental work on leadership focused particularly on traits and personality. In spite of his very thorough investigation, however, Stogdill could not formulate a list of definitive leadership traits that were the exclusive property of leaders. All of the traits he was able to define were also found in individuals who in no sense could be said to be leaders. This apparent lack of exclusive leadership traits led to rejection of the trait theory in its entirety (Fiedler, 1967).
Situational Leadership Theory

Smith and Krueger (1933) anticipated future studies with the question, "Are the traits of leaders general or are they specific with reference to the type of situation?" (p.72). Jenkins (1947) noted that wide variations in the traits of military leaders occurred even in similar situations, and an even greater divergence appeared evident in leadership behavior in different situations. Fiedler's (1967) contingency leadership model provided a widely used situational continuum that related the leader's power not only to leader-follower relations but also to the task structure. Fiedler and Chemers (1974) subsequently concluded that there was no such thing as an ideal leader whose abilities and leadership style would be successful under all circumstances. These authors recommended the management practice of moving leaders into suitable situations, rather than trying to change the leaders' personalities or leadership styles.

Behavioral and Environmental Leadership Theory

Leadership studies conducted during the 1950s recognized that the leader did not operate in complete isolation. Organizational goals, objectives, norms, and other variables were inherent in leader positions. Expectations and viewpoints of superiors, subordinates, and peers also constrained the leader's behavior (Gordon, 1984). Hersey and Blanchard (1972) developed their life-cycle, three-dimensional, situational leadership model, which
related the leader's task and relationship behaviors with the maturity level of his followers. Thus, the leader's style could vary from authoritarian to laissez-faire within the task and socio-emotional dimensions, depending on the psychological maturity level of the followers in relation to a specific task.

Present Status of Leadership Theories

In Stogdill's Handbook of Leadership, Bass (1981) summarized the characteristics of a leader by enumerating the manifold personal attributes of leadership as follows:

The leader is characterized by a strong drive for responsibility and task completion, vigor and persistence in pursuit of goals, venturesomeness and originality in problem solving, drive to exercise initiative in social situations, self-confidence and sense of personal identity, willingness to accept consequences of decision and action, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other persons' behavior, and capacity to structure social interaction systems to the purpose at hand. (p. 81)

Bass thus recognized that leadership theory has shifted once again to the revitalized concept of the leader's personal and intellectual leadership qualities which are also the outward observable signs of his personality. The next section will outline the major personality theories and review the interrelationships of leadership and personality.
Theories of Personality

The measurement of personality, and particularly personality differences, provides the means to compare individual leaders from a common psychological base. Personality theories are fully as diverse as the leadership theories discussed earlier. It is thus again necessary to concentrate on those most representative of the major thrusts. The personality theorists whose work will be reviewed are Freud, Jung, Murray, Maslow, Allport, and Cattell.

This review will follow Hergenhahn's (1980) lead in categorizing the main personality theories into generalized paradigms or models which express the viewpoint held by the particular theorist. Hergenhahn included Freud and Jung in his psychoanalytic paradigm, Allport and Cattell in his trait model, and Maslow in his existential-humanistic viewpoint. Murray, with degrees in medicine, biochemistry, and psychology, applied his unusual talents to the development of psychological screening, testing, and personality assessment procedures for the U. S. Army during World War II. Despite their diversity, the underlying aim of these theories has been to derive an explanation of human nature and behavior.

Sigmund Freud and Psychoanalysis

L. M. Miller (1978), writing from the perspective of a manager who aimed to build a productive organization, described Freud's
psychological influence as follows:

The most popular of the major influences in current psychological thought that may be viewed among the indirect approaches to behavior are the personality theories derived primarily from the work of Sigmund Freud. Our entire culture has been strongly influenced by Freudian psychology. (p. 22)

Freud was the first to recognize the influence of the unconscious mind, in which reside an individual's innermost desires and basic instincts (Munn, 1966; Bugelski, 1960). Freud felt that an individual's personality was a direct result of his basic instincts, that he was governed by a desire for pleasure and the avoidance of pain, and that he grew from infancy through various sexual stages until adolescence, the maximum level of maturity (Lauzan, 1962).

The French neurologist, Jean-Martin Charcot, with whom Freud studied in 1865 (Gatchel & Mears, 1982), and who used hypnosis to treat patients suffering from hysteria, made the statement that this malady always had a sexual basis (Freud, 1914/1957). Freud discarded hypnosis as a method of treatment, but retained the conviction that human sexuality was the underlying cause of mental problems. This insistence on the role of sexuality eventually caused Freud to break with his most famous student, Carl G. Jung (Gatchel & Mears, 1982).

C. G. Jung and Psychological Types

Jung received a medical degree from the University of Basel in 1900 and shortly thereafter was appointed to the position of
psychiatric resident in a public hospital in Zurich, headed by Eugen Bleuler, a psychiatrist. Under Bleuler's guidance, Jung worked to develop a word association test to aid in the treatment of patients. During this same time (about 1905), Jung read Freud's (1900/1953) _Interpretation of Dreams_. These two events led to a very close association and correspondence with Freud which lasted until 1913. Their friendship ended over Jung's disagreement with Freud's insistence that the instinctive driving energy of the human personality, the libido, was essentially sexual in nature. Jung was equally adamant in his stand that the libido was a creative life force that applied to the continuous psychological growth of the person throughout his lifetime (Mattoon, 1981).

In contrast with Freud, who believed that an individual's maximum mental growth was reached with adolescence, Jung (1939) was convinced that people could continue to grow and mature into middle life. Consequently, the individual can achieve his personal goals through self-actualization, which Jung considered an inner driving force of the personality. The concept of self-actualization would be rearticulated by Maslow (1954, 1970) as the outstanding individual's primary motivation to work.

In his seminal work, _Psychological Types_, Jung (1921/1971) enunciated a theory of personality based upon the postulate that everyone uses one or the other of two basic attitudes toward the world: extraversion or introversion. Mattoon (1981), a Jungian psychologist, explained the concept of extraversion, as follows:
The extravert concentrates his attention (his psychic or mental energy) on the outside world. He shows an interest in events, people, and things; a relationship with them, and a dependence on them. (p. 55)

Isabel Briggs Myers, co-developer of the Myers-Briggs Type Indicator (Myers & Myers, 1980), contrasted the difference in outlook between the two basic Jungian attitudes of extraversion and introversion:

The introvert's main interests are in the inner world of concepts and ideas, while the extravert is more involved with the outer world of people and things. Therefore, when circumstances permit, the introvert concentrates perception and judgment upon ideas, while the extravert likes to focus them on the outside environment. (p. 7)

In order to account for all dimensions of conscious personality, Jung (1921/1971) expanded his theory of psychological types to include four mental functions: sensing, intuition, thinking, and feeling, as well as the dimensions of extraversion and introversion.

Sensing is the use of the five physical senses to gather and evaluate facts, whereas the intuitive function integrates facts with memory and experience to enable a person to see possible applications for those facts. Individuals characterized by the sensing function tend to be very practical, "matter-of-fact, down-to-earth, fascinated with facts and with discovering and observing how things work" (Mattoon, 1981, p. 63). Intuition was defined by Jung (1938/1959) as "the function of unconscious perception. It is represented by a certain attitude of expectation,
a perceptive and penetrating vision" (p. 211). Myers and McCaulley (1985) have amplified Jung's concept of intuition by stating:

Jung characterized intuition as perception by way of the unconscious. Intuitions may come to the surface of consciousness suddenly, as a "hunch," the sudden perception of a pattern in seemingly unrelated events, or as a creative discovery . . . Intuition permits perception beyond what is visible to the senses, including possible future events. (p. 12)

Jung (1938/1959) termed the thinking and feeling functions rational "because they are characterized by the supremacy of the reasoning and judging functions" (p. 207). Corsini and Marsella (1983) have stated that the Jungian thinker tends to base his judgment on recorded past experience with factual data, which follows an orderly, logical, structured procedure that can give the impression of appearing impersonal and cold to those inclined toward the feeling function. McCaulley (1981) has described the thinking individual thus:

Persons who are oriented to life primarily through thinking typically develop strong powers of analysis, objectively weighing events with regard to logical outcomes, a time perspective concerned with connections from past through present to the future, and a tough-minded skepticism. (p. 300)

By contrast, the person who is oriented toward the feeling function tends to arrive at decisions through value judgments in line with his own personal set of values. He relates well to other people and easily expresses warm consideration for their welfare. He is adept at negotiations and compromise and can be an invaluable
member of a team effort (Jung, 1938/1959; Myers & Myers, 1980; Ellis, 1982).

Corsini and Marsella (1983) have emphasized the point that Jungian typology provides a way to understand individual differences. Everyone uses both extraversion and introversion attitudes, as well as all four functions of sensing, intuition, feeling, and thinking, but in varying degrees. Each person, as he matures, develops a preference for one of the two attitudes and for two of the four functions. Since he will use his preferred attitude and functions more often, they become highly developed and thus are indicative of how he relates to his inner self and to the outside world.

When Jung's *Psychological Types* was published in English in 1923, the value of his typology as a basis for personality theory was immediately recognized by Katharine Cooke Briggs and her daughter, Isabel Briggs Myers, developers of the Myers-Briggs Type Indicator (MBTI), an instrument for identifying Jungian psychological types (Myers, 1962; Myers & McCaulley, 1985). During this same time, the English translation was being avidly read by another young American, Henry A. Murray, a doctoral student in biochemistry at Cambridge University in England. Murray spent a month visiting Jung in Switzerland and became convinced that psychology would become his life work (Murray, 1938).
Murray's Contribution to Personality Theory

While director of the Harvard Psychological Clinic, Murray published his *Explorations in Personality* in 1938, in which he outlined his own theory of personality, closely related to Jung's theory, since it was humanistic, addressed the normal individual, and was optimistic about the future (Hergenhahn, 1980). Murray was the first to identify the brain "as the focus of personality and all its component parts" (Hall & Lindzey, 1970, p. 161).

Murray's most important contributions to the field of psychology were his Thematic Apperception Test (TAT) and his personality assessment techniques. These were developed while Murray was the senior military officer in charge of the assessment staff of the U. S. Army Office of Strategic Services in World War II. His work became the springboard for further study of the relationships among leadership, personality, biological factors, and the environmental situations in which the individual may be called upon to operate during conditions dictated by military requirements.

Maslow's Theory of Self-Actualization

Abraham Maslow is most closely associated with his hierarchy of needs, published in 1954. These needs follow a pattern within which each of five levels of human needs serves as a motivational stimulus to achieve satisfaction before the person reaches the top level, where he is self-actualized and requires no outside stimulation.
Later, Maslow (1954, 1970) rediscovered Jung's concept of self-actualization. Maslow (1970) continued his investigation and identified several definitive personality characteristics manifested by self-actualized individuals. He found them to be well integrated, creative, inventive; problem solvers; open to new experiences; independent; tolerant of others' differing opinions, yet oriented toward democratic values; realistic in outlook; genuine, with strong social consciousness, even to the extent of nonconformity; and possessed of strong moral values and friendships.

Thus, Maslow takes his place as the optimistic leader of humanistic psychology (Hergenhahn, 1980). Maslow studied the personalities of normal, healthy individuals with a view toward helping them express their potential as human beings to the greatest extent possible. Maslow believed that everyone is capable of being motivated by his self-actualizing inner drive.

The Trait Theories of Allport and Cattell

While Allport and Cattell are both considered trait theorists (Hall & Lindzey, 1970; Geiwitz, 1969), their perspectives are very different. Allport (1965) studied the personalities of a relatively few individuals in depth, whereas Cattell (1983) accumulated personality trait data from large numbers of people and used factor analytic techniques to categorize his voluminous data.

Allport's theory is holistic, humanistic, and motivational (Geiwitz, 1969). Allport's most frequently quoted definition of
personality reflects his own views:

**Personality is the dynamic organization within the individual of those psychophysical systems that determine his own unique adjustment to his environment.** (1937, p. 48)

From his study of the whole man, Allport (1960) identified several personal traits that are evidenced in the lives of healthy, mature adults. Such individuals tend to be compassionate; tolerant of other beliefs, frustration, change, and uncertainty; adaptable; emotionally stable; realistic in their appraisals of both their own abilities and those of others; friendly, with a noncynical sense of humor; and goal-directed with a purpose in life (Hergenhahn, 1980). Many of these characteristics are also found in Maslow's (1971) description of self-actualizing, successful individuals. Allport's personality theory can be classified as both humanistic and optimistically oriented toward the future.

Raymond B. Cattell (1983) has studied personality trait data chiefly by means of factor analysis. Cattell founded the Laboratory of Personality Assessment at the University of Illinois, where he developed the Sixteen Personality Factor Questionnaire (16PFQ), a written test for identifying personality traits. Cattell (1946) placed major emphasis on the study of groups and the identification of personality traits pertinent to large numbers of people. He felt that traits common to all individuals could be identified by a combination of methods: the person's life history, questionnaire data from the 16PFQ, and observational test data. Once an
individual's traits have been identified, Cattell believed that it would be possible to predict the individual's future behavior with reasonable accuracy (Cattell & Dreger, 1977). Although Cattell is respected as a dedicated scientific researcher (Pervin, 1975; Hergenhahn, 1980), some psychologists consider his factor analytic approach and his 16PFQ to be not entirely satisfactory as a means of assessing personality traits.

The next section discusses a number of instruments used for the study of personality.

Personality Measurement Instruments

Each of the personality theorists used certain experimental approaches in consonance with his own particular theory. Freud and Jung both relied heavily on the clinical interview to learn about their patients' mental problems. Since they each were trained as physicians prior to their work as psychiatrists, they tended to use both physiological and mental measurement methods. Jung developed an early version of the word association test as a diagnostic tool. Such a test uses the projective technique of giving the patient ambiguous stimuli. The patient's answers are scored subjectively by the tester.

Woodworth's Personal Data Sheet

The first so-called personality test ever used by the U. S. Army was Woodworth's Personal Data Sheet (Kleinmuntz, 1975), which was designed to screen the large number of draftees in World War I.
(1914-1918) to identify emotionally maladjusted male recruits and prevent their induction into the armed forces.

**Thematic Apperception Test (TAT)**

Murray and his colleagues (US OSS, 1948) used several data sources in recruitment and training of World War II Office of Strategic Services overt and covert agents. They were the first group of psychologists and psychiatrists to expand their test battery by the introduction of realistic situational tests. Murray (Morgan & Murray, 1935) developed his projective Thematic Apperception Test (TAT) to assess the personalities of healthy, normal individuals, rather than those with mental disorders.

The TAT is a projective personality test in which several ambiguous pictures are shown to the participant, who is told to make up a story about each picture. The participant is asked to describe what the people in the picture are doing, what they are probably thinking about, what their feelings are, and what would be the results of the situation shown in the picture. From the content of these stories, psychologists trained in personality theory and projective testing should be able to learn something about the mental processes of the participant and make reasonable assumptions about the participant's needs, wants, ambitions, conflicts, and values.

Murray and his associates were very successful in using the TAT. However, because it is a projective test, the TAT has the
disadvantage of being heavily dependent for its interpretation upon the background and experience of the psychologist.

Self-Report Inventories

Allport (1937) studied the personality of individuals by use of their personal records, historical documents, and data acquired by face-to-face interviews. Since both interviews and the various projective techniques tended to be too time-consuming, several different self-report personality inventories or questionnaires were developed to assist in the studies. Their objectives were to deal with "the problem of personal adjustment" or to study the "conceptions of the structure of individual difference stemming from theoretical concepts about the nature of personality" (Lanyon & Goodstein, 1982, p. 12). Four prominent self-report inventories were reviewed for possible use in this study. These are the Eysenck Personality Inventory (EPI), the Sixteen Personality Factor Questionnaire (16PFQ), the Minnesota Multiphasic Personality Inventory (MMPI), and the Myers-Briggs Type Indicator (MBTI).

Eysenck Personality Inventory (EPI)

In 1947, Eysenck introduced the Maudsley Personality Inventory, later titled the Eysenck Personality Inventory (EPI), to measure what he considered to be the two major dimensions of personality: the Jungian extraversion-introversion dimension and neuroticism operating along a continuum. Eysenck considered neuroticism to be "the inclination to respond with excessively high levels of
emotionality" (Corsini & Marsella, 1983, p. 386). This research was conducted with a group of 700 neurotic soldiers during his assignment as a psychologist in the Maudsley hospital.

Lingoes (1970) and Tellegren (1978) criticized the design of the EPI on the basis that using only two or three dimensions would be insufficient to analyze a patient's personality in a clinical situation.

**Sixteen Personality Factor Questionnaire (16PFQ)**

Cattell (Cattell, Eber & Tatsuoka, 1970) developed his Sixteen Personality Factor Questionnaire (16PFQ) to provide researchers with an instrument to evaluate the personality of individuals through identification of second-order traits or factors. Cattell used factor analysis to derive and consolidate these factors. According to Corsini and Marsella (1983), Cattell's prodigious work in the field of personality assessment has not yet received wide acceptance "because of his reliance on quantitative methods (e.g., factor analysis), the complexity of which exceeded the understanding of many psychology professors" (p. 394). Nonetheless, Lanyon and Goodstein (1982) recognized the 16PFQ as one of only two personality inventories that they consider to have a sound theoretical base, the second being the Myers-Briggs Type Indicator.

Harsh (1970), a U. S. Navy research psychologist, expressed dissatisfaction with the 16PFQ test manual because of the absence of reliability data for the various personality factors. Harsh also objected to the complicated scoring method presented, which he
considered a potential source of error. Lubin (1970) warned against the use of the 16PFQ without further validation of the instrument. Wittenborn (1970) did not consider the 16PFQ "a finished tool" (p. 562).

Adcock (1970) disagreed with the reviewers just cited. For his applications of the instrument, Adcock considered the 16PFQ easy to administer and score. He particularly valued the availability of "average profiles for 28 occupational groups and 6 behavior disorders" (p. 820).

**Minnesota Multiphasic Personality Inventory (MMPI)**

The Minnesota Multiphasic Personality Inventory (MMPI) was originally developed by Hathaway and McKinley (1951) as a diagnostic test instrument for clinical psychologists to use in a medical setting in order "to diagnose or detect individuals whose behavior patterns were psychopathological" (Kleinnuntz, 1975, p. 10).

When the MMPI has been used in other than clinical settings, the results have not been uniformly satisfactory. King (1978) cited the Congressional hearings in 1964, during which testifiers denounced "the use of the MMPI as a selection instrument for employment" (p. 935). King further stated that the attempted use of the MMPI to predict industrial job performance or to anticipate success or failure in military training could be expected to produce negative consequences. Although the MMPI ranks very high as a clinical tool, much less support has been found for its use in...
management situations for personality assessment of normal, healthy human beings.

The Myers-Briggs Type Indicator (MBTI)

Briggs and Myers (Myers, 1962; Myers & Myers, 1980) based their development of the Myers-Briggs Type Indicator (MBTI), an instrument for use in personality assessment of normal individuals, on Jungian typology. As stated by Myers and McCaulley (1985), "The purpose of the Myers-Briggs Type Indicator (MBTI) is to make the theory of psychological types described by C. G. Jung (1921/1971) understandable and useful in people's lives" (p. 1). The MBTI has been recognized by Lanyon and Goodstein (1982) as one of only two personality inventories constructed from a sound basis in personality theory (the other being the 16PFQ). The MBTI measures the two Jungian attitudes, extraversion (E) and introversion (I), as well as the four basic mental processes or functions: sensing (S), intuition (N), thinking (T), and feeling (F).

After years of research and observation, Briggs and Myers (Myers, 1962) added the judgment-perception (JP) preference, implied by Jungian type theory, to the explicit Jungian dimensions of EI, SN, and TF. Myers and McCaulley (1985) have explained the importance of the JP preference as follows:
The JP preference has two uses. First, it describes identifiable attitudes and behaviors to the outside world. Second, it is used, in conjunction with EI, to identify which of the two preferred functions is the leading or dominant function and which is the auxiliary. The recognition and development of facts about the JP function are a major contribution of Briggs and Myers to the theory of psychological types. (p. 13)

Thus, a person's orientation to the outer world is determined by his JP preference, which also determines his dominant function. Only one of the four functions, S, N, T, or F, can be dominant in an individual's mental processes. If his JP preference is for J, his dominant function will be either thinking (T) or feeling (F). Should he show a P preference, his dominant function will be either sensing (S) or intuition (N). Direction and consistent focus for the individual's personality are provided by his dominant function. The second preferred function, the auxiliary, balances the effect of the dominant function. For example, a dominant perceptive function (S or N) is balanced by an auxiliary judgment function (T or F), and vice versa.

Selection of the MBTI as the Survey Instrument

Five major personality instruments have been discussed for possible use in this study. The TAT, the only projective test, could not be used because the test must be administered and interpreted by a trained psychologist with wide experience in personality assessment. The EPI has only one scale devoted to the EI dimension. Its other two scales are related to abnormal
psychology and thus are unsuitable for this application. The frequently used MMPI is also primarily a diagnostic tool for clinical psychologists, and for this reason is not considered applicable for the purpose of this study. The 16PFQ, in spite of its theoretical base, was not used because of its complicated scoring procedures and the applicability of only certain selected scales.

The MBTI, on the other hand, is a self-report inventory which is easy to administer and score and also has a strong theoretical base. It uses a forced-choice format in which answers to each question are paired, thus guiding the participant to select the one answer he thinks is more nearly correct. The forced choice technique avoids the phenomenon of response set, i.e., inappropriate answers to the question content (Maddi, 1980).

The MBTI personality type is measured by questions structured to ascertain the relative strengths of the person's preference along the four dimensions. The symbology used by Myers-Briggs to describe these dimensions is alphabetical. Basically, the first letter of each of the eight preferences is used to designate the person's preference for that particular mental process: extraversion is represented by (E); introversion by (I); sensing by (S); intuition by (N); thinking by (T); feeling by (F); judgment by (J); and perception by (P). Thus, a four-letter combination may be used to represent one of the sixteen possible MBTI psychological types. For example, the MBTI type designation, ESTP, represents a person who uses the mental processes of extraversion, sensing, thinking, and
perception as his dominant preferences for dealing with his environment. In Myers-Briggs terminology, these preferences translate into his personality type (McCaulley, 1980).

Before the MBTI was selected, however, its reliability and validity were extensively researched.

**Reliability of the MBTI**

Mendelsohn (1970) commented on the large amount of reliability and validity data that had been accumulated for the MBTI at that time. He reported internal consistency reliabilities ranging from .75 to .85 for the EI, SN, and JP scales, but somewhat lower coefficients for the TF scale. Stricker and Ross (1963) reported similar reliability coefficients in the .70 to .80 range for the EI, SN, and JP scales, but a lower range (.64 to .74) for the TF scale.

Since the Center for Applications of Psychological Type (CAPT) was established in 1975, more specific research on testing with the MBTI has been achieved. Carlyn (1977) conducted a thorough assessment of the MBTI and concluded that the internal consistency studies which she had reviewed had "usually produced acceptable reliabilities for both continuous and dichotomous scores" (p. 465).

With regard to test-retest reliability, Myers and McCaulley (1985) have stated that:

The practical questions revolve around the likelihood that on retest a person will come out the same MBTI type, that is, a person will choose the same pole of all four dichotomous preferences. (p. 170)
In other words, the reliability of the MBTI is dependent on how consistently it can indicate a person's type. In her 1977 review, Carlyn found that professional adults upon retest showed little or no change in their MBTI type designation. For both male and female college students, however, she observed ranges of .73 to .83 for the EI dimension, .69 to .78 for SN, .48 to .82 for TF, and .69 to .82 for JP. Carlyn offered the opinion that "stability of scores is a function of occupation or age" (p.467). Carskadon's (1979) findings showed similar ranges, based on student data.

Myers (1962) anticipated that correlations might not be so high with the thinking-feeling (TF) dimension because thinking (T) and feeling (F) are judgment functions. Myers believed that facility in judgment tended to be related to the age, maturity, and experience of the individual, whether his decisions were reached through the logical thinking mode or through the feeling and personal value system process. Myers' contention thus agrees with Jung's (1921/1971) theory that individuals continue to mature well into middle life.

The preponderance of accumulated data in the revised MBTI Manual corroborates the ability of the MBTI to give consistent results upon retest of participants.

Validity of the MBTI

Kerlinger (1973) has stated that the significance of construct validity "is its preoccupation with theory, theoretical constructs and scientific empirical inquiry involving the testing of
hypothesized relations" (pp. 461-462). The MBTI was developed by Briggs and Myers (Myers, 1962; Myers & McCaulley, 1985) with the avowed purpose of making Jung's (1921/1971) psychological types measurable and thus of practical importance. Lanyon and Goodstein (1982) have attested to the sound theoretical basis for the MBTI.

Bradway's (1964) study supported the construct validity of the MBTI. He reported the views of 28 Jungian analysts toward the MBTI with regard to identification of their own types. The analysts typed themselves and then compared their self-typing with the types indicated by the MBTI. The comparison showed substantial agreement, especially for the EI preference. Carskadon and Cook (1982) reported that two-thirds of their college students, even though unfamiliar with type theory, were able to recognize and identify their own type from a random group of type descriptions, only one of which was correct for each student.

MBTI Correlations with Other Instruments

Because the MBTI purports to measure strengths of Jungian constructs, i.e., the EI, SN, TF, and JP scales, the MBTI can be compared with other personality instruments which are measuring similar constructs. Myers and McCaulley (1985) have correlated MBTI preference dimensions with relevant scales on each of the other three prominent personality instruments already reviewed, the EPI, the MMPI, and the 16PFQ. These correlations, all significant at the .01 level, are discussed below.
Extraversion-Introversion (EI)

The EPI has only one dimension in common with the MBTI, i.e., Extraversion-Introversion. The EPI shows a correlation range of .63 to .74 with the MBTI (E), but .27 with MBTI (I). Two of the MMPI scales are correlated with the MBTI (I) preference, i.e., .63 for Social Introversion and .39 for Depression. Two of the 16PFQ second-order traits correlate with the MBTI (E), i.e., Extraversion (.51 to .74) and Leadership (.44 to .58). The 16PFQ's Anxiety Index correlates .35 with the MBTI (I).

Sensing-Intuition (SN)

The MMPI Masculinity and Femininity scale correlates .33 with the MBTI SN preference. The 16PFQ Independence factor correlates from .33 to .46 with SN, its Leadership factor correlates .35 with SN, and its Creativity factor correlates .50 with SN.

Thinking-Feeling (TF)

The MMPI Masculinity and Femininity scale shows a correlation of .22 with the MBTI TF scale. The 16PFQ shows a correlation with TF of .28 for its Alert Poise factor and of .26 for its Leadership factor.

Judgment-Perception (JP)

The 16PFQ shows correlations with JP in the range of .32 to .36.
for its Independence factor and in the range of .25 to .39 for its Creativity factor.

These accumulated findings give support to the construct validity of the MBTI and to its ability to identify types in accordance with Jungian psychological type theory.

Summary of MBTI Advantages

Three advantages of using the MBTI have been noted by Sundberg (1970): the simple procedures for administrating and scoring the instrument; the sound Jungian psychological base; and the MBTI's evidential relationship with measures of "creativity, achievement, and success at certain jobs" (p. 1127). Sundberg further reported that a client, when counseled, could easily comprehend how the results from the MBTI could enable "the person to see and understand his own preferences" (p. 1130). The importance of this particular aspect of the MBTI is apparent if the test results must be clearly explained to and understood by each participant. Selection of the MBTI as the survey test instrument is thus considered justified by its cited advantages and its suitability for application to this study.

Personality Characteristics of Military and Civilian Leaders

Civilian Managers and Executives

Based on interviews with 36 civilian executives in U.S. Army logistics activities, Holland (1973) found three pragmatically
useful criteria for determining executive potential: knowledge of
the job, skills required to perform the job, and the personal
attitudes of the candidates.

In his study for the Office of Naval Research, England (1973)
analyzed the value systems of industrial managers and
administrators. England's findings indicated that U. S. industrial
managers in the private sector showed a consistent profile of being
highly pragmatic, having a low concern with political and social
values, and being actively goal-oriented. Similar results were
found by Pinder, Pinto, and England (1973) in their study of 200
American business managers relating behavioral style with
personality characteristics.

Hackman, Oldham, and Purdy (1975) found that leadership and
executive status were closely associated with personality
characteristics. Holland (1973) postulated a relationship between a
leader's personality and his job role. Church (1982) supported
Holland's postulate in a study of personality types of middle- and
high-level industrial leaders. McGregor (1967) summarily observed:

The role of the manager can be visualized as a dynamic
interplay between environmental forces and pressures
operating on the manager . . . and forces originating from
within the manager, his values, personality, and
aspirations. (p. 55)

Quasi-Military Personnel

The Office of Strategic Services (OSS) was organized by the
U. S. Army during World War II to provide a worldwide network of
U. S. agents and in-country foreign sympathizers to support Allied and U. S. military operations (US OSS, 1948). The OSS was responsible for recruiting and training personnel to operate the network. Because the assignment of the OSS operative could easily have changed before he arrived at his station, the OSS Assessment Staff decided to rely upon the holistic psychological approach: use of both the projective TAT to assess the recruit's personality and simulated military situations to analyze his potential operational performance. Ten selected personality traits and individual skills were evaluated in less than two days: "motivation, energy and initiative, effective intelligence, social relations, leadership, physical ability, security, observing, reporting, and propaganda skills" (p. 511).

The Military Mind

Flanagan (1984), a retired three-star general, advocated the existence of the so-called military mind and addressed the alleged difference between military and civilian leaders from an organizational point of view. Flanagan argued that the military organizational system was more efficient than its civilian counterpart. Basic military features that he identified were: chain of command, staff specialization, efficiency reports, punctuality, and regulatory authority. The corporate rebuttal pointed out that the well-defined military charter included clearly specified goals, which made the means of accomplishment straightforward. Flanagan replied that the military must be in a
constant state of readiness to respond to goals (usually spontaneous and urgent) dictated by the political environment. He added that combative actions usually require quick reaction, often without adequate preparation time or warning.

Military historian Dyer (1985a, 1985b) has claimed that the military mind is the result of combat training, during which soldiers are taught to follow orders without question:

To be able to do such extraordinary things, military men need very special beliefs and attitudes . . . in order to survive and function in combat. It makes them a group apart, for it's the nature of combat that shapes the military world and the military mind. (1985a, p. 1)

Dyer has observed that the military society is separate from that of civilians, i.e., separate family housing, separate schools, etc., and that this artificial separation can result in a disorientation with respect to civilian attitudes.

Both Flanagan (1984) and Dyer (1985a) have postulated the existence of the military mind, together with a difference in thought, outlook, and personal value systems for military personnel as compared with civilians.

Military Program Managers

Specific personality traits that project managers should manifest were identified by Lockwood (1973) through his research at the U. S. Army War College. These personality traits included integrity, intelligence, emotional stability, drive and motivation, and a basic managerial aptitude. The five most significant
attributes of U. S. Air Force program managers were found by Brahany (1976) to be essentially similar to Lockwood's, i.e., high motivation, self-confidence, sensitivity, integrity, and self-discipline.

Successful programs in the defense acquisition field, which includes military, civilian, and industrial leaders, have been shown by Baumgartner, Brown, and Kelley (1984) to depend upon the leadership abilities of the military program manager, along with good management practices, careful selection of competent personnel, and the consistent maintenance of rapport and goal-sharing with the program's industrial contractors. R. C. Smith (1982) noted that successful program managers were also people-oriented and intuitive.

Characteristic attributes for success as a program manager were identified by Kelley (1984), who found examples of Department of Defense program managers with the same attributes as those of successful managers in private industrial companies found by Peters and Waterman (1982). All the program managers that Kelley interviewed stressed the importance of good, open communications with staff and contractors and of the existence of a working team. Kelley noted that program managers enjoyed their jobs, were enthusiastic, and were patriotic military officers who believed they were doing a good job for their country.

The decision-making process within management is substantially influenced by the behavior and attitude, i.e., the personality, of the decision maker. Nidiffer (1984) found the program manager to be a "tough-minded, technical and business person who approached
problems in a similar way to a systems engineer" (p. 14). However, he warned against the concept of the optimum of one particular personality type because the program manager must adjust his management style to fit the situation.

**MBTI Typing of Military and Civilian Personnel**

Ellis (1982) administered the MBTI to three successive classes (N = 450 approximately) of the Program Manager's Course at the Defense Systems Management College, Ft. Belvoir, Virginia, for the purpose of building more effective student work teams. The purpose was achieved because the student managers at this graduate-level government educational facility, upon learning their types, enthusiastically studied type theory in order to promote even better working relationships within their own groups and with the other student groups in their classes.

Stake (1985) administered the MBTI to a random sample (N=80) of his chaplain's constituency at TACOM during February 1983. The composite profile developed from the entire sample showed ISTJ to be the most representative type. The sample included ten military officers whose composite profile was ESTJ. Both profiles showed strength in each of the functions S, T, and J, but little difference on the EI attitudinal dimension. Stake (1985) reasoned that the officers' profile was "closely balanced in the EI dimension, and could be interpreted as ESTJ or ISTJ" (p. 21).

Nidiffer's (1984) research was aimed at determining the probable MBTI type for a program manager. He analyzed data from the
Industrial College of the Armed Forces and the Defense Systems Management College (N=803) covering the period from 1981 to 1984. Nidiffer found that, while the ISTJ type was manifested by 30% of the program management students, three other MBTI types (ESTJ, INTJ, and ENTJ) accounted for 33% more of these students. In other words, two-thirds of the future executives and program managers were characterized by the thinking-judging (TJ) type grouping.

Pollitt (1982) studied type differences in a sample of approximately 300 industrial middle- and upper-level managers in the fields of finance and comptrollership, manufacturing, engineering, science and research, personnel, and overall general management. Pollitt found that both engineering and finance had 80% TJs and thus were heavily represented by ISTJ, ESTJ, INTJ, and ENTJ types. Pollitt commented on the surprisingly greater than expected numbers of intuitives (from 40% to 50%) which finance, engineering, and manufacturing included to meet the need for long-range corporate planning. Although the major concentration of feeling types was in the corporate personnel departments (55%), manufacturing showed 26%, because, as Pollitt explained, "manufacturing must always be done through people--and people who are highly motivated and feel well treated" (p. 8). The scientists and researchers were 80% intuitives and 60% introverts. Most of the scientists were INTJ, INTP, ENFP, and ENTJ types. Even though the scientists and researchers included more intuitives than did engineering and manufacturing, the scientists were equally balanced between perceptive and judging types. Both engineering and manufacturing were low in perceptsives.
(13%). The individuals in general management who were tested were heads of large divisions or general managers who were responsible for corporate growth of their organizations. These managers were generally extraverts, intuitives, thinkers, and about equally divided between judgers and percepts. Pollitt concluded that:

The Myers-Briggs does seem to facilitate an improved climate in organizations. When people can understand themselves better, and also understand others, the normal conflicts can be resolved more quickly and easily. It becomes more natural for people to work out a problem rather than avoid one another or cover things up. Having a rational set of concepts for what has often been the mystery of human differences seems to be enormously useful to people. (p. 19)

The Center for Applications of Psychological Type (CAPT) has established a computer-accessible data bank containing over a quarter of a million MBTI records, which have been coded to indicate the age, occupation, and education of individuals completing the MBTI. Myers and McCaulley (1985) have reported on the compiled CAPT data for various occupations, including civilian managers and administrators (N=7,463). They found that a majority (57%) of the managers and administrators preferred extraversion (E) over introversion (I). About the same percentage (56%) preferred sensing (S) over intuition (N). Thinking (T) was favored over feeling (F) by 61% of the managers, and over two-thirds (69%) preferred judging (J) to perception (P). The three MBTI types most heavily represented among the managers were ESTJ (17%), ISTJ (15%), and ENTJ (10%). The remaining 58% of the managers were scattered over the other thirteen MBTI types at levels of about 2% to 7%. Although
Myers and McCaulley also reported on military personnel, the number of these in the data bank is much smaller (N=264), and the military are not identified specifically by responsibility level, rank, or job classification. In other words, they are not a well-defined population for comparison with the military executives in the present study.

MBTI Types Associated with Executives and Managers

Myers and Myers (1980) analyzed each of the sixteen personality types identified by the MBTI and showed how the type characteristics tend to be manifested by various professions or occupations. Four MBTI types are prominently represented in business and technical fields. These types, ISTJ, ESTJ, INTJ, and ENTJ, are located on the four corners of the standard Type Table format and constitute a pattern of management types. These four thinking-judging (TJ) types are recognized by Myers and McCaulley (1985) as "logical decision makers, tough-minded, executive, analytical, and instrumental leaders" (p. 36).

**ISTJ**

Myers and Myers (1980) have characterized the introverted sensing type, ISTJ, as representative of managers who are practical, responsible, "systematic, painstaking, thorough, and can absorb and enjoy using an immense number of facts" (p. 104). Myers has noted that, in addition to their responsible attitude, they are very stable.
Their use of experience contributes to their stability. They habitually compare present and past situations. Used in an executive capacity, this quality makes for consistent policy and for care in the introduction of changes. (p. 105)

Elston (1984) noted that ISTJs are "excellent at maintaining and keeping an operation functioning" (p. 43), and that comptrollers, accountants, bankers, and lawyers, as well as technical managers, generally manifest the ISTJ type.

**ESTJ**

The ESTJ has been called by Myers and Myers (1980) "the standard executive type" (p. 86). These extraverted thinking executives or technical managers tend to have very high organizational capability. Elston (1984) has stated that ESTJs are goal- and achievement-oriented individuals who can put people, things, and activities in order and tune them with an efficiency that is what every organization of any size needs, and needs very much. . . . [They] strongly dislike slip-shod, inefficient ways or people. (p. 22)

Myers has further described ESTJs as analytical, and impersonal, . . . decisive, logical, strong in reasoning power, . . . [who] value truth in the form of fact, formula, and method. (p. 85)
INTJ

"Originator" is the term used by Elston (1984) to describe the introverted intuitive INTJ type, which includes "scientists, researchers, scholars and inventors" (p. 37). Strongly independent and consistently innovative, they welcome challenges. They are particularly good at solving complicated problems in a practical way. Myers and Myers (1980) have pointed out that

In business, they are born reorganizers. Intuition gives them an iconoclastic imagination and an unhampered view of the possibilities; extraverted thinking supplies a keenly critical organizing faculty. (p. 115)

ENTJ

Elston (1984) has designated "Leader" as the single word to describe the ENTJ type, characterized as a "very disciplined, conscientious, reliable, work-oriented individual" (p. 12) who performs ably as an administrator, "especially in the fields of business, education or government" (p. 12). Myers and Myers (1980) have emphasized that this type expresses extraverted thinking supported by intuition and consequently is "mainly interested in the possibilities beyond the present, obvious, or known" (p. 88). Because ENTJ executives tend to select other intuitives for their organizations, Myers and Myers recommended that they balance their perspective with the deliberate addition of some sensing types "to keep them from overlooking relevant facts and important details" (p. 89).
Summary

The purpose of this chapter was to examine both public and military literature for relevant studies of the personality link to leaders. Theories of leadership were examined in the order in which they evolved, beginning with the theory of hereditary ability, and followed by the great man theory, theory of traits, situational theory, and current behavioral theories. The literature review indicated that additional research is required to clarify these leadership theories, especially in terms of parallel developments in the field of personality research.

Personality theories were then surveyed. These included Freud and psychoanalysis, Jung and psychological type theory, Murray and personality assessment, Maslow's theory of self-actualization, and the trait theories of Allport and Cattell. Jung's theory of psychological types was deemed the most appropriate personality theory applicable to this study.

Personality instruments were reviewed next. Most of those examined were shown to reflect arbitrarily selected traits or characteristics extrapolated from observations of abnormal individuals in clinical settings. Cattell's Sixteen Personality Factor Questionnaire (Cattell, 1946; 1983), Eysenck's Personality Inventory (Eysenck, 1967), and the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1951) are representative of instruments which are primarily clinical. Murray's Thematic
Apperception Test (Morgan & Murray, 1935) is a projective test which must be administered and scored by a highly trained professional.

The Myers-Briggs Type Indicator (Myers, 1962) was chosen as the test instrument to be used in this study because it was developed specifically to identify personality type in accordance with the psychological type theory originated by Jung (1921/1971). The preponderance of evidence showing the wide and continually growing use and acceptance of the MBTI (CAPT, 1985) indicated that it would readily meet all the requirements (Carlyn, 1977) of a suitable test instrument for this research into personality types.

Research on the personality characteristics of military and civilian leaders was reviewed next, followed by a discussion of the MBTI types found in studies of civilian and military executives. The chapter concluded with a description of MBTI types characteristic of executives and managers.

The next chapter details the hypotheses developed from the literature review and outlines the research methodology.
CHAPTER III

METHODOLOGY

Formulation of the Research Hypotheses

Specific research hypotheses evolved from the analysis of the study problem reviewed in Chapter I and from the literature search in Chapter II. These research hypotheses and the research questions they address are presented below.

Research Question 1 and Hypotheses

Are there differences in personality types between military and civilian upper-level leaders?

Discussion

The related literature search outlined in Chapter II showed a prevailing consensus (Flanagan, 1984; Dyer, 1985a) on the existence of personality differences between civilian and military executives.

Stake (1985) and Nidiffer (1984) have shown that there is support for the hypothesis that military officers would tend to manifest psychological characteristics corresponding to the introversion (I) attitude, the sensing (S) function, and the thinking-judgment (TJ) type grouping as measured by the MBTI. The Nidiffer (1984) data are particularly applicable to this study.
Nidiffer found that over half of the military officers in his study were introverts (I) and about two-thirds were sensors (S) and thinking-judgers (TJs). These officers (N=803) consisted of three classes at the Defense Systems Management College and one class from the Industrial College of the Armed Forces. When these officers were graduated, they were immediately assigned as military program managers or industrial managers of large military-industrial complexes. Their assignments would thus be comparable in responsibility level to those of the military officers in the present study.

The hypothesis that civilian executives would tend to be more extraverted (E) in their attitudinal dimension and more feeling (F) in their mental processes than their military counterparts is supported by the manager and administrator data from the CAPT MBTI data bank reported by Myers and McCaulley (1985).

**Research Hypotheses for Research Question 1**

1. The distribution of MBTI types for military executives will differ from that for civilian executives.

2. Differences will be found between military and civilian executives with regard to the type attitudes (EI) and the type processes (SN, TF, and JP). It is hypothesized that a higher percentage of military than of civilian executives will be classified by the MBTI as introverts (I), sensors (S), thinkers (T), and judgers (J).
3. The distributions of MBTI types for the civilian executives in this study will be similar to those for the civilian managers and administrators described in the data from Myers and McCaulley (1985), while the distributions of MBTI types for the military executives in this study will be similar to those found by Nidiffer (1984).

Null Hypotheses for Research Question 1

1. No difference will be found in the distribution of MBTI types between military and civilian participants.

2. There will be no difference in the percentage of military and civilian executives classified by the MBTI as introverts (I), sensors (S), thinkers (T), or judgers (J).

3. The distribution of military and civilian MBTI types found in this study will differ from those for military personnel reported by Nidiffer (1984) and for civilian managers and administrators reported by Myers and McCaulley (1985), respectively.

Research Question 2 and Hypotheses

Does the distribution of MBTI types differ across TACOM organizational units (Research and Development, Readiness, Support, and Program Managers' Offices)?

Discussion

The second Research Question concerned the possibility that the individual TACOM units would attract leaders of a particular type.
The approximately 300 participants in Pollitt's (1982) research covered industrial middle- and upper-level managers in the fields of finance and comptrollership, manufacturing, engineering, science and research, personnel, and overall general management. His study supported the conceptual hypothesis that Research and Development would tend to attract intuitive introverts, Readiness would have more judging extraverts, Support would have more intuitive extraverts, and the Project Managers' Offices would be represented by sensing introverts.

**Research Hypothesis for Research Question 2**

The distribution of type attitudes and type processes will differ among the four TACOM organizational units. Research and Development and Project Managers' Offices are expected to include a higher proportion of introverts than are Readiness and Support. In addition, Research and Development and Support are expected to attract a higher percentage of intuitives than are Readiness and Program Managers' Offices.

**Null Hypothesis for Research Question 2**

There will be no difference in the distribution of MBTI type attitudes and type processes among the four TACOM organizational units.
Research Design

This research was designed to obtain information from a selected population of military and civilian executives regarding their predispositions and innate attitudes in order that their individual personality types might be identified and studied. Information was gathered by questionnaire, using the Myers-Briggs Type Indicator (MBTI) as the survey instrument.

Independent Variables

There are two independent variables in this study. The first is the category of participating executives, the military officers and their civilian deputies. The second is the category of TACOM organizational unit to which each participant belongs.

Dependent Variables

The dependent variables are the representations of the sixteen MBTI types and the type preferences (processes and groupings) manifested by the Myers-Briggs Type Indicator (MBTI). As postulated in the hypotheses relating to the two research questions, the civilian and military participants are expected to manifest different representation among the sixteen MBTI types as well as differences in their individual preferences for particular mental processes in accordance with Jungian type theory. Moreover, the MBTI types are expected to differ as a function of the TACOM organizational unit assignment.
Method of Analysis

This research generated data in categorical form. Thus, the chi-square test of association was applied to test the differences in representation of the various MBTI personality types and type processes for the study participants as a function of their classification as military or civilian. In addition, the chi-square test was used to compare the distributions found in this study with those drawn from other MBTI studies reported in Chapter II, in particular, the investigations by Myers and McCaulley (1985) and by Nidiffer (1984).

Selection of the Participating Executives

Participants were selected from among upper-level executives whose jobs were identified as executive caliber by their positions on the TACOM organizational chart. Chiefs and their deputies were each chosen from the same organizational unit in order to insure that the work climate experienced by each of the two paired executives would be essentially identical. Organizational duties, responsibilities, and authority are shared by these paired executives, a situation in which similar decision requirements and behavioral demands could be presumed to occur. Thus, the work environments were kept relatively constant. Since these paired executives' positions and responsibilities were equivalent, any personality type differences between the participants could be expected to be based upon their status as military or civilian.
In most cases, the TACOM organizational unit chiefs were military officers with the rank of colonel or lieutenant colonel. Deputies were usually civilians of high Civil Service grade level: General Service (Merit Pay) or members of the Senior Executive Service (SES), having salary levels higher than the maximum possible under the General Service schedule. In all, thirty pairs of military and civilian executives, the total testable population within TACOM, were identified. The thirty pairs of participants in this study were presumed to be representative of Army military-civilian executive pairs in the Federal service. All sixty executives participated in the study.

Survey Instrument: The Myers-Briggs Type Indicator (MBTI)

Briggs and Myers (Myers & Myers, 1980; Myers & McCaulley, 1985) developed their personality type indicator, the MBTI, as a means of measuring Jung's (1921/1971) psychological types. Because the MBTI is a self-report inventory using the forced-choice format, the participant is forced to select the one answer he thinks is more nearly correct. The 126 items in Form G of the MBTI, the survey form in current use, are phrased in everyday, nonthreatening language to encourage the participant to respond with answers which will consistently tend to reflect his true preferences (Myers, 1976). The time required to fill out the MBTI averages one-half hour.

The score for each preference dimension is a letter and a number. The letter identifies the direction of the bipolar dimension, e.g., E or I, whereas the number is an indication of the
relative strength of the preference for that direction. Four such letter-number combinations become the type score. For example, the scores: I10, S20, T15, and J30, will correspond to the ISTJ type, which may be described very briefly as one who prefers the introverted attitude, who makes his judgments through logical thinking, balanced by sensing perceptions (McCaulley, 1980). In a similar manner, the MBTI type of each participant can be identified as one of the sixteen possible combinations of the four bipolar preference dimensions, EI, SN, TF, and JP.

Myers (1962) devised a standard format, called a Type Table, to organize data on the number and percentage representation of the type attitudes, functions, groupings, and the sixteen MBTI types. This is the preferred method of data presentation for studies using the MBTI as the test instrument in order to achieve better comparability of results (Myers & McCaulley, 1985).

Pilot Testing

Selected upper-level TACOM executives participated in the pilot testing. These leaders did not qualify for the main study because their offices did not include a deputy or counterpart at the same executive level. The pilot test group contained eleven participants, of whom seven were military officers and four were civilians.

The purposes of this pilot test were to (1) obtain a qualified jury review of the proposed survey methods to convince the Commanding General at TACOM that the proposed research was
worthwhile, (2) establish administrative procedures, and (3) ensure that the survey instrument (the MBTI) could identify different personality types among the respondents. Results of the pilot test confirmed that the administrative procedures were satisfactory and complete. The professional caliber of the Myers-Briggs Type Indicator (MBTI) as a survey instrument particularly impressed the executives in the pilot program, who commented favorably on the entire survey packet.

The Commanding General of TACOM received a favorable report of the pilot study. He directed his legal staff to formulate a Memorandum of Understanding (MOU) which would specify the details of protocol to be followed, and he issued the general authorization to proceed with the research.

Data Collection Procedures

Each survey packet contained an introductory letter to the participant which outlined the study, its purpose, and its potential benefits. A second sheet provided general instructions for self-administration of the survey instrument. The MBTI questionnaire booklet with a separate answer sheet completed the contents of the survey packet.

All sixty survey packets were personally handcarried to each executive within a period of two days. Each packet consisted of an envelope stamped "Exclusively For", upon which each participant's name and rank had been carefully lettered. This assured that only the designee himself would open the envelope. Thus, confidentiality
was maintained, and each participant's right to privacy was respected.

When the questionnaire was completed, the participants notified the researcher, who picked up the completed packet to preserve confidentiality. All questionnaires were completed within fifteen working days, thus enabling this study to achieve a 100% response rate. Each participant was furnished a copy of his own results on the standard MBTI form, accompanied by an explanation of his particular personality type and its associated characteristics.

The sixty MBTI answer sheets were coded to maintain confidentiality. The coded sheets were hand-scored, using the MBTI authorized keys, and then summarized in a type table giving the frequencies not only of each of the MBTI types represented, but also of the attitudes, functions, and processes.

Summary

The study hypotheses were formulated within the framework of the two research questions. Next, the research design was described. The selection procedure for the TACOM participants was discussed, along with some pertinent information about the survey instrument. Next, the pilot test was discussed, followed by a description of the data collection and scoring procedures.

The resultant data are analyzed in the next chapter.
CHAPTER IV

RESULTS

The study findings are presented in this chapter. Data from the standard MBTI Type Table provided the basic information for analysis. Both research questions and their hypotheses are addressed.

Comparison of Military and Civilian MBTI Types

Hypothesis 1 postulated that the distribution of MBTI types for military and civilian executives would differ. The MBTI type data for the entire survey population of 30 military and 30 civilian participants are presented in Table 1. Each participant is classified into one of the sixteen MBTI personality types. Because of the small numbers of participants represented by most of the types, a chi-square test of the difference between the MBTI type distributions was not valid. Nonetheless, it is evident from inspection that the type distributions for the military and civilian executives are essentially identical. The highest representation for the military was in Type ISTJ (36.7%) and Type ESTJ (20.0%). For the civilians, representation was about equal for Type ESTJ (26.7%), Type ISTJ (23.3%), and Type ENTJ (20.0%). For the numbers involved, these percentage differences amount to only one or two participants, except for Type ISTJ, where the difference is larger, but still not significant at the .05 level.

57
<table>
<thead>
<tr>
<th>MBTI Type Identification</th>
<th>Total</th>
<th>Military</th>
<th>Civilian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>Judging Introverts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISTJ Sensing w/Thinking</td>
<td>18</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>30.0</td>
<td>36.7</td>
<td>23.3</td>
</tr>
<tr>
<td>ISFJ Sensing w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INFJ Intuitive w/Feeling</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>0</td>
<td>3.3</td>
</tr>
<tr>
<td>INTJ Intuitive w/Thinking</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Perceptive Introverts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISTP Sensing w/Thinking</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>3.3</td>
<td>0</td>
</tr>
<tr>
<td>ISPF Sensing w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INFP Intuitive w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INTP Intuitive w/Thinking</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5.0</td>
<td>3.3</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Perceptive Extraverts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTP Sensing w/Thinking</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>ESFP Sensing w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENFP Intuitive w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENTP Intuitive w/Thinking</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5.0</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Judging Extraverts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTJ Sensing w/Thinking</td>
<td>14</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>23.3</td>
<td>20.0</td>
<td>26.7</td>
</tr>
<tr>
<td>ESFJ Sensing w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENFJ Intuitive w/Feeling</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENTJ Intuitive w/Thinking</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>16.7</td>
<td>13.3</td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
Thus, while the hypothesized outcome for the military executives was somewhat supported by the data (36.7% were ISTJs, the largest single type represented), the hypothesized outcome for the civilians was convincingly refuted by the data (only one of the 30 civilian participants manifested the feeling (F) process).

Hypothesis 2 postulated that a higher percentage of military than of civilian executives would be classified on the MBTI-measured personality attitudes and functional processes as introverts (I), sensors (S), and thinking-judgers (TJs). Table 2 presents the data on the individual personality functions, i.e., the eight MBTI attitudes and processes, and the TJ type grouping. While there were some minor, but nonsignificant, differences between the military and civilian leaders, the most striking finding in Table 2 was the large and identical proportion (80%) of both military and civilian participants who were thinking-judgers (TJs). Therefore, the data did not support hypothesis 2.

Hypothesis 3 postulated that the data from the present study would be similar to the data from prior studies, in particular, the Myers and McCaulley (1985) data for the civilians and the Nidiffer (1984) data for the military. Table 3 compares the MBTI types and type processes from this study with those of Myers and McCaulley (1985) and Nidiffer (1984). Table 4 presents the chi-square tests of association for the MBTI type attitudes and type processes for the present study versus the Myers and McCaulley and Nidiffer data. (Again, the small cell numbers prevented use of the chi-square test for comparison of type distributions.)
<table>
<thead>
<tr>
<th>MBTI Attitude or Function</th>
<th>Total</th>
<th>Military</th>
<th>Civilian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td><strong>E</strong> Extraversion</td>
<td>31</td>
<td>51.7</td>
<td>14</td>
</tr>
<tr>
<td><strong>I</strong> Introversion</td>
<td>29</td>
<td>48.3</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>100.0</td>
<td>30</td>
</tr>
<tr>
<td><strong>S</strong> Sensing</td>
<td>37</td>
<td>61.7</td>
<td>20</td>
</tr>
<tr>
<td><strong>N</strong> Intuition</td>
<td>23</td>
<td>38.3</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>100.0</td>
<td>30</td>
</tr>
<tr>
<td><strong>T</strong> Thinking</td>
<td>59</td>
<td>98.3</td>
<td>30</td>
</tr>
<tr>
<td><strong>F</strong> Feeling</td>
<td>1</td>
<td>1.7</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>100.0</td>
<td>30</td>
</tr>
<tr>
<td><strong>J</strong> Judgment</td>
<td>44</td>
<td>81.7</td>
<td>24</td>
</tr>
<tr>
<td><strong>P</strong> Perception</td>
<td>11</td>
<td>18.3</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>100.0</td>
<td>30</td>
</tr>
<tr>
<td><strong>TJ</strong> Thinking-Judgers</td>
<td>48</td>
<td>80.0</td>
<td>24</td>
</tr>
<tr>
<td><strong>Non-TJ</strong> Other</td>
<td>12</td>
<td>20.0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>100.0</td>
<td>30</td>
</tr>
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</table>
Table 3
Comparison of Present Study Data with Myers and McCaulley (1985) and Nidiffer (1984) Data

<table>
<thead>
<tr>
<th>MBTI Type or Type Process</th>
<th>Civilian Executives</th>
<th>Military Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present Study (N = 30)</td>
<td>Myers &amp; McCaulley (N = 7463)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>ISTJ</td>
<td>7</td>
<td>23.3</td>
</tr>
<tr>
<td>ISFJ</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INFJ</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>INTJ</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>ISTP</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ISFP</td>
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<td>0</td>
</tr>
<tr>
<td>INFP</td>
<td>0</td>
<td>0</td>
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<tr>
<td>INTP</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>ESTP</td>
<td>2</td>
<td>6.7</td>
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<tr>
<td>ESFP</td>
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<td>ENTP</td>
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<td>ESTJ</td>
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<tr>
<td>ESFJ</td>
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</tr>
<tr>
<td>ENTP</td>
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<tr>
<td>I</td>
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<td>N</td>
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<td>43.3</td>
</tr>
<tr>
<td>T</td>
<td>29</td>
<td>96.7</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>3.3</td>
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<tr>
<td>J</td>
<td>25</td>
<td>83.3</td>
</tr>
<tr>
<td>P</td>
<td>5</td>
<td>16.7</td>
</tr>
</tbody>
</table>


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Table 4
Chi-Square Tests for Comparisons of Present Study Data with Myers & McCaulley (1985) and Nidiffer (1984) Data

<table>
<thead>
<tr>
<th>Chi-Square Tests of Association</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Civilians</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
<tr>
<td>Present Study Myers &amp; McCaulley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T N = 29 N = 4594 96.7% 61.6%</td>
<td>15.58</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>F N = 1 N = 2869 3.3% 38.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Study Myers &amp; McCaulley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J N = 25 N = 5173 83.3% 69.3%</td>
<td>2.77</td>
<td>1</td>
<td>n.s.</td>
</tr>
<tr>
<td>P N = 5 N = 2290 16.7% 30.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Study Myers &amp; McCaulley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TJ N = 24 N = 3559 80.0% 47.7%</td>
<td>12.49</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Non-TJ N = 6 N = 3904 20.0% 52.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Military</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Study Nidiffer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E N = 14 N = 302 46.7% 37.6%</td>
<td>1.01</td>
<td>1</td>
<td>n.s.</td>
</tr>
<tr>
<td>I N = 16 N = 501 53.3% 62.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Study Nidiffer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TJ N = 24 N = 509 80.0% 63.4%</td>
<td>3.46</td>
<td>1</td>
<td>n.s.</td>
</tr>
<tr>
<td>Non-TJ N = 6 N = 294 20.0% 36.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For the civilian data, the percentage of extraverts (57%) and the percentage of sensing individuals (56%) were the same in the present study as in the Myers and McCaulley data. However, the major expected finding that the civilians would be predominantly feeling (F) and perceptive (P) individuals was unsupported by the present study, with only 3.3% Fs and 16.8% Ps. As can be seen from Table 4, the difference between the present study civilians and the Myers and McCaulley civilians with respect to the thinking-feeling (TF) dimension was highly significant. However, the difference for the judging-perception (JP) dimension was not significant at the .05 level. The difference for the thinking-judging (TJ) type grouping was also highly significant, with 80% of the civilians in the present study being TJs. In the Myers and McCaulley data, although thinking-judging (TJ) was the most prevalent type grouping, only 48% of the civilian administrators and managers were TJs, whereas 52% were either feeling individuals (Fs) or perceptsives (Ps) or both. The representation of perceptsives (Ps) in the Myers and McCaulley data was about twice as high (30.7%) as that in the present study (16.8%), while the representation of feeling (Fs) individuals in the Myers and McCaulley data was about ten times as high (38.4%) as that in the present study (3.3%).

For the military executives, the results presented in Tables 3 and 4 indicate close agreement between the participants in the present study and those in Nidiffer's study. More than half (53% for the present study and 63% for Nidiffer study) were introverts (Is); about the same percentage (34% vs. 38%) were intuitives (Ns);
all of the present study military participants vs. 85% of the Nidiffer participants were thinkers (Ts); and about the same percentage (80% vs. 72%) were judgers (Js). The difference between the thinking-judging (TJ) representation in the present study and the Nidiffer study is shown in Table 4 to be nonsignificant at the .05 level. Interestingly, the civilian TJ data in the present study are identical to the military TJ data and thus are also not significantly different from the Nidiffer military data.

Thus, the results for hypothesis 3 are mixed. The military data are consistent with expectation, as represented by the Nidiffer data. However, the present study civilian data are not completely consistent with the Myers and McCaulley civilian data, particularly with respect to the thinking-feeling (TF) dimension and the thinking-judging (TJ) type grouping. In fact, the civilian data in the present study show more similarity to the Nidiffer military data than to the Myers and McCaulley civilian data.

Comparison of MBTI Types across TACOM Organizational Units

The hypothesis for Research Question 2 postulated that the organizational units at TACOM would tend to attract MBTI personality types similar to the type distribution found in other organizations performing comparable activities (e.g., ISTJ was the predominant personality type among program managers as reported by Kelley (1984) and Nidiffer (1984)).

Table 5 presents the data on personality types in the four TACOM organizational units to which the participating executive
Table 5

Distribution of MBTI Personality Types in TACOM Units

<table>
<thead>
<tr>
<th>MBTI Type</th>
<th>R &amp; D</th>
<th>Readiness</th>
<th>PMO</th>
<th>Support</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>ISTJ</td>
<td>5</td>
<td>27.7</td>
<td>5</td>
<td>35.7</td>
<td>8</td>
</tr>
<tr>
<td>INFJ</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7.1</td>
<td>0</td>
</tr>
<tr>
<td>INTJ</td>
<td>2</td>
<td>11.1</td>
<td>3</td>
<td>21.4</td>
<td>1</td>
</tr>
<tr>
<td>ISTP</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7.1</td>
<td>0</td>
</tr>
<tr>
<td>INTP</td>
<td>1</td>
<td>5.6</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ESTP</td>
<td>1</td>
<td>5.6</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ENTP</td>
<td>1</td>
<td>5.6</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ESTJ</td>
<td>2</td>
<td>11.1</td>
<td>4</td>
<td>28.6</td>
<td>7</td>
</tr>
<tr>
<td>ENTJ</td>
<td>6</td>
<td>33.3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>100.0</td>
<td>14</td>
<td>100.0</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>R &amp; D</th>
<th>Readiness</th>
<th>PMO</th>
<th>Support</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>10</td>
<td>55.6</td>
<td>4</td>
<td>28.5</td>
<td>4</td>
</tr>
<tr>
<td>I</td>
<td>8</td>
<td>44.4</td>
<td>10</td>
<td>71.5</td>
<td>11</td>
</tr>
<tr>
<td>S</td>
<td>8</td>
<td>44.4</td>
<td>10</td>
<td>71.5</td>
<td>17</td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>55.6</td>
<td>4</td>
<td>28.5</td>
<td>7</td>
</tr>
</tbody>
</table>
leaders were assigned. There appears to be essentially no difference in the distribution of MBTI types among the four organizational units. (Chi-square tests were inappropriate because of small cell sizes.)

The expected outcomes for the extraversion-introversion (EI) dimension were generally not supported by the data. Although expected to be heavily represented by introverts, the Research and Development unit and the Program Managers' Offices were almost equally divided between introverts (I) and extraverts (E). The executives in the Support group were 100% extraverts (E), as expected, but the Readiness unit, contrary to expectation, consisted of 72% introverts (I).

The hypothesized outcome for the sensing-intuition (SN) dimension was, however, supported by the data. More than half of the Research and Development unit and half of the Support unit participants were intuitives (N), versus less than 30% intuitives (N) for the Readiness unit and Program Managers' Offices, a difference that was significant at the .05 level by chi-square test.

The hypothesis for Research Question 2 thus has mixed results. Because the data are sparsely scattered over all MBTI types in all four units, no convincing analysis of the distributional differences was possible. For the extraversion-introversion (EI) dimension, there were no significant differences between the Research and Development unit and the Program Managers' Offices, on the one hand, and the Readiness and Support units, on the other. The single supported expectation was for the sensing-intuition (SN) dimension,
where the Research and Development and the Support units were significantly higher in representation by intuitives (N) than were the Readiness unit and the Program Managers' Offices.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Two important findings have resulted from this study. First, the expected differences between military and civilian executives in MBTI personality type were not found in the survey population. In other words, the personality types manifested by the military and civilian executive participants in this study were essentially similar. Second, the MBTI types of the executives assigned to the four TACOM organizational units did not follow the expected distribution associated with particular orientations. There was, however, a significant difference in the predicted direction for the sensing-intuition (SN) dimension.

Military and Civilian MBTI Type Comparison

Not only were there essentially no differences in MBTI personality types between the military and the civilian executives, but the types represented, whether military or civilian, closely paralleled Nidiffer's (1984) military program and industrial managers. Thus, the type distribution for the civilian executives in this study follows the military model reported by Nidiffer, rather than the private sector type pattern based on the Myers and McCaulley (1985) data for managers and administrators.
A possible explanation for this very evident similarity of personality types between military and civilians may lie in the fact that the U. S. Army Tank-Automotive Command (TACOM) is a military organization, commanded by military officers but supported by a large civilian workforce. TACOM is charged with responsibility for the procurement and production of military vehicles and repair parts to be supplied to the U. S. Armed Services within budget and on schedule. The military officers at TACOM are consequently under continuing heavy pressure to produce military equipment for the Army quickly and at lowest possible cost. Flanagan (1984) emphasized the strong management qualifications which military officers need in order to perform their duties. However, because military officers are assigned to TACOM for a period of three years and then rotated, the civilian executives must provide the continuity—the military corporate memory, as it were—to maintain the military production program.

It is understandable that military officers would choose civilian managers whose comprehension of the TACOM production mission duplicates their own military outlook. The personnel selection process at TACOM has resulted, over a period of years, in the development of a body of executives within TACOM who, although civilian in classification, are imbued with the military perspective, and therefore reflect the distribution of personality types manifested by the military executives. This situation can be regarded as an operational example of Jungian type theory in action,
even as Carskadon and Cook (1982) have shown that persons untrained in type theory could still recognize and identify their own types.

It is therefore concluded that the close similarity in types between the military and the civilian executives has evolved from the need to fulfill the TACOM mission through formation of a civilian work force oriented closely to military organizational practices and viewpoints. Thus, the situational demands have dictated the selection of particular personality types for executive positions at TACOM.

MBTI Type Comparisons across TACOM Organizational Units

Even though the results did not support the hypothesis that each of the four TACOM organizational units would attract different MBTI types, the Program Managers' Offices did show the largest number of ISTJ managers and ESTJ executives. This is in accord with Nidiffer's (1984) prediction that the most probable type for a program manager would be an ISTJ. Of the nine types represented, most are distributed throughout all four TACOM units.

The strongest and only significant finding for this hypothesis relates to the sensing-intuition (SN) dimension. As predicted, the Research and Development and the Support units were staffed chiefly by intuitives (N), while the Readiness unit and the Program Managers' Offices were represented mainly by sensors (S). Each particular unit attracts personality types compatible with its orientation. Just as the lack of differentiation of military and civilian personality types was due to the overall military
situational requirements, so also are situational demands responsible for the gravitation of particular personality types to organizational units having correspondingly similar orientations.

Recommendations for Future Investigation

Although the purpose of this study was to investigate differences between military and civilian upper-level executive leaders in a single organization, the process actually determined personality differences among the participants. Understanding those personality differences could improve selection and assignment of individuals and thereby benefit the organization. Organizational goals and implementation of management objectives could be enhanced by thorough knowledge of personality types and the derived implications. Therefore, it is recommended that the Myers-Briggs Type Indicator (MBTI) be considered as a management tool; i.e., that the MBTI be used for individual (executive) self-improvement and for improvement of interpersonal skills; and that findings from such applications be added to the literature.

A second recommendation concerns extension of this study: to identify the personality types and to study the interpersonal relationships within the particular organizations in terms of personality differences. Such a study would benefit both manufacturing and service organizations while contributing to a greater understanding of personal effectiveness in leadership situations.
APPENDICES

A. General Decker's Permission (Signed)
   Memorandum of Understanding

B. Introductory Letter
   Questionnaire Procedure
   Thank You Letter
APPENDIX

A. General Decker's Permission (Signed)

Memorandum of Understanding
26 August 1982

DRSTA-L

Dr. Richard Munsterman
Doctoral Committee Chairman
Department of Educational Leadership
Western Michigan University
Kalamazoo, Michigan 49008

Dear Dr. Munsterman:

Mr. John E. DeWald has requested permission to conduct a study of my upper level management for use in a dissertation. The purpose is to address the personality characteristics of both military and civilian executives in relation to their leadership roles.

Research of this nature may be highly beneficial to the US Army, not only in providing valuable information to this Command, but in stimulating additional informative studies.

It is a pleasure for me to grant permission for this study in accordance with the attached Memorandum of Understanding between Mr. DeWald and the US Army Tank-Automotive Command.

Sincerely,

/s/ Oscar C. Decker, Jr.

1 Incl

As stated

OSCAR C. DECKER, JR.
Major General, USA
Commanding
MEMORANDUM OF UNDERSTANDING
Between
JOHN E. DeWALD
and
U.S. ARMY TANK-AUTOMOTIVE COMMAND
(TACOM)

I, John E. DeWald, agree to indemnify, and to hold harmless the
United States for any damage or injury to persons or property of any
third person or of the undersigned arising from the negligence or
willful misconduct, of the undersigned while participating in the
study regarding behavioral patterns and personality characteristics of
military and civilian managers at TACOM.

John E. DeWald further agrees to abide by any and all regula-
tions, directives, and other guides promulgated by the United States,
the Department of the Army and any other agency with jurisdiction over
the premises or activities involved.

In consideration of John E. DeWald's compliance with the above
stated requirements, TACOM agrees to permit John E. DeWald to conduct
the Study of Behavioral Patterns and Personality Characteristics of
Military and Civilian Managers at TACOM.

John E. DeWald agrees to provide the US Army Tank-Automotive
Command with a copy of the results of his study at no cost to TACOM
and further agrees that if the results of the study are published in
any form whatsoever the US Army Tank-Automotive Command will not be
identified as sponsoring or concurring in the results of this study.
It is noted, there are copyright implications should this study be
published since Mr. DeWald is an employee of the United States Govern-
ment. Results of the study will not be used for any commercial pur-
pose.

This permit is revocable by the Commander, US Army Tank-Automo-
tive Command at any time without prior notice required.

/s/ Oscar C. Decker, Jr.
OSCAR C. DECKER, JR.
Major General, USA
Commanding

DATE
28 Aug 1982

DATE
28 Aug 1982
APPENDIX

B. Introductory Letter
Questionnaire Procedure
Thank You Letter
Participant:

A research study is being conducted at TACOM to determine whether military and civilian managers in executive positions have particular personality types.

Quite obviously, people differ in their thinking, manner of judging, beliefs and values. Knowing your own personality characteristics can be beneficial to you in your professional career, as well as in your interpersonal relations in business and at home. Recognizing the characteristics of other personality types can help you judge strengths and weaknesses in others and increase your own success in dealing with people.

As an upper-level executive, you are being asked to participate in this study. Your full cooperation is needed to assure truly representative data for the study. Information concerning your own personality type, as well as the characteristics of other types, will be provided upon return of your completed questionnaire. Later, you will be provided with an overview of the study results. TACOM upper management in general, and the survey participants in particular, are expected to profit from this study.

To maintain confidentiality, your name will not appear anywhere in the study. Your reply is identified only by the number in the upper right hand corner of the answer sheet. All answer sheets will be destroyed after the study analysis has been completed.

HERBERT H. DOBBS
Colonel, OrdC
C, Sys & Tech Plng Ofc
Questionnaire Procedure

We suggest that you reserve sufficient time (approximately 30 minutes), without interruptions, to complete the Demographic Data Sheet and the MBTI Questionnaire. An environment conducive to concentration, with a minimum of distractions, is recommended. Such a location might best be found outside the TACOM workplace.

1. There are two parts to this survey:
   a. Demographic Data (personal information) Sheet.
   b. A printed questionnaire, the Myers-Briggs Type Indicator (MBTI), with Answer Sheet

2. You are requested to completely fill out both parts of the survey.
   a. Reply to each question on the Demographic Data Sheet and show your answer on the Data Sheet itself.
   b. Please do not write in the MBTI Printed Questionnaire Booklet, so that it may be used again.
   c. Mark your answers to the MBTI Printed Questionnaire Booklet on the separate MBTI Answer Sheet.
   d. Please be careful to answer all questions.
   e. Do not skip any questions.

3. Return the three items (Demographic Data Sheet, Printed MBTI Questionnaire Booklet, and the MBTI Answer Sheet) in the envelope provided to you.

NOTE: Please telephone John E. DeWald (Ext. 4-5455), or Ruth E. DeWald (Ext. 4-8669) for pickup of your completed Questionnaire Packet.

We will not allow your valuable data to be lost.
SUBJECT: Thank-You Letter to Survey Participants

Participant:

Thank-you for participating in the survey of TACOM executives to determine personality types.

As promised, an overview of the study results will be provided to you in the near future. Your answer sheet and demographic information sheet will be destroyed, following statistical analysis. The Report Form you have now received will be the only record of your profile.

Upon completion of the entire project, a copy of the published dissertation, "Personality Characteristics of Military and Civilian Executives in Equal Hierarchical Levels within the Same Organization," will be provided to the TACOM library for reference.

Again, your cooperation has been most appreciated.

JOHN E. DEWALD
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