

What Trait-Theory Teaches About Leadership Paradigms: Exploring Assumptions, Strengths and Limitations

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Preface

My academic interest in leadership began while I was searching for a dissertation topic. Unlike other programs where doctoral candidates seek a link with a professor who is researching a particular field in order to extend their mentor's findings, my institution left it to students to develop a suitable proposal. Having extensive background in statistics and experimental design, it was obvious that the organization of the corps of cadets at the military school where I was doing my doctoral internship in clinical psychology had a structure of the training platoons and squads that was similar to classic agricultural research plots. These are shown in my article at <http://www.houd.info/dissertation.pdf>.

This approach did not tie me to a specific leadership theory, of which there are many. It required me to survey the field and select a theory that could fit the experimental design. As a result, the interpretation of results was not tied into advancing a particular theory. After considering alternatives on detail, the trait theory of leadership provided a characteristic that could be reliably tested. As it is related to personality of the leader, the next requirement was a reliable and valid measure. This was provided by the NEO PI-R. Now, the instrument is accepted but in the mid-1990s it was necessary to defend its use. While there were questionnaires that directly queried items more related to training cadre leadership they were not validated. The Multifactor Leadership Questionnaire (MLQ) adequately covered the several salient elements of leadership and management functions.

The purpose of this article is to identify several beliefs in the literature that deserve to be reconsidered. An analogy is made to the limiting assumptions that are used when training engineers.

The trait theory of leadership relates the performance of a leader to his or her personality. It has had a seesaw history that gives insight into unstated *assumptions* that were misleading. Its trajectory provides understanding of many drawbacks that also undermine other leadership paradigms.

Over the last century, Trait Theory was in favor for over 40 years (1904–1948), out of favor for almost 40 years (1948–1986), and is now once again in favor for over 20 years (1986–present). This uneven advance teaches much about vicissitude in researching social sciences because of the field's lack of explicitly stated *assumptions*. So, too broad a coverage was expected of a particular approach.

Erroneous Assumptions

Ergo, for over a century, Trait Theory was considered in-favor, out-of-favor, and in-favor again. This varying belief of the Academy stemmed from unstated but implicit *assumptions*. Progress might have been made faster if the social sciences explicitly stated boundary conditions governing their research. Four basic beliefs retarded the usefulness of Trait Theory in its quest to identify and predict leaders:

- **There is a *universal* trait model that identifies *all* leaders.**
- **True leaders will be competent in *all* jobs and situations.**
- ***Meta-analysis* can determine the most important trait(s).**
- **A *single trait* (such as, *Conscientiousness*) denotes leaders.**

Understanding limitations of these erroneous assumptions will enable using Trait Theory in predicting leadership. This paper will elaborate history, empirical findings, and interpretation of data to show where academies went astray by oversimplifying, overanalyzing, and over inclusion.

Assumptions and Leadership Theories

Assumptions are the focus of engineering, my first profession, where they are integrated into engineering education from freshman physics classes onward. Before every derivation they are explicitly listed. In this way, boundary conditions are repeatedly incorporated into an engineer's thinking. This approach teaches engineers that theories have *limits* to where and how they work.

For example, Newtonian mechanics was sufficient during my engineering career, but I was aware of Einstein's relativity. Other assumptions did not appear true but were necessary mathematical simplifications. For example, I never believed "plane sections remained plane" in beam analyses. Bending a top-loaded horizontal beam obviously stretches the bottom fibers more than less-stretched fibers on the top surface of the beam.

The point is, physical science theories are not expected to be absolute truths that are universally applicable. Assumptions taught us there were limits or boundary conditions affecting and effecting relationships. This is not the case with social science and leadership theories (even if lip service is given to the uniqueness of individuals). Unbounded explanations are too often sought.

Universality

From the beginning of leadership studies there was a quest to find a universal theory. A leader was expected would perform well at all times, in all places, in all situations. This stemmed from the work of Thomas Carlyle (1795–1881) who defined history as "nothing but the biographies of a few great men" (cited in Terman, 1904, p. 413). Terman's article was considered the birth of the trait theory of leadership (Zaccaro, Foti, & Kenney, 1991).

Linking Carlyle's thinking about great people and leadership led to a belief that a leader would perform well under all circumstances. He was a historian whose belief was largely shaped by societies based upon the divine right of kings and queens. Royalty, *by definition*, always performed well. Definitions and assessment add to other assumptions in determining leadership effectiveness. Of this there are many possibilities.

Universality is inconsistent with Bass's observation: "There are almost as many definitions of leadership as there are persons who have attempted to define the concept" (1990a, p. 11). Further reinforcement come from Fiedler and House, who wrote: "We do not yet have a single overarching theory of leadership and we are not likely to achieve one for some years" (1994, p. 112). In light of the myriad theories, it is appropriate that students of leadership develop a humble stance about their findings.

Nevertheless, irrespective of common knowledge, the universality belief carried into the 20th century. This pursuit is confounding because Terman wrote only two generations after the Civil War ended. Surely it was remembered that General George McClelland was great at training soldiers but timid and ineffective as a field commander. Ulysses S. Grant was not distinguished in civilian occupations but aggressively and successively led troops in the field. Afterward, Grant was less effective as president. In more recent times, Robert McNamara and his Whiz Kids performed better at Ford Motor Company than later at the Department of Defense during the Viet Nam war.

Many more comparisons exist and these are just examples of what is common knowledge. Leadership success in one area does not assure success in another area. Adding to the confusion was and is the description of leaders in glowing terms.

Descriptive Terminology

In addition to the universality assumption, leadership traits were usually described in laudatory words that were descriptive and intuitive. Terman’s (1904) seminal work described student leaders as “on the average larger, better dressed, of more prominent parentage, brighter, more noted for daring, more fluent of speech, better looking, greater readers, less emotional, and less selfish than the automatons.” He reduced these descriptors to four factors, saying: “leaders are preferred most often for the following qualities, given in order of their importance: intelligence, congeniality, liveliness, and goodness” (p. 433). While the terms were connotative and unscientific, the early work portended the five-factor models that would be developed later.

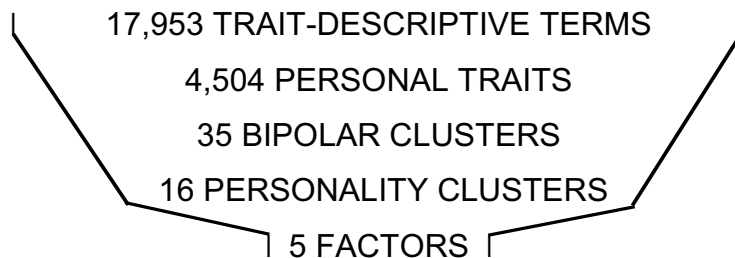
As the 20th century progressed, loose definitions of traits continued. In 1990, Hogan, Raskin, and Fazzini described leaders variously as: (a) bright, self-assured, initiating, upwardly mobile, decisive, masculine, achievement oriented, and unconcerned with job security; (b) assertive, confident, dominant, forceful, and actively taking advantage of leadership opportunities; or (c) socially assured, persuasive, ambitious, high status, powerful, and wealthy, mentally able, energetic, and full of initiative. A decade ago, Northouse (1997) reduced lists of leadership traits from five sources (Kirkpatrick & Locke, 1991; Lord, DeVader, & Alliger, 1986; Mann, 1959; Stogdill, 1948, 1974) to five major traits of self-confidence, determination, intelligence, sociability, and integrity.

Science, however, cannot advance systematically when there is a lack of rigor in the use of terms, as illustrated above. Words must denotatively mean something, and that meaning needs to be consistent across experiments.

Satisfying this purpose, several models of personality have been used over the years but the Five-factor Model (FFM) of Personality is illustrative for our purpose here. It has also become a predominant method of describing personality in this 21st century.

Five-Factor Model of Personality

The Linguistic Funnel



The Linguistic Funnel

The Five-Factor Model (FFM) stems from a list of 17,953 traits that Allport and Odbert assembled in 1936. This lexical approach assumes that all trait-descriptive terms are contained in the natural language (Peabody, 1987; Peabody & Goldberg, 1989). Over the years the number of independent traits was reduced to 4,504 “personal traits,” then 35 bipolar clusters (Cattell, 1943; Goldberg, 1990). Cattell (1980) then reduced the list to 16 personality factors and Peabody and Goldberg (1989) reduced the list to five factors. Thus, the five factors derived from lexical theory are a top down approach, derived from an long list of words. Different terms were used and the following table’s middle four columns elaborate words often used with the FFM.

Five Factors Descriptors from Various Sources

#	FFM Names	Bipolar Names	Features	NEO PI-R Names	()
I	Surgency	Bold-Timid	Power	Extraversion	E
II	Agreeableness	Warm-Cold	Love	Agreeableness	A
III	Conscientiousness	Thorough-Careless	Work	Conscientiousness	C
IV	Emotional Stability	Relaxed-Tense	Affect	Neuroticism	N
V	Culture	Intelligent-Unintelligent	Intellect	Openness	O

Now that there is a reliable and valid instrument to directly assess personality traits it is possible to mathematically determine relationships between leadership performance and the leader's characteristics. Leadership performance will be discussed later in this article. The NEO PI-R questionnaire provides a reliable and valid instrument to assess personality.

The above section and the following section are more thoroughly and adequately covered on Internet sites, so the NEO-Personality Inventory-Revised, the Multifactor Leadership Questionnaire (MLQ), and Transactional-Transformational Leadership Model (TTLM) will not be elaborated herein.

Transformational-Transactional Leadership Model

Having a consistent, reliable, and valid way of determining personality factors there needs to be a way of determining leadership performance. While there are many ways to evaluate leader, most are tied to a leadership theory. The Transformational-Transactional Leadership Model(TTLM) (Bass, 1985) considers a full range of leadership styles.

Transformational leadership includes several emotion-engendered factors that include Charisma, Inspiration, Intellectual Stimulation, and Individualized Consideration. *Transactional leadership* includes Contingent Reward, Management by Exception (active), Management by Exemption (passive) and Laissez Faire (which can be likened to management). The various domains are measured by the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 1990). The questionnaire was empirically derived and has been validated for many domains.

As usual, there are academics that take issue with parts of competing models. For example, House and Podskoff (1994) argues the MLQ model does not include all criteria for charisma. For the purposes of my dissertation research and the points made in this article, the MLQ is sufficiently comprehensive. It is also an adequate standard to do future research.

Both the NEO PI-R and the MLQ have major and subordinate factors that can be related to each other. From this data, the following section will mathematically develop statistical relationships. Having sufficient empirical data for both leadership and personality, regression equations can be derived showing the relationship between the independent variable and dependent variables.

Multifactor Regression

Equation (1) is the regression equation delineating the operators for the leadership model used.

$$\text{Equ. (1)} \quad \text{Leadership} = \beta_0 + \beta_1\mathbf{N} + \beta_2\mathbf{E} + \beta_3\mathbf{O} + \beta_4\mathbf{A} + \beta_5\mathbf{C} + \text{error}$$

The five major traits, or independent variables, are Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C). Results depend upon cadre position

Differences for drill sergeants and squad leaders are illustrated in the following table comparing the five factors and the sign of the parameters that are significant. of personality that make up the currently popular instrument the NEO PI-R (Costa & McCrae, 1992b), which has been shown to be reliable and valid. It can be seen that different traits govern the leadership perception in various jobs.

Compelling Personality Traits of Cadre in a Military College

PERSONALITY TRAIT	N	E	O	A	C
Cadre Position					
Drill Sergeant	—		—		
Squad Leader		—			
Assistant Squad Leader					—

Empirical data determined the signs of the various and different Beta (β) coefficients.

Actual numbers for factors were not given because my data only compared nine drill sergeants of training platoons and 27 squads. Ratings of their three cadre members was done by 221 cadets. Herein, the purpose is to show differences in expectations for different jobs in the same organization at the same time. Numerical data has a habit in interfering with the actual message.

Often the numbers become the focus and interferes with understanding the data. In the slide rule days of engineering education there was an understanding that numbers were approximations, but that is another issue. What is important to note is that the significant characteristics associated with each position had different factors and even signs on the parameters. With this caveat, Equation (2) shows the best of several equations for drill sergeants and positive transactional leadership:

$$\text{Equ. (2)} \quad \text{Ta(+)} = 21.4 - 0.024\mathbf{N} + 0.046\mathbf{E} - 0.046\mathbf{O}$$

with an $R^2 = 88.7\%$, $R^2_{\text{adj}} = 81.9\%$, $F = 13.1$, and $P = 0.008$.

Note that the best model for drill sergeants was transactional and not transformational leadership.

These are higher order models based upon the five primary factors of the NEO PI-R. Each of these factors has six facets and with a larger sample more specific variables could be tested. Likewise, there are subordinate categories of the transformational and transactional MLQ model and questionnaire. Therefore, specific elements of leadership might be evaluated with a sufficiently large sample size and uniformity of participants' jobs.

I proposed an expanded study approach in my paper at <http://www.houd.info/dissertation.pdf>. Two significant parts of the study was to settle on one measure of personality, rather than trying to associate different tests, and systematic generalization to several *similar* leadership environments.

Leadership as Management

The focus on transactional leadership and its management orientation is counter to the presently popular emotional intelligence movement. Nevertheless, the expectation of students was a drill sergeant who commanded them to act by the book. For emotional involvement the trainees looked toward their squad leaders. Equation (3) is the most descriptive of squad leaders.

$$\text{Equ. (3)} \quad T_f = 37.5 - 0.146E + 0.247A - 0.132C$$

with an $R^2 = 30.8\%$, $R^2_{\text{adj}} = 21.4\%$, $F = 3.27$, and $P = 0.051$.

Equations (2) and (3) are derived from the ratings of subordinates. At a time when charisma and charm are emphasized in many popular leadership puff pieces and popular books and academic articles and texts, this empirical finding of followers' expectations is worth considering.

Nine platoons competed in the same environment at the same time to become worthy members of a corps of cadets, after "recognition." Drill sergeants set the standards and squad leaders showed the new recruits how to meet demands of the position to which they aspire.

It is necessary to address the fact that this feedback is from the ratings of subordinates. Scholarly leadership (Hater & Bass, 1988; Hogan, Curphy, & Hogan, 1994) and my prototype research showed subordinates are good raters of superiors. Followers directly observe and experience the behavior of their leader. Furthermore, differences between the ratings of drill sergeants, squad leaders, and assistant squad leaders show they do not rate multiple leaders as a group but consider their individual performance.

Notably, it showed that Conscientiousness is non-determining for drill sergeants, positively related for squad leaders, and negatively related to assistant squad leaders. Conscientiousness was chosen because it is the one trait that emerges from meta-analyses of trait theory leadership studies that use Five-factor Models of personality.

Additional regression models are shown in Appendix.

Meta-analysis

Meta-analyses blur fine differences and assumes homogeneity. Certain academics are drawn to them because it is clean mathematical work that utilizes computers. Conscientiousness frequently is the default from many studies that lump results, but it did not show up in my analysis. The change in history of trait theory when Lord, De Vader, and Alliger (1986) re-analyzed historical data is reason to reconsider meta-analysis and to systematically gather data on reasonably homogeneous populations. Leadership is a complex field and not prone to yield easy single-factor answers.

Situations and Jobs

Bass (1998) informed us that combat officers have a statistically significant higher amount of charisma, individualized consideration, intellectual stimulation, and contingent reward behavior than combat support officers. Soldiers on the front line need the motivation of transformational leaders, but that may not carry over to more routine tasks, at least in kind and emphasis. Therefore, we need to consider controlling for different positions, as well as situations, within our research designs. The result will be a more sophisticated elaboration of trait theory

A leader needs to meet the expectations of the people affected and serve the purpose of the group. A benefit of this research, using a multifaceted MLQ test, was specific theoretical conclusions were not built into the instrument. It demonstrated different expectations for the different types of leaders.

Different Expectations

Bernard Bass, author of the third edition of *Bass and Stogdill's Handbook of Leadership: Theory, Research, and Managerial Applications* (1990a) reported on differences between combat and combat support officers (1998). My research (Rabstajnek, 2001) considered the three leadership positions that comprised the training cadre in a military college. Subordinates expected different characteristics of their drill sergeant, squad leader and assistant squad leader. Therefore, it behooves students of leadership to not blur the distinction between the time, location, purpose, job, and other variables.

Proper application of the NEO PI-R

The NEO PI-R has been used to determine correlations for police officers, person-to-job fit, personality disorders, psychopathology, civilian and military leadership. Considerable progress has been made toward deriving factors and facets that help selection of individuals for particular jobs. The major caveat is to consider specific applications and the environment for which a person works.

Gathering sufficient evidence is proceeding but we still need to focus on gathering primary data, and not relying on meta-analyses and similar situations and, most of all, intuition. Below, I will briefly review the erroneous conclusions that permeate the academic literature. Consistent with the purpose of my research, I will focus on the personality inventory's use in understanding the traits of leaders and managers.

Erroneous Conclusions

Some of the limitations are inherited from the century long tradition of leadership research. The historian, Thomas Carlyle, defined history as "nothing but the biographies of a few great men." From this view, based upon the inherited prerogative of royalty came the belief that leaders would excel in all situations. Reigning kings and queens could do no wrong in whatever they did, for they were divinely inspired. In the secular world they were surrounded by courtiers who served their every want and salved the egos of their ruler who controlled their life. This led to the first erroneous conclusion:

❶ Expectation of a universal trait model.

Under this assumption, social workers, engineers, soldiers, and volunteers would respond alike the same person. This may be true if they are a monarch, but is highly unlikely in a democracy. Even within the military, Bass (1998) showed that combat officers were different than staff of equivalent rank.

❷ The universal trait model generalizes to all situations.

The second assumption, also stems from Carlyle but is also common practice in many corporations, is that a leader can manage anything and everything. Differences between situations are considered unimportant, leading to the conclusion that leaders are alike. Peter Drucker made an insightful point when he said:

When putting a man in as division commander during World War II, George Marshall always looked first at the nature of the assignment for the next 18 months or two years. To raise a division and train it is one assignment. To lead in combat is quite another. To take command of a division that has been badly mauled and restore its morale and fighting is another still. Academicians have in recent years shown a preference for meta-analyses instead of systematic studies using well-constructed individual experiments.

⑥ Meta-analysis will yield a useful model of personality.

By lumping together many divergent sets of data, meta-analysis supports the first two erroneous conclusions mentioned above. Analysts are satisfied with validity coefficients of 0.20 to 0.30, which translates to four to nine percent of the variance. This is a modest goal that is mathematically nice but practically inadequate. Nonetheless, meta-analysis is an okay guide for targeted research.

Monolithic variables have been the result of studies to date. Conscientiousness is often cited as a predictor, even though it has a very low criterion-related validity of 0.20. Nonetheless, it is higher than other variables and is used frequently in literature. I have not found articles that challenged the intuitive importance of conscientiousness, which is not substitute for scientific support.

④ A single trait is adequate to describe a leader or manager.

My research has shown that leadership is not a monolithic variable but is a multifactor relationship. The table below shows the trait characteristics for the student cadre of training officers in a private military school. Eleven sophomore drill sergeants were rated by 221 freshmen undergraduates after their basic training period.

Traits: T-score range	Neuroticism	Extraversion	Openness	Agreeable- ness	Conscien- tiousness
Very high	<i>Unfavorable</i>	<i>Unfavorable</i>	?	?	?
High	<i>Unfavorable</i>	?	Favorable	Favorable	Favorable
Average	Favorable	Favorable	Favorable	Favorable	?
Low	Favorable	?	<i>Unfavorable</i>	<i>Unfavorable</i>	<i>Unfavorable</i>
Very low	?	?	<i>Unfavorable</i>	<i>Unfavorable</i>	<i>Unfavorable</i>

It needs to be realized that the multifactor equations found for junior squad leaders and sophomore assistant squad leaders were different. The number of evaluations for these positions were less because each company had one drill sergeant over three squads.

Notice that there is a range within each trait is considered favorable. Strengths in one area may compensate for lower ratings in another characteristic. There is considerable variation between those who successfully lead and manage our organizations. Of course, there are limits to behavior and beliefs that fall outside acceptable ranges. The unknown (?) levels may diminish when more data is collected.

Comments

I drew upon training in my first profession of engineering to consider the question of why there was widespread acceptance of beliefs that defied face validity. From my freshman year to a reread master’s program twenty years later, professors were listing assumptions on the blackboard before proceeding to mathematically derive relationships. It became apparent to me that this was lacking as I began to study clinical psychology another decade later. Students and teachers are influenced by their training and the currently accepted viewpoints of The Academy to which they belong. This is illustrated by the forty years in which trait theory was generally out of favor and the radical switch by which it is now readily accepted. My hope is this piece motivates a more questioning attitude.

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**Appendix
Best Models Describing Leadership for Each Cadre Position**

MLQ Type [†]	Intercept (b) and β parameters (for N, E, O, A & C)						Statistics ^{††}			
	b	N	E	O	A	C	R ²	R _a ²	F	P
Drill Sergeants										
Tf	=	82.8	-.118N	+.204E	-.208O		42.2%	7.5%	1.21	0.395
	=	121.	-.349N	+.349E		-.398C	49.5%	19.2%	1.64	0.294
Ta(+)	=	21.4	-.024N	+.046E	-.046O		81.9%	81.9%	13.1	0.008
Ta(-)	=	5.6	+.066N	-.082E	+.089O		67.4%	47.8%	3.44	0.108
Ev	=	46.3	-.064N	+.116E	-.147O		69.6%	51.3%	3.81	0.092
Squad Leaders										
Tf	=	37.5		-.146E		+.247A +.132C	30.8%	21.4%	3.27	0.041
Ta(+)	=	15.4		-.041E		+.054A +.010C	22.2%	11.4%	2.07	0.133
Ta(-)	=	21.1		+.051E		-.074A -.042C	31.4%	22.0%	3.35	0.038
Ev	=	18.3		-.123E		+.170A +.090C	33.5%	24.5%	3.70	0.027
Assistant Squad Leaders										
Tf	=	80.8				-.151C	17.9%	14.3%	5.01	0.035
	=	70.0				+.124A -.178C	24.6%	17.7%	3.58	0.045
Ta(+)	=	16.3				+.041A -.033C	18.6%	11.2%	2.51	0.104
Ta(-)	=	8.0				+.044C	13.4%	9.7%	3.56	0.072
	=	13.0				-.052A +.053C	29.8%	23.5%	4.68	0.020
Ev	=	38.5				-.045C	12.2%	8.4%	3.20	0.087

[†]Multifactor Leadership Questionnaire (MLQ)
Leadership Types
Tf: Transformational Leadership
Ta(+): Transactional Leadership (Positive)
Ta(-): Transactional Leadership (Negative)
Ev: Evaluations

^{††}Statistics
R²: Multiple Coefficient of Determination
R_a²: Adjusted Multiple Coefficient of Determination
(Adjusts for sample size and number of β parameters)
F: Fisher statistic for significance of variance
P: Observed significance level of the F-statistic