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Using the MBTI to Understand Transformational Leadership and Self-Perception Accuracy

Paul E. Roush
Department of Leadership and Law
U.S. Naval Academy

Leanne Atwater
School of Management
State University of New York at Binghamton

Results of this study of student leaders at a military academy indicated that the Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1985) can be used to understand transformational and transactional leadership behaviors as well as the leader's self-perception accuracy. Leaders who were evaluated as sensing and feeling types by the MBTI were the most transformational and used the most positive reinforcement with followers. Leaders who were introverts and sensing types had the most accurate self-perceptions. Additionally, transformational leader behaviors were related to reported extra effort on the part of followers. However, the most common type of leadership observed, active intervening with criticism when work was below standard, was unrelated to followers' extra effort. Results are discussed in terms of recommendations for leadership training and the usefulness of the MBTI in future leadership research.

The political changes and economic crises that have marked the end of the 1980s and the start of the 1990s go well beyond what anyone could have imagined just a few years ago. The fallout from those changes will touch every aspect of national life, including the armed forces. Fewer resources will go to the military, and there will be consequent demand for greater return from those resources. Because personnel costs in the all-volunteer

Requests for reprints should be sent to Paul E. Roush, Department of Leadership and Law, Luce Hall, Room 209, U.S. Naval Academy, Annapolis, MD 21402.

armed forces consume a significant share of the military budget, the leadership and management of people will necessarily receive increased attention.

How can we maximize our personnel resources? Better leadership may provide one answer. Bass (1985) contended that transformational leadership has the potential to motivate people to perform at peak levels and to go beyond the norms of their previous experience. Transformational leaders broaden and elevate the interests of their followers and motivate them to transcend their own self-interests in order to accomplish the organization's mission.

According to the model developed by Bass (1985), transformational leaders have learned to communicate high expectations of and confidence in followers. They arouse emotional responses, inspire loyalty, treat followers as individuals, promote creative problem solving, and inspire belief in the organization's cause or mission. These leaders are contrasted with those who are primarily transactional. Transactional leaders have learned to emphasize exchanges in which the leader initiates and clarifies what is required of followers and the consideration the followers will receive if they fulfill or fail to fulfill the requirements.

Several researchers (Bass & Avolio, 1990; Hater & Bass, 1988; Yammarino & Bass, 1990) have demonstrated that, in fact, transformational leadership promotes higher levels of performance among followers than does transactional leadership. In a study of U.S. Naval Academy graduates serving in the surface fleet, Yammarino and Bass (1990) found that transformational leaders received better performance evaluations and were more likely to be recommended for early promotion than their less transformational counterparts. Clover (1990) applied the transformational model in a study at the Air Force Academy and found that officers in charge of top-performing squadrons were more transformational than those in charge of lower performing squadrons.

A second avenue that has been suggested as a way to enhance leadership concerns the leader's self-perception. Research has shown that individuals with perceptions of their own leadership that were similar to the perceptions others had of them were more successful leaders. Webber (1980) found that supervisors who reported initiating more interaction with followers than had actually occurred were poorer performers. Williams and Leavitt (1974) found that the more successful leaders were less likely to overrate themselves than were their less successful counterparts. Similarly, Bass and Yammarino (1989) found that leaders who were rated by subordinates as more transformational had perceptions of themselves that were closer to the perceptions their followers had of them. Those who were less transformational had greater differences between self- and follower ratings.

These findings suggest that both being transformational and having accurate self-perceptions can improve leader effectiveness. A logical exten-

sion is to ask how we might identify the individuals most likely to become transformational and most likely to have accurate self-perceptions. One likely avenue concerns the individual's preferences for methods of decision making and perceiving, as measured by the MBTI (Myers & McCaulley, 1985). Although the MBTI has been used extensively in organizational development efforts, it only recently has been applied to the area of leadership research. Gardner and Martinko (1989) reviewed the literature assessing the validity of the MBTI and provided evidence supporting both its reliability and validity. They also concluded that type theory has much to offer researchers in their efforts to advance the field of leadership. Additionally, Myers and McCaulley (1985) cited numerous instruments, the scales of which provide validation evidence for MBTI scores.[1] The predominant MBTI preferences of members of many different occupational groups are also discussed by Myers and McCaulley (1985).

PURPOSE

This study was designed to assess (a) the degree to which student leaders at the U.S. Naval Academy were rated as transformational by their followers as well as by themselves, (b) the leader behaviors related to followers' willingness to exert extra effort, (c) the degree to which the MBTI could be used to identify the leaders who were rated as transformational, and (d) the degree to which the MBTI could help identify individuals who would have more accurate self-perceptions of their leadership. *Accuracy* was defined as degree of similarity between self-ratings and follower ratings. This definition of accuracy has been used in previous research (cf. Wohlers & London, 1989). It was also used in this study because self-awareness, or the ability to see and assess one's behavior as it is perceived and assessed by others (Wicklund, 1975), is important to success as a leader (Ashford, 1989).

METHOD

Sample

Subjects were midshipmen at the U.S. Naval Academy who had been assigned as plebe-detail squad leaders for the incoming class and whose

[1]The instruments against which the MBTI scales have been validated include the Adjective Check List (Gough & Heilbrun, 1983), the California Psychological Inventory (Gough, 1975), the Edwards Personality Preference Survey (Edwards, 1954), the Minnesota Multiphasic Personality Inventory (Dahlstrom & Welsh, 1972), and the Sixteen Personality Factor Questionnaire (Cattell, Eber, & Tatsuoka, 1970), among others.

evaluation records (self-ratings and follower ratings) were complete. In all, 83 men and 7 women, all of whom had completed either 2 or 3 years at the academy, constituted the sample. The squad leader's task was to help the incoming plebes (freshmen) in their transition from civilian to military life; to impart to them a modicum of military skills, knowledge, and attitudes; and to prepare them for integration into the Brigade of Midshipmen. In addition, 1,235 plebes provided information about the kinds of leadership they experienced from the subjects of the study.

Procedure

Each of the subjects worked with a squad of about 13 plebes. The subjects carried out their duties for a period of 3 weeks, during which time they were involved in intense interaction with the plebes in their squads for approximately 4 hr daily. At the completion of this training session, both the subjects and the plebes in their squads filled out the Multifactor Officer Questionnaire (MOQ) about the subjects' leadership. The ratings by the plebes were done anonymously. The MBTI was completed by the squad leaders approximately 1 week prior to serving as leaders of plebe detail.

Measures

Leadership behavior. Squad leaders completed the MOQ describing their perceptions of their own leadership behavior. Plebes completed a follower form of the questionnaire about their squad leader. Respondents completing the questionnaires indicated how frequently they had observed various leadership behaviors (or in the case of self-assessments, how frequently they had been performed). Items were rated on a 5-point scale ranging from *not at all* (0) to *frequently if not always* (4). Some items also asked for the respondents' reactions to the focal leader and were rated on the same frequency scale.

The MOQ was adapted from the Multifactor Leadership Questionnaire (MLQ; Bass, 1985; Bass & Avolio, 1990). Two forms of the MOQ (self and follower) were developed by Yammarino and Bass (1990) for use in a larger study of Navy officers in the fleet and were considered to be the most appropriate forms of the survey for the subjects of this study. Differences between the MOQ and the MLQ are slight. For example, an individualized consideration item on the subordinate form, "gives personal attention to members who seem neglected," was changed to "gives personal attention to me when necessary."

Nine leadership scales were formed by averaging the responses to the items as described by Yammarino and Bass (1990). Four scales measured transformational leadership, four scales measured transactional leadership,

and one scale measured nonleadership. Following are the scales and a sample item from each scale (follower form):

Transformational leadership

1. *Charisma* (6 items): "I am ready to trust him/her to overcome any obstacle."
2. *Individualized Consideration* (6 items): "Gives personal attention to me when necessary."
3. *Intellectual Stimulation* (6 items): "Shows me how to think about problems in new ways."
4. *Inspirational Leadership* (6 items): "Provides vision of what lies ahead."

Transactional leadership

5. *Contingent Promises* (3 items): "Talks about special rewards for good work."
6. *Contingent Rewards* (3 items): "Personally pays me a compliment when I do good work."
7. *Active Management by Exception* (4 items): "Would reprimand me if my work was below standard."
8. *Passive Management by Exception* (4 items): "Shows he/she is a firmer believer in 'if it ain't broken, don't fix it.' "

Nonleadership

9. *Laissez-Faire* (6 items): "However I do my work is OK with him/her."

Performance criteria as measured by the MOQ. Ten items on the MOQ were designed to measure leader performance and effectiveness. Following are the three performance criteria scales formed from these items:

1. *Leader Effectiveness:* Four items measured the effectiveness of the focal leader in terms of his or her overall work, ability to represent his or her squad with higher authority, success in meeting job-related needs of followers, and success in meeting requirements of the command. Response categories ranged from *not effective* (0) to *extremely effective* (4).
2. *Satisfaction With Leader:* Two items measured follower satisfaction with the leader. Response categories ranged from *very dissatisfied* (0) to *very satisfied* (4).
3. *Follower Extra Effort:* Four items measured how much extra effort followers were willing to put forth in their jobs. Response categories ranged from *not at all* (0) to *frequently if not always* (4).

MBTI. The MBTI is a self-report instrument that identifies the way individuals become aware of things, people, happenings, or ideas and how

they come to conclusions about the events of which they have become aware (Myers & McCaulley, 1985). Form G of the MBTI comprises 94 scorable items that purport to identify the psychological preferences of the individual who responds to them. Four separate bipolar indices, each comprising two mutually exclusive preferences, constitute the MBTI: extraversion (E) and introversion (I) on one index, sensing (S) and intuition (N) on a second index, thinking (T) and feeling (F) on a third, and judging (J) and perception (P) on the fourth index. Although every individual can use all eight preferences in varying degrees, the main objective of the MBTI is to identify the four basic preferences that reflect the individual's habitual choice between rival alternatives on each of the four indices (Myers & McCaulley, 1985). The four preferences, taken together, constitute an individual's MBTI type. There are, therefore, 16 possible combinations of four preferences (one each from the four indices). Because the number of subjects in this study was not large, the analyses were done in terms of the dichotomous MBTI preferences rather than MBTI types. This procedure provided appropriate cell sizes for computations, thereby permitting meaningful behavioral considerations. The distribution of preferences for the subjects of the study was as follows: E/I index = 54/36, S/N index = 65/25, T/F index = 72/18, J/P index = 67/23. The interested reader is referred to the Appendix for the distribution of the 16 MBTI types for the subjects in the sample.

Of the 94 scorable items on MBTI Form G, 59 involve choosing a phrase that describes how one usually feels or acts. The remaining 35 items require choosing, from pairs of words, the one with the most appealing meaning. The E/I index contains items that differentiate between individuals whose focus is on people and things (extraversion) and those whose focus is on concepts and ideas (introversion). Extraverts usually communicate easily, enjoy being sociable, rely on the environment for stimulation and guidance, and have an action-oriented or sometimes impulsive approach to life. Introverts enjoy solitude and privacy. They tend to rely more on concepts and ideas than on events in the environment.

People are categorized on the S/N index in terms of how they take in information. Those with a sensing preference rely on information gathered through the five senses, whereas those whose preference is intuition see possibilities, meanings, and relationships among data and events. Sensors focus on the reality of the present moment, attend to what has practical application, and like to emphasize details. Intuitors are innovative and given to the pursuit of what lies in the future. They often focus on the theoretical and abstract.

For the T/F index, the means of decision making is at issue. Persons with the thinking preference apply objective analysis and rely on logical consequences. Thinkers are concerned with principles of justice and fair-

ness. They approach life from an impersonal, cause-and-effect perspective. The decision maker whose preference is feeling is marked by greater reliance on the subjective and by emphasis on an interpersonal component. He or she is likely to emphasize the relative merits of competing personal and group values. The quest is for the personal rather than the technical or abstract aspects of the situation.

Finally, the items on the J/P index ascribe the judging preference to those who prefer structure, order, and closure in their basic lifestyles. They appear to be purposeful, organized, and decisive. Their tendency is to stop taking in information as soon as it is possible to decide. The perceiving preference is marked by the need for spontaneity, flexibility, and keeping options open. Decisions may be delayed as long as possible in order to take in more information, with the hope thereby of making better choices. The approach to life is one of openness to change and the intent to experience as much as possible (Myers & McCaulley, 1985).

To compute phi coefficients, MBTI preferences were scored 1 for extraversion, sensing, thinking, and judging and 0 for introversion, intuition, feeling, and perceiving.

Categorizations of Leaders

For the purposes of some analyses, leaders were divided into high–low category groups. For the first categorization, subjects were divided into high and low groups based on the leadership and performance ratings provided by followers. The 45 subjects with the highest ratings on each measure were distinguished from the 45 subjects with the lowest ratings on each measure. Thus, a leader could fall into the high category based on a high rating of Charisma provided by followers but into a low category based on low follower ratings of Laissez-Faire leadership.

Self-perception accuracy was the second categorization. Accuracy categories were created on the basis of the degree to which self-assessments were in agreement with follower assessments. The 45 subjects with the most accurate self-assessments (the smallest absolute difference scores between self- and follower ratings) on the MOQ scales were distinguished from the 45 subjects with the least accurate self-assessments (the largest absolute difference scores between self- and follower ratings). Accuracy (or self–other congruence) categorizations were done separately for each leadership and performance scale. For instance, a leader could fall into the high accuracy category with respect to his or her self-perceptions of Charisma relative to followers' perceptions but into the low accuracy category with respect to self- and follower ratings of Leader Effectiveness. The current study avoided the problem of using difference scores in statistical analyses. Difference scores were used solely to categorize squad leaders into high and

low groups. The difference scores themselves were not used in the statistical analyses. For the purposes of some analyses, high categorizations were scored 1, and low categorizations were scored 0.

RESULTS

For each of the leadership scales and performance criteria measured by the MOQ, the scores assigned to leaders by their followers were averaged and compared with the leaders' self-assessment scores. Mean scores and *t* values are shown in Table 1. Scores are based on a 5-point scale ranging from absence of the behavior in question to the behavior is very frequently observed. Table 1 shows a considerable discrepancy, overall, between leaders and followers in their estimates of the leadership behavior being exhibited by the squad leaders. The leaders consistently believed they were doing much better than the followers thought was the case. Only on the Active Management by Exception and Laissez-Faire scales (both undesirable leader behaviors) were the perceptions reversed.

Also apparent from Table 1 are the degrees to which followers perceived each type of leadership behavior to be taking place. Although followers rated leaders as quite charismatic overall ($M = 2.80$), the Active Management by Exception behaviors (e.g., would reprimand my work if it was

TABLE 1
Mean Ratings and *t* Values Comparing Follower and Self-Ratings of Leadership

Leadership Scale	*Follower Ratings*	*Self-Ratings*	*t Value*
Transformational leadership			
Charisma	2.80	3.42	7.87**
Individualized Consideration	2.50	3.16	9.69**
Intellectual Stimulation	2.64	3.09	6.72**
Inspirational Leadership	2.68	3.10	6.42**
Transactional leadership			
Contingent Promises	1.98	2.32	3.61**
Contingent Rewards	2.48	3.54	11.69**
Active Management by Exception	3.42	3.33	−1.71*
Passive Management by Exception	1.74	1.84	1.01
Nonleadership			
Laissez-Faire	0.95	0.83	−2.18**
Performance criteria			
Follower Extra Effort	3.20	2.98	−3.23**
Leader Effectiveness	2.92	3.24	5.08**
Satisfaction With Leader	3.09	3.60	4.48**

*$p < .05$. **$p < .01$.

below acceptable levels) were by far the most frequently observed (M = 3.42). Passive Management by Exception and Laissez-Faire leadership were the least frequent behaviors observed by followers.

Analyses were also performed to assess the relationships between leaders' MBTI preferences and the leadership and performance ratings provided by their followers. Chi-square statistics and phi coefficients were computed to assess the relationships between MBTI types and high–low category groupings on each leadership and performance scale. Because there are four MBTI indexes and 12 high–low category groupings, a total of 48 comparisons were made.

Table 2 presents the chi-square values and the phi coefficients for each MBTI leadership and MBTI performance comparison in which the observed frequency was significantly different from that expected. Absence of an entry indicates absence of a significant expected or observed difference. Specifically, the entry of 9.36 at the intersection of Charisma and the S/N index is a chi-square value indicating that the relationship between these two measures is statistically significant. The phi coefficient (.32), interpreted

TABLE 2
Chi-Square Values and Phi Coefficients for MBTI by High-Low Leadership and Performance Groups

	MBTI Type			
High–Low Follower Rating	*E/I Index*	*S/N Index*	*T/F Index*	*J/P Index*
Transformational leadership				
Charisma		9.36/.32**	5.63/−.25*	
Individualized Consideration			5.63/−.25*	
Intellectual Stimulation				
Inspirational Leadership		4.49/.22*	5.63/−.25*	
Transactional leadership				
Contingent Promises			5.63/−.25*	
Contingent Rewards				
Active Management by Exception				
Passive Management by Exception				4.73/−.23*
Nonleadership				
Laissez-Faire		6.70/−.27**		7.06/−.28**
Performance criteria				
Follower Extra Effort				
Leader Effectiveness		6.70/.27**	5.63/−.25*	
Satisfaction With Leader		9.36/.32**		

Note. The chi-square is presented before the slash; the phi coefficient is presented after the slash. Absence of any entry indicates absence of a significant expected or observed difference. See the Appendix for definitions of abbreviations.

*$p < .05$. **$p < .01$.

like a coefficient of correlation, suggests that the relationship is moderately strong and positive; those with a sensing preference were overrepresented among those rated highest on Charisma by their followers. Sensing types were also rated higher on Inspirational Leadership. The negative phi coefficients at the intersections of the leadership scales and the T/F index indicate that leaders with the feeling preference were overrepresented among those rated highest on Charisma, Individualized Consideration, Inspirational Leadership, and Contingent Promises by their followers. Feeling types were also those rated as the most effective leaders. It is interesting to note that, for three of the four transformational leadership scales, the leaders displaying the most transformational behavior were more likely to be feeling types. Those rated at least transformational were more often thinking types.

Also of interest in Table 2, sensing was negatively related to Laissez-Faire leadership and positively related to two of the three performance criteria. Perceiving types were more likely to be rated by followers as laissez-faire or passive leaders.

Table 3 presents the results of analyses assessing the relationships between self-perception accuracy (self–follower congruence) and MBTI type. The leaders whose self-ratings were most similar to their followers' ratings (high congruence) were compared with the leaders whose self-ratings differed most from followers' ratings (low congruence) on each leadership behavior/performance scale. The MBTI preferences that had observed frequencies significantly different from those expected for each leadership scale by accuracy category are identified with values for chi-square and phi coefficients. There were significantly more squad leaders than expected with the feeling preference among those leaders whose self-ratings of Charisma were most congruent with those of their followers. The sensing preference was associated with congruence on Intellectual Stimulation, Contingent Rewards, and Leader Effectiveness. Intuition was associated with congruence on Passive Management by Exception. Agreement between self- and follower ratings on Inspirational Leadership, Contingent Rewards, and Follower Extra Effort was more frequent among introverts than among extraverts. Feeling types had more congruent ratings on Charisma than thinking types. Perceiving types were most likely to have self-congruence and follower congruence on ratings of Passive Management by Exception and Laissez-Faire leadership. Judging types had more congruent ratings of Leader Effectiveness than perceiving types. In general, self-rating congruence was highest among those whose preferences were for introversion and sensing.

Table 4 presents the correlations between followers' ratings of their own willingness to exert extra effort for their leader and the leaders' behaviors in the various leadership categories. The results suggest that followers are

TABLE 3
Chi-Square Values and Phi Coefficients for MBTI by High-Low Congruence Groups

	MBTI Type			
High-Low Congruence	*E/I Index*	*S/N Index*	*T/F Index*	*J/P Index*
Transformational leadership				
Charisma			8.40/ – .31**	
Individualized Consideration				
Intellectual Stimulation		9.36/.32**		
Inspirational Leadership	6.67/ – .27**			
Transactional leadership				
Contingent Promises				
Contingent Rewards	6.67/ – .27**	9.36/.32**		
Active Management by Exception				
Passive Management by Exception		4.49/ – .22*		4.73/ – .23*
Nonleadership				
Laissez-Faire				4.73/ – .23*
Performance criteria				
Follower Extra Effort	4.63/ – .23*			
Leader Effectiveness		6.70/.27**		7.07/.28**
Satisfaction With Leader				

Note. The chi-square is presented before the slash; the phi coefficient is presented after the slash. Absence of any entry indicates absence of a significant expected or observed difference. See the Appendix for definitions of abbreviations.

*$p < .05$. **$p < .01$.

more likely to exert extra effort for leaders who are rated as transformational (i.e., charismatic, inspirational, intellectually stimulating, and considerate). Contingent Promises and Contingent Rewards were also associated with extra effort. Active Management by Exception, the most common type of leadership reported by followers, was unrelated to Follower Extra Effort. Laissez-Faire leadership was negatively related to Follower Extra Effort.

DISCUSSION

One salient result of this study is the magnitude of the differences in the self-ratings provided by the leaders compared with the followers' ratings of the leaders. The data show a consistent trend in which the leaders overestimated the extent to which they were practicing transformational leadership, Contingent Promises, and Contingent Rewards. The pattern is the same as that described by Bass and Yammarino (1989). There also

TABLE 4
Correlations Between Follower Ratings of Extra Effort and Squad Leader Behaviors

Leadership Scale	*Correlation With Follower Extra Effort*
Transformational leadership	
Charisma	.42*
Individualized Consideration	.34*
Intellectual Stimulation	.40*
Inspirational Leadership	.40*
Transactional leadership	
Contingent Promises	.31*
Contingent Rewards	.44*
Active Management by Exception	.17
Passive Management by Exception	−.07
Nonleadership	
Laissez-Faire	.41*

*$p < .01$.

appears to be a tendency on the part of leaders to underestimate the degree to which they engaged in Active Management by Exception, the principal type of leadership on which followers perceived their leaders to be relying.

The second striking note is the extent to which followers identify as transformational those leaders with the sensing rather than the intuition preference and the feeling rather than the thinking preference. The intuition preference is generally described by MBTI theorists in terms that would make it a near-perfect match for some of the transformational behaviors in the paradigm described by Bass (1985). For example, intuitives like change; they rely heavily on symbols and images; they like to experiment with new ways of doing things; and they are committed to competence (Myers & McCaulley, 1985). Why then did the followers in this study consistently rate intuitives as less likely to demonstrate transformational leadership than was the case with their sensing peers? A number of reasons come to mind. Intuitives can easily become bored with repetition and routine. Plebe summer, like many military contexts, involves a highly constrained routine. Squad leaders are limited in the degree to which they are free to depart from the training schedule. In addition, the tasks to be learned by the plebes are relatively pedestrian, such as saluting, marching, and wearing uniforms. Such a regimen requires large doses of attention to detail—behaviors in which intuitives often do not excel. Their strength lies in seeing the big picture rather than the details. In other words, part of the problem may have been the nature of the tasks in which they were engaged. Given the opportunity to lead in circumstances that called for ascertaining the big

picture and determining creative solutions to problems in rapidly changing scenarios, it is possible that intuitives would be rated as more transformational by their followers.

The stereotype of the military leader often conjures up an image of the impersonal, logic-based approach to decision making. In MBTI terminology, this is a portrait of the thinking as opposed to the feeling preference (Myers & McCaulley, 1985). The followers in this study said quite clearly that the stereotype does not prevail as the preference for transformational leaders. Midshipmen with the feeling preference constitute only about one fourth of the population at the Naval Academy (Roush, 1989). The percentage of feeling types was found to be even lower (about 15%) among high-level Army generals and top-level corporate executives (Campbell, 1987). Feeling types, however, were strongly overrepresented among the high scorers on transformational leadership and on the Contingent Promises aspect of transactional leadership as rated by followers in this study. These feeling types were also more able to assess their own leadership behavior accurately when follower ratings were taken as the reference point. The feeling preference is, in fact, very consistent with the qualities that constitute the four transformational leadership categories. For example, the transformational emphasis on personal counseling, the importance of beliefs and values, the commitment to developing a climate of openness and trust, and the exhortations to transcend self-interest for the good of the group are all compatible with the feeling preference. Additionally, those with a thinking preference and its impersonal, logic-based approach are not likely to be seen as being high in individualized consideration. For example, leaders with a thinking preference may unintentionally communicate to followers a sense that the reward for excellence is no punishment. It is characteristic of many with the thinking preference to be relatively insensitive to how others are feeling. Likewise, their analytical emphasis may be seen by followers as devoid of the emotional content that is an important component in charisma and inspirational leadership.

Table 2 showed that judging and perceiving differences were significant only for the Passive Management by Exception and Laissez-Faire leadership categories. These differences can be predicted clearly from MBTI theory (Myers & McCaulley, 1985). People whose preferences are for judging seek structure, like rules, and want to lead scheduled and planned lives. They are also prone to try to plan the lives of those around them. They would not be expected to be passive or laissez-faire leaders. Those whose preferences are for perceiving prefer a more flexible, live-and-let-live approach to life. The perceivers, however, were apparently aware of their passive approach. Table 3 shows that the only areas in which perceivers had more accurate self-ratings than judgers (when using follower ratings as the point of

reference) were in Passive Management by Exception and in the Laissez-Faire approach. They were, in other words, keenly aware of their passive leadership.

The absence of any differences in follower ratings between extraverts and introverts in the nine leadership and three performance categories is somewhat surprising (see Table 2). The presumption in many leadership training programs is that a preference for extraversion not only enhances one's leadership potential but may be essential to the process (McCaulley, 1990). The evidence in this study did not sustain that presumption. Introverts' ratings by followers on transformational leadership were as high as extraverts', and, unlike their extraverted peers, they knew how they were doing. In every instance in which there was a significant difference in rating congruence involving the extraversion–introversion dichotomy, introverts' self-assessments were much closer to those provided by their followers than was the case with extraverts.

Implications

A major finding in this study is that there were large discrepancies between the way leaders and followers assessed leadership behaviors employed by the midshipmen squad leaders. It might be argued that the problem existed because the leadership opportunity under investigation occurred early in the leaders' military experience when they were less aware of followers' perceptions. Or perhaps it occurred because the judges were young and inexperienced followers who were not reliable raters. The study by Yammarino and Bass (1990), however, produced very similar results when it looked at the leadership ratings of Naval Academy graduates who had been in the fleet for several years and who were also evaluated by followers. The implication may be a need for more systematic training in self-assessment. This at least seems to require the following:

1. Education to produce awareness that certain leadership behaviors are more likely to yield higher performance from followers.
2. Feedback mechanisms that (a) permit leaders to learn how they are perceived and (b) let them adjust their self-assessments until they are able to identify behaviors that either foster or impede effective leadership.

This study also demonstrates that perceptions of the degree to which certain transformational leadership behaviors are employed by leaders are related to the MBTI preferences of those leaders. One could hypothesize that differences in the MBTI preferences of followers would be related to followers' perceptions of leader behaviors. It might be useful, therefore, to

do research to test this hypothesis. Additionally, there may be merit in learning to estimate others' MBTI types as a means of imputing purpose to behaviors that might otherwise appear to be random. A modicum of MBTI education is under way at the Naval Academy, but there may be merit in going further and in expanding this awareness training to other military settings.

Based on the findings that extraverts were no more transformational, and their self-perceptions were less accurate, than introverts, the notion of extraversion as a leadership prerequisite should be questioned. One implication is that leadership evaluation paradigms that place value on extraverted behaviors may be dysfunctional. *Participation,* for example, may need to be more broadly conceived than ease and frequency of verbalizing.

The tendency to rely so heavily on Active Management by Exception as a leadership method may imply that the demands on the squad leaders are approaching saturation. This reliance, in other words, may derive from the perceived cost to the leader in expenditure of time and psychic energy for doing otherwise. This finding has implications for many situations in which the degree of role overload is high. This issue is critical, for example, during the academic year at the Naval Academy. Most midshipmen are required to negotiate successfully at least 147 hr of academic credit in order to graduate, and many additional hours are required in the classroom and in professional training for which no academic credit is allotted. Midshipmen also spend considerable time on military duties and in the plebe indoctrination process. As a result, they may have learned long before assuming their duties with the plebe detail to intervene primarily when there are indicators that performance is in danger of breaking down. That is, in fact, a reasonable survival mechanism when there is too much to do in too little time, which is also a common occurrence in many military units. It may not, however, be accomplishing the mission as well as other leadership behaviors could.

One theme that was pervasive in the study was that hands-off leadership did not produce highly motivated followers. Where that leadership style was practiced, followers reported that they exerted significantly less effort. Additionally, Active Management by Exception, the most practiced type of leadership, was unrelated to follower effort. Level of effort was clearly a function of followers' perceptions of transformational and positive reinforcement behaviors.

Because the study replicates earlier findings that transformational leadership practices yield higher scores on the performance criteria, it seems prudent to ascertain whether or not the findings generalize broadly in the military. If the answer is affirmative, training efforts should move quickly to focus on those practices. All of the transformational leadership and the contingent promises and rewards aspects of transactional leadership have

been part of the formal leadership instruction at the Naval Academy for some time. This study suggests, however, that giving higher visibility to those aspects has potential for producing enhanced performance.

Additional opportunities for feedback may enhance the ability of leaders to assess how they are doing. The evidence is clear that the ability for self-assessment was not well developed among midshipmen when the data were collected for this study. If done on an anonymous basis and presented to leaders as aggregate data, routine provision of follower perceptions could be an invaluable part of the leadership training process for midshipmen and others. In that the self-assessment problem has apparently persisted after graduation from the Naval Academy (see Bass & Yammarino, 1989), the potential return on such an investment could be enormous.

The high leadership ratings and accuracy of self-perception noted for individuals with certain MBTI types that are not common at the Naval Academy put a premium on their retention both at the Naval Academy and in the military following graduation. The contrary condition prevails, however; the voluntary attrition of midshipmen with the MBTI feeling preference is much greater than for those with a thinking preference (Roush, 1989). Perhaps greater emphasis on positive leadership and self-awareness will reduce this trend.

In sum, this study suggests avenues for improved leadership training and demonstrates the usefulness of the MBTI in understanding how psychological preferences can provide insight into leadership behavior. Future researchers should continue to consider the MBTI as a research instrument with the capability for explicating leadership variables.

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APPENDIX

Distribution of MBTI Types Among 90 Squad Leaders in Plebe Summer Detail

ISTJ	ISFJ	INFJ	INTJ
$n = 21$	$n = 3$	$n = 1$	$n = 5$
23.3%	3.3%	1.1%	5.6%
ISTP	**ISFP**	**INFP**	**INTP**
$n = 1$	$n = 1$	$n = 1$	$n = 3$
1.1%	1.1%	1.1%	3.3%
ESTP	**ESFP**	**ENFP**	**ENTP**
$n = 4$	$n = 4$	$n = 1$	$n = 8$
4.4%	4.4%	1.1%	8.9%
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
$n = 25$	$n = 6$	$n = 1$	$n = 5$
27.8%	6.7%	1.1%	5.6%

Note. The bipolar MBTI preference indices are: E/I = extraversion/introversion; S/N = sensing/intuition; T/F = thinking/feeling; J/P = judging/perception.

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