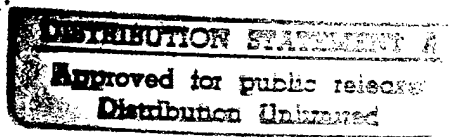


THE IMPACT OF TRAINING AND CULTURE ON LEADERSHIP
VALUES AND PERCEPTIONS AT THE UNITED STATES ARMY
ENGINEER SCHOOL

by

100% QUALITY INSPECTED 3



TED ALAN THOMAS

A DISSERTATION

Presented to the Faculty of the Graduate School of the

UNIVERSITY OF MISSOURI-ROLLA


In Partial Fulfillment of the Requirements for the Degree

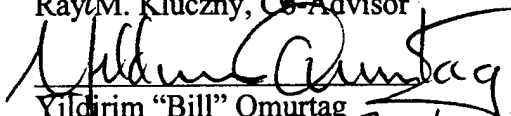
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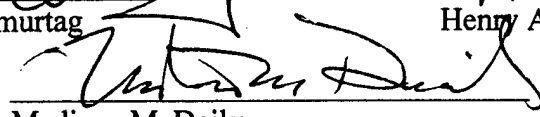
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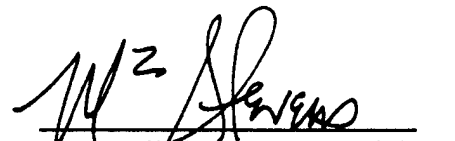
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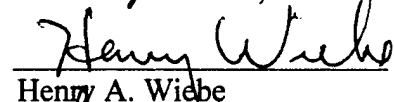
1998


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ABSTRACT

This research represents the first analysis of the effectiveness of Army engineer officer entry level leadership training. The study measured the initial leadership value orientations and perceptions of Engineer Officer Basic Course (EOBC) students and measured the changes in leadership values from the seventeen weeks of leadership training which the students attended. These changes in attitudes were then compared to Engineer Officer Advance Course (EOAC) students' leadership values to provide a validation of the instruction. The EOBC students are training to assume leadership positions which the EOAC students were in. A random sample of business leaders' values were then compared to the Army engineers' values to draw cultural leadership comparisons.

The study determined that leadership values can be taught and learned. The EOBC students' values were modified and brought closer in line to the EOAC students' values on leadership. The study further determined that the Army's leadership values are strongly influenced by the military culture which is based on a set of core values and characteristics. The EOAC leadership values were found to be significantly different from the business leadership values.

The study used the Systematic Multiple-Level Observation of Groups (SYMLOG) instrument to gather and analyze the data. This tool is a proven valid and reliable method for gathering and analyzing the data.

The Army is using several techniques to accomplish the training and indoctrination into its culture. The research indicates that other organizations could use similar leadership techniques to train their leaders and get the results which they require.

ACKNOWLEDGEMENTS

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Last, I want to thank the Engineer Officer Basic Course and Engineer Officer Advance Course students who willingly took part in the survey. They provided the data for the research.

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LIST OF ABBREVIATIONS

2LT - Second Lieutenant

1LT - First Lieutenant

ANOVA - Analysis of Variance

AR - Army Regulation

CPT - Captain

COL - Colonel

DA Pam - Department of the Army Pamphlet

DoD - Department of Defense

DTLOMS - Doctrine, Training, Leader Development, Organizations, Materials, Soldiers

EOAC - Engineer Officer Advanced Course

EOBC - Engineer Officer Basic Course

FM - Field Manual

FTX - Field Training Exercise

GEN - General

MAJ - Major

MG - Major General

LTC - Lieutenant Colonel

OCS - Officer Candidate School

ROTC - Reserve Officer Training Corps

SCG - SYMLOG Consulting Group

STX - Situational Training Exercise

SYMLOG - Systematic Multi-Level Observation of Groups

TAQ - Total Army Quality

TRADOC Pam - Training and Doctrine Pamphlet

USAES - United States Army Engineer School

USMA - United States Military Academy

I. INTRODUCTION OF THE PROBLEM AND ITS SETTING

A. INTRODUCTION AND STATEMENT OF THE PROBLEM

There is a difference of opinion in academic circles on whether or not leadership can be taught and learned or if it is a trait or characteristic with which a person is born or naturally endowed. This study aims to address this question by studying the effects of Army leadership training and education on junior level Army Engineer officers assigned for training at the United States Army Engineer Center (USAEC) located at Fort Leonard Wood, Missouri. This study will examine the leadership values of USAEC students at the entry level, the Engineer Officer Basic Course (EOBC), and at the three to six year level of service, the Engineer Officer Advance Course (EOAC). The result of the survey is to answer the question: Can leadership be taught and learned?

Each lieutenant comes to the Engineer Officer Basic Course (EOBC) with years of experience, knowledge, and preconceptions about leadership. The seventeen weeks of training in leadership received at EOBC is a small time compared to the number of years in the average lieutenant's life. However, there are certain times in life when the amount of learning is compressed in a short amount of time. It is usually associated with a time of intense stress or challenge. EOBC is designed to produce stress and to challenge its students. It provides a controlled and focused learning environment in which students are free to try and fail and then to try again.

EOBC students are commissioned into the Army from several different sources. Each officer has different views on leadership depending on their individual background.

With varying amounts of prior military training, the impact that EOBC has on students based on their commissioning source should vary. In fact, there should be less learning or changes in leadership values and perceptions among United States Military Academy (USMA) graduates and Officer Candidate School (OCS) students who have had rather extensive military training in a twenty four hour a day, seven day a week environment for years rather than among Reserve Officer Training Corps (ROTC) students whose military experience consists of a few hours a week and a couple of weeks in the summer.

Therefore, the ROTC leadership maturity should be at a different level and at a level more easily molded and changed by the leadership culture and climate at EOBC. Leadership takes time to mature. Seventeen weeks of training is a short time to mature in leadership compared to four years of leadership maturation at USMA. Therefore, seventeen weeks of training should have more of an impact on those students with less leadership background, i.e. the ROTC students.

Students attending the Engineer Officer Advance Course (EOAC) are usually Captains or promotable First Lieutenants who have served in the Army at least three years and often up to six years or more. Their values and perceptions about leadership should differ from those of the EOBC students based on the added years of on the job experience which the EOAC students possess. The advance course students have several years in the military and have a lot more exposure to leadership and being in leadership positions. The basic course students should have a less mature outlook on leadership with, as a general rule, less experience in leading and consequently a different outlook on leadership than the EOAC students. However, after the seventeen weeks of training in the basic course, the

difference between the two groups should be less than before the basic course, if leadership can be trained and learned.

The environment and culture in which one is immersed should also have an impact on leadership values and perceptions. This difference should be pronounced in comparing business leaders' values on leadership to military leaders' values. The business leadership values and norms are different than the military's. Business leaders, by and large, are driven by profit. They have power to hire and to fire. Military leaders work with the soldiers they are given. There is no profit motivation in the Army. Everyone at the same pay grade gets the same amount of pay, based on time in service. The military is a values driven organization and has a warrior ethos associated with it. These two cultures provide a marked contrast to measure the effect of a strong, cultural influence on the values and perceptions about leadership of young military leaders.

B. HYPOTHESES

In order to answer the problem of whether or not leadership can be learned, this study proposes to address four questions. First, do the perceptions of effective leadership held by officer attendees in EOBC differ according to the commissioning source of the attendees? The answer to this question provides a foundation on which to build the next question. Second, based on commissioning source, how much of an effect does the seventeen weeks of training and education received at EOBC have on the perceptions of effective leadership of EOBC students? The answer to this question addresses the crux of the study - can leadership be taught and learned. This question also addresses a time constraint of seventeen weeks in assimilating lessons on leadership. Third, is the training

of EOBC students effective in changing leadership perceptions closer to ones that the students need to be effective as platoon leaders? The answer to this question may provide some validation of the course of instruction and training given at EOBC. Fourth, how much effect does the Army culture have on molding engineer officer perceptions of effective leadership? The answer to this last question deals more with a long term approach to learning and molding leadership values and provides a cultural basis of comparison.

This study starts by examining leadership perceptions of the officers just entering the Army, then examines the influence of entry level training, then examines the influence of three to six years of Army leadership experience, and finally examines the influence of the Army culture compared to a more generic, business based culture and value system. Since evaluating leadership is a very subjective measure, this study will evaluate leadership perceptions and values held by each of the subjects while attending the engineer officer courses. By measuring the subjects' perceptions and values on effective leadership, the study is able to gain a more objective look at leadership training and use statistical techniques to measure changes in the subjects' outlooks on leadership. The end result is to determine if leadership can be taught and whether or not it takes months or years to do so. These four questions are addressed specifically by the following four hypotheses.

1. First Hypothesis. Engineer officers attending their basic course commissioned through USMA, OCS, or ROTC will show a statistical difference in their perceptions of the values shown by the most effective leader (MEL) that they have known.

The first hypothesis addresses the commissioning source of the new officers. Academy graduates undergo four years of leadership training in a disciplined and rigorous

military environment. OCS graduates have been through basic and advanced individual training and usually have been in the Army for several years before attending OCS. Both of these groups have been trained extensively to aspire to become leaders and were placed in many leadership positions during their training. Colleges are often looked upon as the first introduction to the exercise of leadership, but not many American youth go to college to become leaders. "Only in the military academies is the attainment of leadership positions a stated goal" (Clark & Clark, 1990: 13). The teaching and instilling of pivotal values such as "duty, honor, country" and selfless service are stated objectives in military academies. Based on these values and the emotions they elicit, transformational leadership is an important cultural and social component of leadership indoctrination and training in the military academies (Clover, 1990: 3; McCoy & Clover, 1988). Thus, there should be a measurable difference in leadership values and orientations based on commissioning sources.

The independent variable in this hypothesis is the commissioning source. The dependent variable in all of the hypotheses is the data gathered on leadership values and perceptions.

2. Second Hypothesis. The seventeen weeks of training at EOBC will cause a statistical difference in the perceptions of the values shown by the some of the EOBC attendees regarding their image of the most effective platoon leader (EPL) known.

The second hypothesis addresses a very much debated point - can leadership be taught and learned? No one questions whether or not management can be taught. It involves a set of skills and techniques which can be learned and practiced. The same is not necessarily true for leadership. Leadership is often seen as a set of innate personality

characteristics (Kouzes & Posner, 1995: 322). The difference between management and leadership can be likened to the difference between training and education. Training involves teaching a set of skills or techniques which are applied over and over to the same or similar circumstances, just as management involves specific skills and tasks which are routinely applied to the same or similar conditions. Education involves teaching principles and concepts which are applied to an infinite number of circumstances and situations. Similarly, leadership requires using a set of principles applied uniquely to any number of varying leadership situations based on the followers and the environment and the tasks to accomplish, as well as on the personality of the leader. "By viewing leadership as a nonlearnable set of character traits, we've created a self-fulfilling prophecy that dooms society to having only a few good leaders. It's far healthier and more productive . . . to start with the assumption that it's possible for everyone to lead" (Kouzes & Posner, 1995: 323). The second hypothesis states that leadership can be taught, albeit, 17 weeks of training will not have as much affect on USMA and OCS officers who have been through more intense leadership training and education as compared to the ROTC graduates whose leadership training and education, on average, has been a little less intense.

The independent variable in this hypothesis is the seventeen weeks of instruction, training and education received at Fort Leonard Wood, Missouri, during EOBC. The data from the first hypothesis provides a means to determine the influence of the leadership training received in the basic course.

3. Third Hypothesis. By the end of EOBC, the students' perceptions of the leadership values held by the most effective platoon leader (EPL) known will be closer to

the perceptions of the EOAC students who have been in the military service for at least three years.

If leadership can be taught and learned, then the experiential training and education of being in a leadership position should have an affect on one's thoughts about leadership. The third hypothesis follows from the second hypothesis. If leadership can be taught and learned, as the second hypothesis states, and if EOBC is teaching young officers to become more effective platoon leaders, then their sense of leadership values after the training in EOBC should more closely approximate those of the officers who were recently platoon leaders than they did before the training and education received in EOBC. The third hypothesis states that the training received should influence the students to change their values and perceptions on leadership to more closely resemble those values which they need to exhibit in order to perform more effectively as platoon leaders. The measure of an effective platoon leader is taken as the values and perceptions of those officers who have most recently been platoon leaders - the officers attending EOAC.

The additional independent variable in this hypothesis is the length of service which the EOAC officers have spent in the military. This length of time is three years or more. This hypothesis builds on the last hypothesis by comparing the change in leadership values and perceptions from the basic course of instruction to the on the job training received by engineer officers who served in the actual leadership positions for which the lieutenants are training.

4. Fourth Hypothesis. There will be a statistically significant difference in the perceptions of the most effective leader (MEL) known held by the EOAC students and that held by a typical business leader profile of their most effective leader known.

Wallace Bachman (1988) in his research on Naval officers found that the superior Naval officers were rated higher in the areas of dominant behavior, values on friendliness, and in the acceptance of authority than an average group of business leaders. However, the average group of Naval officers were rated higher only in the areas of dominant behavior and acceptance of authority. The added emphasis on friendliness was missing from the average Naval officer ratings, but was the same as the group of business leaders. The Navy leadership culture provides a starting point to make assumptions about Army leadership behavior. Since there is no differentiation of average and superior officers in this survey, a comparison between military leaders (to include both Navy and Army) and business normatives would lead one to believe that this survey should show a difference with the military exhibiting higher values in dominant behavior and acceptance of authority and little difference in the friendliness dimension.

The additional independent variable in this hypothesis is the leadership climate or culture in the business community. This hypothesis builds on the last hypothesis, comparing the EOAC students to the business community and, in effect, using the business responses as a control group which has not had any military training.

C. THE ARMY ENGINEER OFFICER COURSES

The United States Army Engineer Center (USAEC) at Fort Leonard Wood, Missouri, is the center for all engineer related training in the Army, both officer and enlisted. It is also the Army's second largest basic training post. There are four officer courses taught at the fort. There is the Warrant Officer Basic Course, the Warrant Officer Advance Course, the Engineer Officer Basic Course (EOBC) and the Engineer Officer

Advance Course (EOAC). This study only involves the last two courses, EOBC and EOAC.

1. Background on the Engineer Officer Basic Course (EOBC). The United States Army commissions approximately 500 officers a year into the Engineer Branch. As such, the army is one of the largest employers of engineers in the United States. However, one of the most important aspects of bringing these college graduates into the military is not to make them engineers, but to make them engineer platoon leaders. The first job that these 500 engineer officers will assume upon graduation from EOBC is to become platoon leaders, in charge of between 27 and 36 soldiers.

Each of these newly commissioned Second Lieutenants (2LTs) comes from a different background. About 50% are Reserve Component officers, serving either in their state's National Guard or in the United States Army Reserve. About 20% are commissioned from the United States Military Academy at West Point and about 7 to 10% are OCS graduates, having previously served in the military as enlisted soldiers. The bulk of the rest are commissioned through ROTC courses offered at many colleges throughout the country. These officers do not all have engineering degrees. In fact, only about 40% have engineering related degrees, about another 30% have math or science degrees, and the remaining 30% have liberal arts degrees. Thus, one of the purposes of EOBC is to provide a common foundation of engineering and leadership training. Much of the 17 week experience in EOBC is dedicated to educating officers in the military culture and in teaching them how to be soldiers and, most importantly, how to be leaders.

EOBC is the initial contact that all engineer officers have with their branch specific leadership training, education and development. It is in this school that officers are first

introduced to many of the engineer leader attributes and capabilities listed later in the chapter.

2. Background on the Engineer Officer Advance Course (EOAC). The engineer school trains approximately 200 active duty engineer officers a year in a twenty week long course called the Engineer Officer Advance Course. These officers come from units where they have been platoon leaders and staff officers for at least three years. They return to the engineer school for training to become a company commander.

Since most of the Corps of Engineers is in the Reserve Components, most of the Reserve Component officers are trained in a separate two week advance course at Fort Leonard Wood, which is preceded by a lengthy correspondence course. The EOAC responses used in this study were all taken from the active duty officers attending the twenty week long course. The surveys were administered as part of their in-processing, before any of their course actually started.

3. Leadership Training and Education in EOBC. Much of current leadership literature talks about corporate leader development. Most formal corporate executive leadership teaching and training is done in the classroom (Hall, 1986) and most of the research in this area focuses on what is learned in the classroom (Kelleher, Finestone, & Lowy, 1986). But to a large degree, leadership development actually occurs informally outside of the classroom (Ruderman, Ohlott, & McCauley, 1990). In fact, on the job experiences are the major source for important leadership learning for managers (Lindsey, Homes, & McCall, 1987; McCall, Lombardo, & Morrison, 1988) and not formal programs. The stresses and challenges of the job make the leader learn to deal with problem solving and people issues, forcing the leader to perform (McCauley, 1986).

Thus, organizations can maximize their leadership development programs by putting their leaders through training which approximates what they will experience on the job and by taking advantage of opportunities to develop their leaders while on the job through feedback, coaching and mentoring as they perform their missions. Much of what is talked about in the corporate world for leader development is used in training leaders in EOBC.

The Chinese philosopher, Lao Tse, has given a much often quoted and still valuable outlook on learning.

If you tell me, I'll listen.
If you show me, I'll see.
If I experience it, I'll learn.

Lao Tse

EOBC uses all three of Lao Tse's facets of teaching (hearing, seeing, and doing) as well as approximating as closely as possible the actual experiences in leading a platoon, supplemented with feedback, coaching and mentoring. The classroom training on leadership in EOBC consists of 24 hours or 3 days of instruction. It covers topics such as professional ethics, motivating subordinates, unit cohesion, problem solving, counseling, developing subordinates, risk management, taking charge of a platoon, combat stress, and battlefield leadership. This training is mostly the "tell me" part of the leadership instruction with some role playing practical exercises thrown in. Each platoon has platoon mentors who are current or former battalion and brigade commanders. These mentors have the opportunity to talk to their platoon during the course to discuss leadership issues. It allows the 2LTs an opportunity to ask questions with no fear of any consequences, giving them the freedom to question and to learn. There are also "brown bag lunches" with their battalion commander which supply an opportunity for 2LTs to interact with

another senior officer on leadership concerns. Both of these programs give the lieutenants free access to commanders, allowing them to gain a perspective they would not otherwise obtain. Almost all of the instructors in the course are military personnel who use much experiential instruction in their classroom lectures and exercises - once again, giving the lieutenants an opportunity to learn from others' experiences. The students are taught how to conduct battle focused training, which is leadership oriented training. They are given practical exercises to complete which allows them to practice what they learned. Each platoon has two platoon trainers who have either been a platoon sergeant or a platoon leader. The lieutenants see them in action on a daily basis and listen to them on a daily basis. The trainers are a great source of experience and leadership who are readily accessible to these students. The trainers provide both a "tell me" and a "show me" experience for the future platoon leaders.

The lieutenants get to see how basic rifle marksmanship is conducted. In this training, they are taught how to fire a weapon, shown how to fire a weapon, and made to go fire and qualify with a rifle. This too is leadership training. The instruction covers how to teach large groups of soldiers, how to give individual attention and coaching, how to maintain a safe environment, how to run a range, and how to interact in a somewhat stressful environment with bullets flying down range. The emphasis is on leading soldiers to accomplish a task in a safe manner. The 2LTs are not put in leadership positions at the range, though. The training in demolitions and landmine warfare is leadership oriented. The students are taught the basics of demolitions and landmine warfare and are then put in leadership positions to install or remove inert minefields. They have to give operations orders and actually lead their fellow students in accomplishing team oriented tasks. The

lieutenants are shown how to conduct physical training, are put through physical exercises, and are then put in charge of leading physical training - once again, a leadership task in the army. They get to progress from the "tell me" to the "show me" to the "experience" stages in all of these areas of training.

During the course, lieutenants are put in leadership positions as platoon leaders, squad leaders, academic counselors, activities coordinators, first sergeants, and executive officers to name a few. They gain first hand experience in leading their peers through the student chain of command. The students are given opportunities to prepare and teach classes on different military subjects - a leadership responsibility in the military. Throughout this training, the platoon trainers are there to provide both oral and written counseling and feedback to the students. The trainers provide a threefold function in teaching, coaching, and mentoring the lieutenants in these positions.

A major portion of the course is invested in situational training exercises (STXs) and field training exercises (FTXs) in which the students are given tasks to accomplish based on the training given previously. The STXs are student led, but the cadre of platoon trainers are there to coach, direct, guide, and assist. The STXs build teamwork as lieutenants set up a bivouac area and perimeter defense, conduct support and stability operations, put in large, complex obstacles and then breach these obstacles. The lieutenants are in leadership positions and learn that if they do not accomplish the mission correctly, the trainers are there to make them do it again. The students learn the value of proper planning and rehearsals and of delegation, since the leader cannot do everything in the time allowed or with the complexity of the missions given. Training is truly conducted to standard, and not to time. The next phase of training goes into a full blown FTX in

which the trainers become evaluators and observers/controllers. The leadership piece is now fully shouldered by the students. It is a stressful time when there are more missions than time allows them to accomplish. They go for five days on very little sleep and continual pressure to accomplish missions, experiencing what it is like to lead tired, overworked soldiers while being tired and overworked themselves.

Throughout the course, an emphasis is maintained on values, integrity, and ethics - all military leader qualities. It is a disciplined environment, where high standards of performance and excellence are set in their missions and in their conduct, both on and off duty. The emphasis is on building a team through leadership and making the students work together, depend on each other, and lead each other. They each have ample opportunities to hear, see, and do in regards to leadership. The course teaches many things about construction, combat engineering, tactics, and basic soldier skills. But the emphasis is on preparing the lieutenants to be leaders at each one of these tasks, and providing an environment in which one is free to try and fail and to try again in developing leadership skills and styles. This course provides on the job type training combined with teaching, coaching, and mentoring for the lieutenants before they actually get on the job.

4. Engineer Leader Attributes and Capabilities. The goal of the United States Army Engineer School (USAES) at Fort Leonard Wood, Missouri, is to train and educate engineers to be prepared to fight their nation's wars. The engineer officer leadership attributes and capabilities (Engineer 2010, 1995) for the Army in the year 2010 are given as follows:

Leader Attributes:

- Firm leadership foundation - leader, coach, team organizer
- Solid base in doctrine - Engineer, Combined Arms, Joint
- Computer literacy - second nature in applications
- Technology awareness - creatively applies technological solutions
- Ability to synchronize multiple systems
- Versatility - quickly master changing missions

Leader Capabilities:

- Visualizing and predicting effects of terrain on military operations
- Planning and executing independent operations within commander's intent
- Combining and using technology with imagination
- Developing and using detailed, understandable, flexible operations plans
- Building the unit into a close-knit team, trained and encouraged to find independent solutions within the commander's intent

These are also the leadership attributes and capabilities which the Army is striving to attain today. The vision is to keep pace with emerging technology.

D. DELIMITATIONS

This research aims to examine military training and study the impact of the military environment and culture on young officers' leadership values. The study is based on approximately 40 % of the annual student load of EOBC students and 75% of the annual student load of engineer branch EOAC students attending the courses in calendar year 1997. There are several environmental and social variables which could potentially have a

profound effect on the study and warrant further research, but are outside the immediate scope of this paper. Some of these other variables not addressed are age, race, gender, degree background and service component (i.e., National Guard, United States Army Reserve, or Active Army). Data on most of these other variables was collected and can be examined at a later time. There are also 80 to 90 international student officers who attend EOBC and EOAC each year. These students come from about 50 different countries and provide an extremely diverse set of backgrounds and experiences. However, information was not collected from them because they represent extremely small data groups of one to two soldiers per country.

1. Age. Age will have an impact on leadership values and perceptions.

Leadership matures with time and experience level. To a certain extent, this age and experience differential should become apparent in the differences between the basic course and the advance course responses. The majority of lieutenants attending EOBC are a fairly uniform age between 22 and 25 years old. The EOAC students then are mostly between the ages of 25 and 30. However, trying to determine the specific ages to test for differences could become very complicated. Should the cutoff be at age 25, and if so, how will that affect the mixing and matching of EOBC students with EOAC students? Then the question becomes how to separate out previous military experience as the main contributing factor in varying test results versus just age difference. Most older lieutenants have prior service in the military, so the question remains whether it is the military training or the age which is the cause of any differences.

2. Race. Fred Fiedler and Robert House published a report in 1994 which stated that men and women and those of different racial and ethnic backgrounds are equally

effective as leaders. Some preliminary findings in this research tends to point out that there is some significant difference in leadership perceptions between men and women in the area of friendliness values. Women tend to put a lot more emphasis on a friendly work environment than do men. Whether this affects their abilities to function effectively as leaders is not evaluated and would require further research outside the scope of this survey. The sample size of women looked at was small and needs to be expanded for more extensive study. Further research needs to be done in this area.

There are very few black, Hispanic, Asian, or other ethnic groups coming through EOBC making the sample size extremely small. This area would probably be worthy of further research, but in a larger pool of officers than those included in this study. As such, race is not taken into account as a factor in this research.

3. Degree Background. Officers with many kinds of degrees are assessed into the Corps of Engineers and attend EOBC. There are many factors taken into account in assigning officers to the engineer corps and degree background is only one. Since liberal arts majors and math/science majors are assessed into the corps of engineers along side engineer majors, there is some question as to the need or validity of having an engineer degree to succeed in the engineer branch. In a recent study of 186 Naval Academy graduates, choice of major was not found to be a significant predictor of success (Yammarino and Bass, 1990: 162). Using the Naval Academy graduate study, degree should not be a predictor of success in a military leadership position. The current demographics and breakdown of engineer officers by degree and by rank in Table I further reinforces and validates the results which Yammarino and Bass found.

Table I. Engineer Officer Bachelor Degrees by Academic Major and by Rank

	<u>Second</u> <u>Lieutenant</u>	<u>First</u> <u>Lieutenant</u>	<u>Captain</u>	<u>Major</u>	<u>Lieutenant</u> <u>Colonel</u>	<u>Colonel</u>
Engineer	61%	63%	65%	64%	76%	73%
Math or Science	14%	13%	15%	14%	13%	11%
OTHER	24%	24%	20%	22%	11%	16%

4. Service Component. There should be very few differences in leadership values and orientations at the lieutenant level due to service component. For the OCS lieutenants who have prior service in a particular service component, the problem becomes separating the service component affect from the experience affect of having been in prior military leadership positions and length of time in service. Most of the new officers are fairly recent graduates of a college or academy with very little affiliation to a service component. A better time to study leadership differences due to service component is at the Captain level during the advance course. Then the officers have been a part of the National Guard culture or the Army Reserve culture or the active Army culture for some length of time greater than three years. Once again, this becomes a great area for future research, but better studied more at the advance course level than at the basic course.

E. IMPORTANCE OF THE STUDY

Leadership is one of the most talked and written about topics and one of the least understood topics in our society. Thousands of conflicting articles and reports are written each year on this subject. Leadership transcends activities from parenting to leading civic organizations, church groups, businesses, and to commanding armies. It is prevalent throughout society and millions of dollars are spent each year trying to teach leadership and prepare people for leadership positions. This study focuses on one section of the Army, junior officer engineer training, to find lessons which can be applied globally.

The findings of the proposed study have both theoretical and practical significance. This study represents the first analysis of the effectiveness of Army engineer officer entry level leadership training by measuring leadership value orientations and perceptions of engineer 2LTs. Thus, it will provide new research on leadership training and its effectiveness. Of practical significance, it will provide insights on how to change the curriculum and better train engineer officers for their future work environment and provide lessons which can be applied in leadership training in other areas.

The commissioning sources provide a varying background of leadership training. There is much debate about whether or not the training received at the United States Military Academy in West Point, New York, is worth the extra money compared to the officers graduated from ROTC or OCS programs. This study will at least take a look at the initial leadership values and perceptions from these three groups. It will also determine if the training received at EOBC helps put everyone more on an equal footing before assuming a leadership position in the military.

This study provides insights into the different leadership culture and climate in the military compared with the business community. If leadership is truly situational or based on the particular culture of an organization, then the military provides a good contrast with business to draw some conclusions to that effect.

This study focuses on engineer officers and evaluates their training and abilities to succeed. One of the purposes of this survey is to evaluate the successful model or style of leadership which junior level engineer officers see as optimum for their success. The next step is to determine what effect their training has on their perceptions and finally to compare junior officer perceptions to that model or style which business leaders see as optimal. In the military there are many different branches. The style of leadership used in the medical units probably varies from the successful style used in an infantry unit or a quartermaster unit. To study engineers and engineer officer training and then try to overlay the results or lessons learned on the rest of the military may stretch the validity of the results. To take the results and then use them to justify further research in the other branches' methods and styles of training would be an appropriate use of the results. This additional research from these other branches could then be used to validate lessons from the engineer basic course.

Within the military the officer basic courses are structured quite a bit differently. The artillery basic course is over 90% classroom instruction. This infantry basic course is over 50% in the field, followed by eight weeks of Ranger School in the field environment. Ranger School is considered one of the Army's best leadership schools, probably because it is one of the most intense and challenging courses in the Army with a dropout rate of above 50%. Each basic course is specifically designed toward training successful leaders

in their respective branches. Vastly different styles and techniques are used in each course to train officers to function in very different leadership environments and climates. Any recommendation made from this survey could only apply to the engineer branch until further research is accomplished. However, the results of this study could provide some very promising avenues of further research into leadership in general.

1. First Hypothesis. When planning a trip, it is vital to know two key pieces of information: the current location and the final destination. The first hypothesis determines the current location of the EOBC students. If all of the Lieutenants are starting at the same leadership location based on three different leadership trips or itineraries, then possibly all officers should take the most efficient and cost effective means of arriving there. The first hypothesis investigates the effect that the source of commission has on leadership perceptions. If there is no leadership benefit to being a military academy graduate, then there is a possibility that the military academy is not needed. ROTC and OCS are a lot cheaper means of commissioning officers. The Israeli Defense Forces require all of their officers to come from the enlisted ranks, as is done in the OCS program. The Department of Defense (DoD) could save millions of dollars each year by closing down the academies. This study would not be enough to justify such an action, but would provide a reason to conduct further research on this topic.

2. Second Hypothesis. The second item in planning a trip is to choose the destination. For EOBC students, the destination is to become a platoon leader. The problem to answer is if the students successfully made the trip. The second hypothesis investigates whether or not leadership can be taught and learned. Obviously, leadership can be taught, but the real question is if and how fast can the lessons be assimilated. A

follow on question is how long will the lessons be retained. This dissertation does not investigate the retention of the lessons learned, but does allow for measuring part of the learning process. Some lessons in the basic course will only reinforce preconceived conceptions about leadership. This learning will not be measured because the instrument is not capable of distinguishing such learning. The real importance of this hypothesis, though, extends to all levels of leadership, whether in the business, military, religious, or service communities. Can leadership be learned? If it can, then what are the best and most effective ways of teaching? The answer to this last question, once again, requires further research. This study will determine to some extent the effectiveness of those methods used at EOBC, but not whether these methods are the best or most effective. The methods used in the Infantry Basic Course and others also need to be studied and analyzed. However, knowing that leadership perceptions can be learned using the methods in EOBC provides a great starting point for others to adopt and adapt these methods and techniques in training their own leaders. This study provides a reason and a methodology to find the best methods for training and educating leaders.

If this leadership training is found to be ineffective, then the course should be modified using different techniques and tested again. There is very little of the course which could be cut if the leadership training and education was found to be ineffective. Since much of the leadership training is also skills training, the different exercises which put the lieutenants in leadership positions are also teaching the skills needed to succeed in those positions, such as giving operations orders, communicating, coordinating, planning, advising, etc.

3. Third Hypothesis. The program of instruction at EOBC has the leadership journey planned for its officers. To validate the training and its effectiveness, the destination needs to be compared with those who have already made the journey, in other words, the EOAC students. What are the differences between EOAC students' values and perceptions on leadership with EOBC before their training and after their training? The third hypothesis looks strictly at the effectiveness of EOBC in preparing lieutenants to become engineer platoon leaders. It really has no other significance other than determining if the leadership lessons taught are bringing the lieutenants closer to the behavior they will need to succeed as platoon leaders in the engineer branch and reinforcing the second hypothesis in the fact that leadership is a learned experience. This hypothesis has no overall Army or DoD significance other than identifying a possible need to modify training at EOBC.

4. Fourth Hypothesis. To further examine this journey in leadership, there needs to be a control group with which to contrast the Army leadership experience. The business community provides a varied and diverse leadership context which becomes an excellent control group to compare with the military. The business community does not go through the Army training and indoctrination. The fourth hypothesis looks at leadership in a cultural or environmental context. It compares Army values and perceptions on leadership with business values and perceptions. It examines the question of whether or not leadership is universal or if successful leadership is defined by its environment. There is probably some truth to both ideas in successful leadership. There needs first to be leadership potential and, second, this potential needs to be molded or adapted to the environment. This hypothesis explores two totally different environments, one steeped in

values and tradition, in which lives are dependent upon competent decisions, to an environment driven by the market and regulated by the government. The military provides many structured opportunities for the socialization and culturization of its junior leaders. The business community has its own methods and means of socializing their junior level leaders, but the methods used vary greatly. Thus, the business community may find a need to provide some similar type of training which the military provides to develop their junior leaders.

In summary, the impact of this study at the Army level may be to relook the need for a military academy. This research may provide impetus to relook and reassess training effectiveness, certainly within the engineer basic course, but also to look at how soldiers throughout the Army are trained and educated. At the Department of Defense (DoD) level, it may entail reevaluating the usefulness of military academies, in general instead of just the academy at West Point, New York.

5. The Leader Development Process in the Army. About 30% of the basic course was changed between the March 1997 class and the May 1997 class, before the study was started. Many of these changes were a direct result of trying to keep the institutional training base in line with the changes emerging in the military. The changes in the military are a result of looking forward to determine where the Army needs to be in the 21st century. These changes are each looked at in a larger framework of doctrine, training, leader development, organizations, materiel, and soldiers (DTLOMS). The analysis in changing the Army's course is referred to as part of the DTLOMS process.

The DTLOMS process is a synergistic method of looking at how each of these major areas has an impact on the total Army force. Looking at each of these areas

provides a framework to address the implications of introducing changes into the force. A change in any one of these areas often affects the others. For instance, a change in doctrine may require a change in organization, which may require new equipment, which will require new personnel to use and maintain the equipment and new training on the equipment. A change in any one area ripples through the whole structure, affecting many other areas. Each of these areas have some interdependency. This study deals specifically with leader development, the "L" in DTLOMS.

The Army is changing from an industrial age force into an information age Army. Force XXI is the term applied to the vision of the Army in the 21st century. "Force XXI will be a fully internetted, vertically and horizontally integrated foxhole-to-factory design effort" (Boyd and Woodgerd, 1994: 17). The new doctrine and new way of fighting will lead to changing how our leaders lead and how the Army needs to train them. "[I]mproving technology in the hands of our soldiers and leaders will change the way commanders see the battle and control it. Units cover more ground and operate at greater sustained speeds and, during pulses of operations, increase speed even more. This has increased the relative power of junior leaders as well as the consequences of each act they take... The ability to move information rapidly and to process it will likely change the way we command military operations" (Boyd and Woodgerd, 1994: 20). The real question from all of this is - will styles of successful leadership change? What are the leader attributes and characteristics necessary for success in the Army of the 21st century, and how do we need to train and educate the future leaders to survive in this environment?

The doctrine to fight in this environment is evolving right now as the military conducts advanced warfighting experiments and collects data and lessons learned from its

combat training centers. The "doctrinal implications arising from the command system described in this concept are so great that it will take years for them to be fully understood, let alone developed" (Boyd and Woodgerd, 1994: 25).

Training of leaders is changing in the Army. It is becoming more centralized and combined arms focused. The Military Police and Chemical Schools are moving to the same location at the Engineer School, thus allowing opportunities for the three schools to work together in a more combined environment.

Training in the information age environment ... will require integration of Battle Command Systems and computer simulation systems so that battle commanders and battle support teams are trained consistently whether in live or virtual exercises (Training and Doctrine Pamphlet [TRADOC Pam] 525-200-1, 1994: 14).

Leaders at all levels will need to be computer literate, but more importantly, will need to be information literate. The military leader of today and tomorrow will have much more access to great amounts of information. The successful leader will be one who can find and use the necessary information among the superfluous. Information literacy goes beyond just knowing how to use a computer. It entails using, analyzing, and synthesizing information from multiple sources.

The leadership development piece of DTLOMS is the main emphasis and concentration of this dissertation. The leader must be able to envision the battlefield, the enemy, himself and then place it all in the context of what needs to be accomplished. The leader needs to ask the right questions, demand the right information and come to the right decision. The military professional education system "must be examined and modified" to produce these leaders (TRADOC Pam 525-200-1, 1994: 14). The leadership skills which these officers need are "vision, innovation, adaptability and creativity and the ability to

simplify complexities and clarify ambiguities - all while operating under stress" (Boyd & Woodgerd, 1994: 26). Poor leadership will lose battles regardless of the superiority of equipment, doctrine, or other factors. Good leadership is the lifeblood of any organization and determines the efficiency and effectiveness of the organization. In the military, this is translated into accomplishing the mission while sacrificing as few lives as possible.

The organizations in the Army are changing, too, and will continue to change. The Army is getting smaller. It has changed from a forward deployed Army in Europe to more of a power projection Army, able to deploy rapidly anywhere in the world. The other current reorganization revolves around the ability of staffs to synthesize information and anticipate future missions and requirements (TRADOC Pam 525-200-1, 1994: 15).

The information age Army depends on the material to acquire and synthesize information, all the way from satellites to ground emplaced sensors. The power projection Army needs to remain sustainable, versatile, lethal and deployable (Boyd & Woodgerd, 1994: 26). This involves leveraging technologies and equipment in the civilian market with military weapon systems and platforms.

The final part of DTLOMS is the soldier. Soldiers are the key to success of any military. The greatest doctrine, training and materials in the world are no good without quality soldiers who are competently led. Force XXI will empower soldiers with greater situational awareness, knowing where they are, where other units are, and where the enemy is (TRADOC Pam 525-200-1, 1994: 15). The doctrine, training, leadership, organizations, and materials are all geared to produce quality soldiers who can and will win our nation's wars.

Force XXI, an information age and power projection Army, is driving changes in each area of DTLOMS. The professional education development piece of this framework for engineers begins at their basic course. The leadership taught there will not drive the train in changing doctrine, training, organizations, material, or soldiers for the rest of the Army. However, if the leadership development taught at the basic course does not support the changes in the rest of the Army, the new engineer officers will be at a significant disadvantage in leading. This would adversely affect other soldiers and organizations throughout the military system because of the engineer officers' lack of ability to function in this environment. The third hypothesis specifically will provide a check on the current relevancy of the instruction in line with on-going modernization efforts by the Army.

6. Summary. This study looks at varying leadership competencies reflected by the different commissioning sources. It answers the theoretical question of whether or not leadership can be taught. It addresses a very practical aspect of training by measuring the impact of training and comparing it to where the new officers need to be. Thus, the study provides a validation and a check on the currency of the leadership training conducted during EOBC, a key part of the leader development piece in the DTLOMS process. This study allows the training base to determine if some remedial training is needed due to an entrance factor deficiency and allows for the ability to make adjustments in current leadership training by making comparisons with the leadership needed in the field today. It compares the socialization and culturization effectiveness of the military to the business community, providing lessons on how to indoctrinate leaders into a particular environment.

II. REVIEW OF THE RELATED LITERATURE

A. INTRODUCTION

There are many leadership theories which have evolved over thousands of years. This study examines theories from the past one hundred years to the present. The study then focuses in more detail by examining Army leadership doctrine and looking at a few differences between business and military leadership. The research tool which is used to gather the data to conduct the study is called the Systematic Multiple Level Observation of Groups (SYMLOG) and is used by consultants world wide to measure behaviors and perceptions and to determine behavioral changes needed in groups or in leaders. An introduction and background is given on this survey instrument. The SYMLOG Consulting Group (SCG), located in San Diego, California, is the proponent for the use of this system. The data collection tool is based on research by Robert F. Bales and is contained in his New Field Theory. After a brief overview of Bales' New Field Theory, the SYMLOG system is compared to current and popular motivation, teamwork, and leadership theories. This is done to validate the tool's usefulness and appropriateness for the research conducted.

B. HISTORICAL OVERVIEW

The study of leadership is about as old as history itself, and it has evolved through several different phases and theoretical frameworks. But, as Fred Fiedler from the University of Wisconsin says, after devoting 45 years of his life to studying leadership,

“the most important lesson we have learned over the past 40 years is probably that the leadership of groups and organizations is a highly complex interaction between an individual and the social and task environment” (Fiedler, 1996: 243).

This really doesn't say a whole lot for 40 years of research. One of the older theories of leadership is the “Great Man Theory” (Galton, 1869) which was popular for many years. This concept of leadership was founded on the belief that leaders possess certain traits or characteristics which make them great leaders. These traits and characteristics were seen as fixed and inborn. “The times” theory took preference next and stated that the events of the times created great leaders to rise to the occasion (Hollander, 1978: 19). The “trait approach” followed and took two tracts of research. One line of research identified the traits which distinguish leaders from followers, and the other line identified traits which distinguish effective leaders from ineffective leaders (Hollander, 1978: 21). A different approach to leadership study was begun in 1947 by the Personnel Research Board at Ohio State University by observing actual leader behavior. The emphasis in describing leader behavior was to look at patterns of leader behavior which crossed over various leadership positions (Hollander, 1978: 24). This approach was followed by what is called “leader style” which looked at how a particular leader would vary his leadership techniques with the situation (Hollander, 1978: 27).

The “situational approach” was the next major step in leadership theory development and broke free of the trait oriented approaches previously addressed. Instead of looking at leadership traits, the emphasis was now on the situation determining the demands on the leader. John Hemphill (1949: 225) stated this idea as, “there are no

absolute leaders, since successful leadership must always take into account the specific requirements imposed by the nature of the group which is to be led.”

Contingency models are extensions of the situational approach and gained popularity with Fred Fiedler (1967) and his least preferred coworker (LPC) model. This was followed by Evans (1970) and House (1971) with the path-goal model and then by Vroom and Yetten (1973) with the normative model of leadership and decision-making. Contingency models specify situational demands interacting to make leader qualities more or less effective for the task at hand. Leadership thus becomes a joint function of leader and situation (Hollander and Offerman, 1993). In terms of leader effectiveness, contingency theory states that the leader must know and use many leadership styles which are appropriate for a particular situation (Owens, 1981: 81). These leadership styles then become a function of the leader, the followers, and other situational variables (Hersey & Blanchard, 1993: 137).

The transactional approach recognizes that leadership is a mutual exchange between leader and follower in which there is both influence and counterinfluence. This approach developed out of a social exchange perspective and emphasizes the transactions which occur between leaders and followers to include the reciprocal influences and interpersonal perceptions between the two (Hollander, 1964, 1978; Hollander, & Julian, 1969; Homans, 1961). Burns (1978) developed the concept of a transformational leader who transforms the organization based on his strength of personality and character. This falls in line somewhat with the charismatic leader (Weber, 1946; House, 1977), but does not get quite into the religious or fanatic overtones that the charismatic leader portrays. The transformational leader develops a vision and is able to create a shared concept of this

vision and values with his followers, transforming his organization into action beyond normal expectations (Rosenbach & Taylor, 1993: 3).

C. LEADERSHIP RESEARCH

There is a scarcity of sound research in leadership (Fiedler, 1996: 243). This conclusion is also drawn by Goldstein and Gessner (1988: 66) who concluded that leadership research is characterized by continual discussion and very little research. Porter and McKibbin (1988: 65) reinforced these criticisms in their report to the American Assembly of Collegiate Business Schools. There are literally thousands of articles on leadership written each year, but there are only a dozen or so empirically-based theories that are taken seriously (Fiedler & House, 1994: 106). Transactional theories and contingency theories have dominated the leadership field for the past several decades with charismatic and transformational leadership theories making a resurgence due to the recent added emphasis on cognitive variables in a leader's behavior (Fiedler & House, 1994: 97-98).

Even though little is known about the processes in leadership development and management training which contribute to the success of the organization (e.g., Gordon, 1985; Burke and Day, 1986; Bass, 1990: 807-856; Lewis, 1995), it is a fact that most larger organizations devote a significant amount of time and money to leadership and managerial training (Saari et al., 1988). In the first four years in the military, an officer will spend a full year of that time in training and leader development in the institutional base.

Fiedler and House (1994: 111-112) list nine solid contributions of leadership research from the past century: 1) there is no one ideal leader personality; 2) there are two major categories of leader behavior, one concerned with interpersonal relations and the other with task-accomplishment; 3) different situations require different leader behaviors; 4) leader-follower relations affect the performance, satisfaction, motivation, self-esteem and well-being of followers; 5) attributions play a substantial part in the leadership process; 6) intellectual abilities and experience contribute highly to performance only under selected conditions; 7) charismatic or transformational leadership is not a mysterious process; 8) there is considerable evidence in support of several leadership theories; and 9) several leadership training methods have been subjected to rigorous evaluations. However, they admit that there is no one overarching theory of leadership and that we are not likely to have one in the near future. For a field which is very complex and challenging, this is only to be expected.

D. ARMY LEADERSHIP DOCTRINE

The Army's leadership development program is built on three pillars: institutional training and education, operational assignments, and self-development (West & Sullivan, 1995: 104). "The institutional base is the foundation upon which we develop leaders to realize their maximum potential" as stated in a Department of the Army Pamphlet (DA Pam 350-58, 1994: 6). EOBC is the initial part of the institutional training base program for all engineer officers.

Leadership is defined in FM 22-100 (1990: 1) as "the process of influencing others to accomplish the mission by providing purpose, direction, and motivation." It is further elaborated upon in FM 100-5 (1993: 2-15) as:

taking responsibility for decisions; being loyal to subordinates; inspiring and directing assigned forces and resources toward a purposeful end; establishing a teamwork climate that engenders success; demonstrating moral and physical courage in the face of adversity; providing the vision that both focuses and anticipates the future course of events.

Army operations are very leadership intensive, whether in peace, peace keeping operations, or in war. "Our operations doctrine is leadership intensive. Leadership is the most essential element of combat power. Leading effectively is not a mystery and can be learned through self-study, education, training, and experience" (FM 22-100, 1990: 2). There has been some debate over the years on whether or not leadership can be taught or learned. There is no debate in Army doctrine. However, the Army does realize that some soldiers are more endowed with the qualities required to be great leaders than others.

Confident, competent leaders do not just suddenly appear. They are developed. But as Clausewitz said, 'there must be a spark within the individual' that is the essence of his leadership capabilities. Some have a brighter spark than others. All leaders, however, develop over time through a carefully designed progression of schools, job experiences, and individually initiated activities (DA Pam 350-58, 1994: 11).

The Army does not differentiate between leaders and managers like some of the current leadership authors tend to do. Warren Bennis (1989:45) gives a long litany of differences between leaders and managers, as if there is no overlap. According to Army doctrine, all leaders are managers. The Army recognizes the difference between

leadership and management, but good leaders need to know how to manage large organizations of people, equipment, and other resources.

The Army management philosophy (Total Army Quality) – do the right things, the right way, for the right reasons (the first time), and constantly strive for improvement (AR 5-1) – focuses on increasing productivity, encouraging behavior, and implementing management systems for improving work processes. Total Army Quality (TAQ) reinforces the relationship between leadership (philosophy) and management (approach). All leaders are managers... (DA Pam 350-58, 1994: 7).

Management deals with the processes in an organization. Managers are trained how to deal with complexity and how to handle specific situations. Leadership deals with the purposes of the organization (Sullivan & Harper, 1996: 43). Leaders need to deal with change. As such, leaders need education on values and principles which can be applied to an infinite number of situations. No two leaders are faced with the same challenges due to changing people and personalities, environments, situations, missions, etc. However, leadership principles and values stay constant across these varying situations and conditions.

One other dynamic which tends to differentiate army training philosophy on leadership from a more business oriented approach is that the army trains each of its soldiers to be leaders, from the lowest private to the highest general. There are many instances when privates or corporals had to take over a mission because all of the officers in a unit were dead or wounded.

Throughout the Army's history, leadership and leader development have received continuous attention. The development of competent and confident military and civilian leaders in the Army - from corporal to sergeant major, from lieutenant to general officer, and from civilian intern to senior executive service - is our most enduring legacy to the future of the Army and the nation (DA Pam 350-58, 1994: 1).

The whole emphasis in the military is on developing leaders and on leadership. If soldiers do not show the potential for leadership, they are not promoted, and they are eventually forced out of military service.

E. SYSTEMATIC MULTIPLE LEVEL OBSERVATION OF GROUPS (SYMLOG)

SYMLOG is both a theory of personality and group dynamics and a method to measure and change behavior and values. The theory and method is applicable to many types of situations. Some of the applications include assessment of the teamwork and leadership potential of individuals, leadership training, the assessment of the composition of groups and improving teamwork in the group, and the training of educators who work with groups. The method includes instruments for measuring values, behaviors, and traits. The value measurements are very applicable for use in survey research, program development and evaluation, cultural climate studies, organizational development, team building, and others (Bales, 1995: 1-2). This research uses the instrument to survey values on effective leadership and to measure and contrast cultural climates.

1. Bales' New Field Theory. Robert F. Bales' New Field Theory provides a framework and a system in which to gather data to provide a thorough assessment of leadership value orientations and perceptions. Bales (1941) in his master's thesis first started the theoretical analysis which later became the basis for his New Field Theory. In this thesis Bales first tied together the "situation" with the social-psychological conditions to start making generalizations and predictions. Bales and Couch (1969) developed the Value Profile Inventory which later became the basis of the 26 value types in the SYMLOG instrument. In his book, *Personality and Interpersonal Behavior* (Bales,

1970), Bales introduced the three dimensional social-psychological space that forms SYMLOG's theoretical perspective: Upward-Downward (UD or dominant versus submissive), Positive-Negative (PN or friendly versus unfriendly) and Forward-Backward (FB or acceptance versus non-acceptance of authority). Twenty-six directions or vectors of interpersonal behavior were derived from this three dimensional space or cube.

Descriptions of the behaviors and values of persons occupying each of these 26 spaces are located in Table II. The basic theoretical background for SYMLOG was published by Bales and Cohen in 1979. SYMLOG is based on Bales' New Field Theory and "is a comprehensive integration of findings and theories from psychology, social psychology and related social science disciplines" (Bales, 1995: 4). As a field theory, SYMLOG looks at behavior taking place in a larger context of interactive influences to include personal, interpersonal, group, and situation to understand behavior and how to influence behavior successfully.

2. SYMLOG and Motivation Theories. Motivating people is a complex process because one is dealing with people, who are innately complex. Motivation is a part of leadership and, in the military, often a very important part. People are not naturally motivated to perform in the face of danger or death or when they are cold, wet, tired and hungry - all of which conditions occur frequently in a military leadership environment. There are many theories dealing with motivation and how it operates. They all deal with either internal or external influences or with both internal and external influences which affect motivation. In a work environment, the application of external motivators is applied to produce some desired behavior. In the military, the difference in motivation of a unit

Table II. SYMLOG Vectors.

No.	Vector	Characteristics
1	U	Individual financial success, personal prominence and power
2	UP	Popularity and social success, being liked and admired
3	UPF	Active teamwork toward common goals, organizational unity
4	UF	Efficiency, strong impartial management
5	UNF	Active reinforcement of authority, rules, and regulations
6	UN	Tough-minded, self-oriented assertiveness
7	UNB	Rugged, self-oriented individualism, resistance to authority
8	UB	Having a good time, releasing tension, relaxing control
9	UPB	Protecting less able members, providing help when needed
10	P	Equality, democratic participation in decision making
11	PF	Responsible idealism, collaborative work
12	F	Conservative, established, "correct" ways of doing things
13	NF	Restraining individual desires for organizational goals
14	N	Self-protection, self-interest first, self-sufficiency
15	NB	Rejection of established procedures, rejection of conformity
16	B	Change to new procedures, different values, creativity
17	PB	Friendship, mutual pleasure, recreation
18	DP	Trust in the goodness of others
19	DPF	Dedication, faithfulness, loyalty to the organization
20	DF	Obedience to the chain of command, complying with authority
21	DNF	Self-sacrifice if necessary to reach organizational goals
22	DN	Passive rejection of popularity, going it alone
23	DNB	Admission of failure, withdrawal of effort
24	DB	Passive non-co-operation with authority
25	DPB	Quiet contentment, taking it easy
26	D	Giving up personal needs and desires, passivity

may mean the difference between life and death, while the difference in the business world could mean the financial life or death of the organization. Motivation ultimately deals with the will to do (Hershey and Blanchard, 1993: 20) which is often inexorably connected with the ability to do. SYMLOG provides a good tool to examine motivation and different factors within an organization which affect motivation. In fact, SYMLOG compares quite favorably with several theories of motivation, providing a much more comprehensive method for looking at human behavior.

There are five theories of motivation compared to the SYMLOG model and theory. The twenty-six SYMLOG vectors which are addressed in the following discussion are shown in detail in Table II.

a. Maslow's Hierarchy of Needs. The first motivation theory examined is Maslow's Hierarchy of Needs which is probably one of the earliest motivational theories. It deals with motivation in the sense that people will seek to satisfy certain basic needs first and other needs later, setting up a hierarchy dependent on which stage of life a person may be in. First in the hierarchy are physiological needs, followed by safety or security, then social, then esteem or recognition, and finally self-actualization needs (Hershey and Blanchard, 1993: 33-35). Thus, it is important for leaders to know what needs their workers are trying to satisfy in order to provide the correct motivators to influence their behavior. Maslow's hierarchy of needs mapped out on SYMLOG space is shown in Figure 1.

As defined in the SYMLOG terms of behavior and values, there is really no differentiation between physiological needs (such as food, clothing, or shelter) and safety needs (need for freedom from physical danger and the need for self-preservation). The

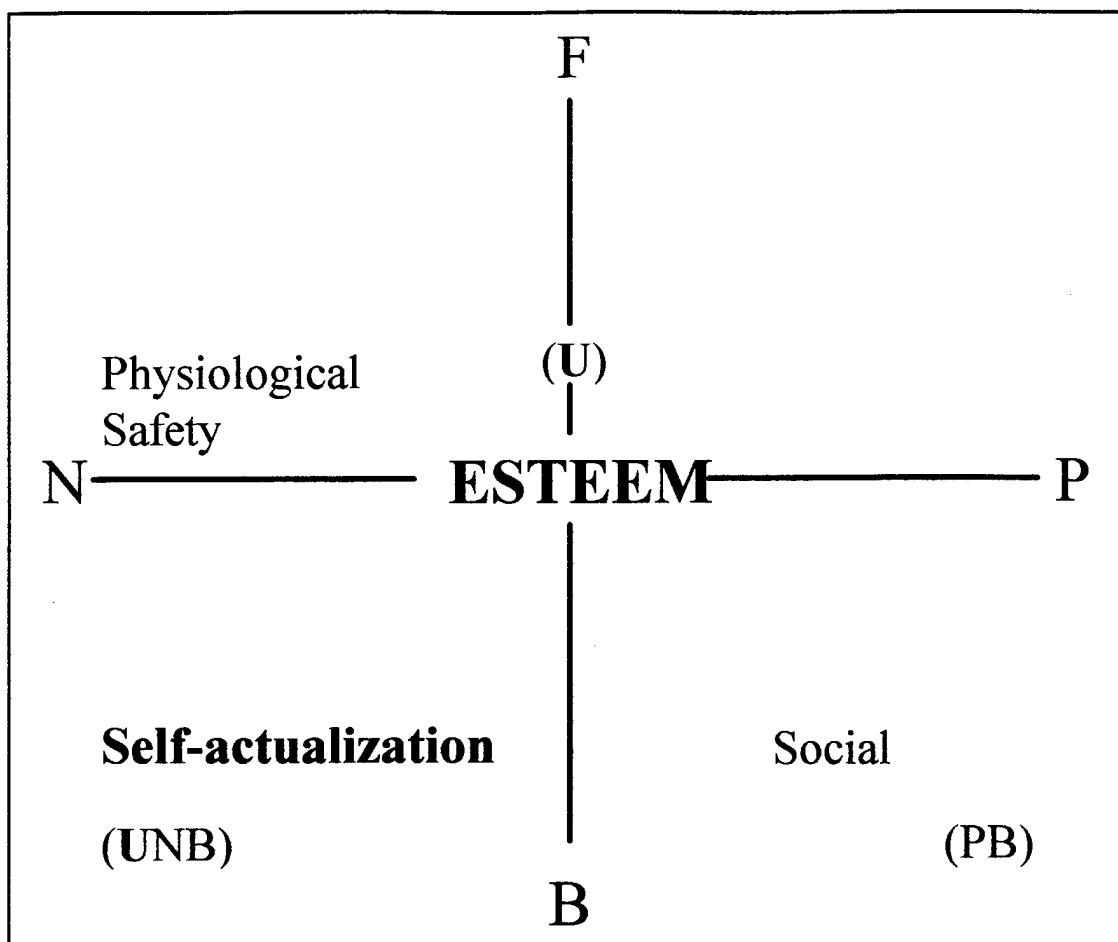


Figure 1. Maslow's Hierarchy of Needs in SYMLOG Space.

two are pretty much synonymous with the "N" or negative direction, stressing values on self-protection, self-interest and self-sufficiency. The social or affiliation needs (striving for meaningful relations with others) line up with the "PB" dimension of friendship, mutual pleasure, and recreation. The esteem need (recognition and respect from others producing feelings of power, prestige, and control) fits in with the "U" or dominance dimension with values on personal prominence or power. The third dimension dominance values are shown in the two dimensional figure by making the letters bold. Finally, the self-actualization need (maximize one's potential, self-motivation, self-direction, competence,

and achievement) most closely resembles the “UNB” direction of rugged, self-oriented individualism, including “B” values of creativity, “U” values of energetic activity and individual success, and “N” values of self-interest. These types of people work best when they can integrate their personal goals into those of the organization, and they are provided a challenging and meaningful job (Hershey & Blanchard, 1993: 478). Maslow’s hierarchy of needs maps out quite well on SYMLOG space, while SYMLOG provides a much more robust and full spectrum of behaviors and motivations.

b. Herzberg’s Motivation-Hygiene Theory. Herzberg combined needs into two categories which are independent of each other and which affect behavior in different ways. His two categories are those of motivators and hygiene factors. Motivators deal with the job itself such as the type of work and responsibility while the hygiene factors deal with the environment such as working conditions, policies and administration, and supervision (Hershey and Blanchard, 1993:70-74). Since SYMLOG deals with values and behaviors, hygiene factors do not map onto SYMLOG space, while motivators map throughout the entire space, depending on the type of behavior or value which is the motivator. It is not really possible to draw any correlation between the two until one gets into specifics. For instance, Herzberg talks about job enrichment which deals with increasing or improving the responsibility, scope, and challenge in work. This maps onto the SYMLOG “PF” dimension of responsible idealism and collaborative work. Herzberg’s theory identifies motivators and environmental effects on motivation, but is not robust enough to describe the complex motivational processes inherent in people and organizations. His theory oversimplifies the complexness of motivation and behaviors (Luthans, 1995: 153-154).

c. McClelland's Achievement-Motivation Theory. This theory deals with three needs of individuals which cause a response or motivation. The first need is for achievement and it focuses on goals, tasks, and tangible or measurable results. It is success oriented and has a lack of group orientation. The second need is for affiliation which focuses on human relations and concern for others. The third need is for power which focuses on a desire to control others and the environment (Hare, 1997:24). The achievement need correlates with the SYMLOG "F" or forward dimension of efficiency and strong, impartial management values and business-like, decisive, impersonal behavior. The second need of affiliation lines up directly with the "P" or positive direction of SYMLOG space. The positive direction deals with values of popularity, social success and being liked and with behaviors of being outgoing and sociable. The third need, power, correlates directly with the "U" or upward dimension of SYMLOG space which focuses on personal prominence and power values and dominant or active behaviors. McClelland's theory maps into about one eighth of total SYMLOG space (Figure 2) in the "UPF" quadrant. Thus, this theory is not nearly as robust and comprehensive as SYMLOG.

d. House and Mitchell's Path-Goal Theory. This theory addresses the structural nature of tasks correlated to leader behavior. The more structured the task, the more the leader needs to be supportive and low on structuring task behavior in order to be effective. Conversely, the more unstructured the tasks, the more the leader needs to be high on task behavior and low on relationship behavior to be effective (Hershey and Blanchard, 1993: 122). This theory lays directly in the "PF" quadrant of SYMLOG, just as McClelland's achievement- motivation theory did, but the path-goal theory does not deal with the U-D

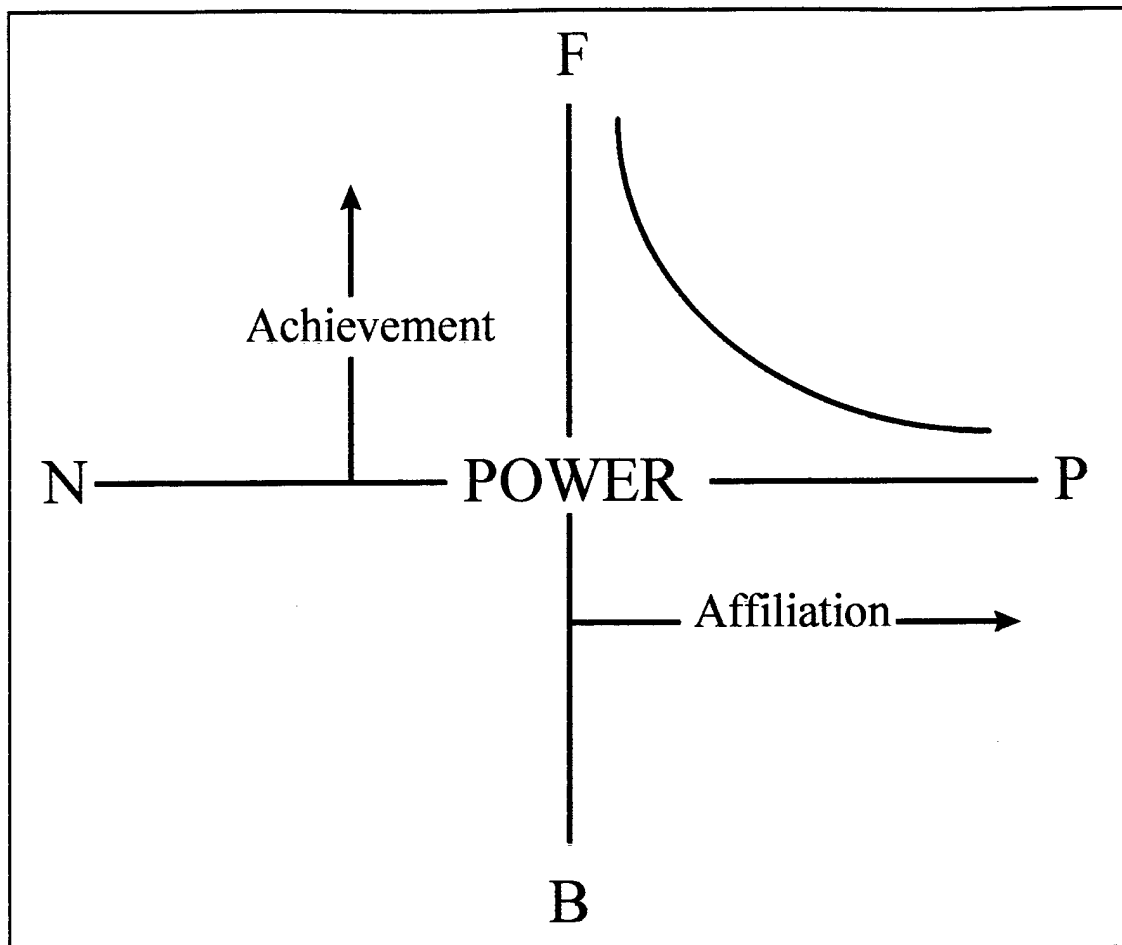


Figure 2. McClelland's Social Motives in the SYMLOG Space (adapted from Hare, 1997).

dimension or the other three fourths of SYMLOG space. The "F" or forward behaviors are serious, logical and objective with values of being conservative and doing things the right way, thereby lining up with the low structured task leader behavior. The "P" or positive direction has friendly, democratic and group-oriented behaviors and values, correlating to the leader behaviors for a highly structured task group (Figure 3). The path-goal theory does not deal with the reality and variety of the work place while SYMLOG does address these issues.

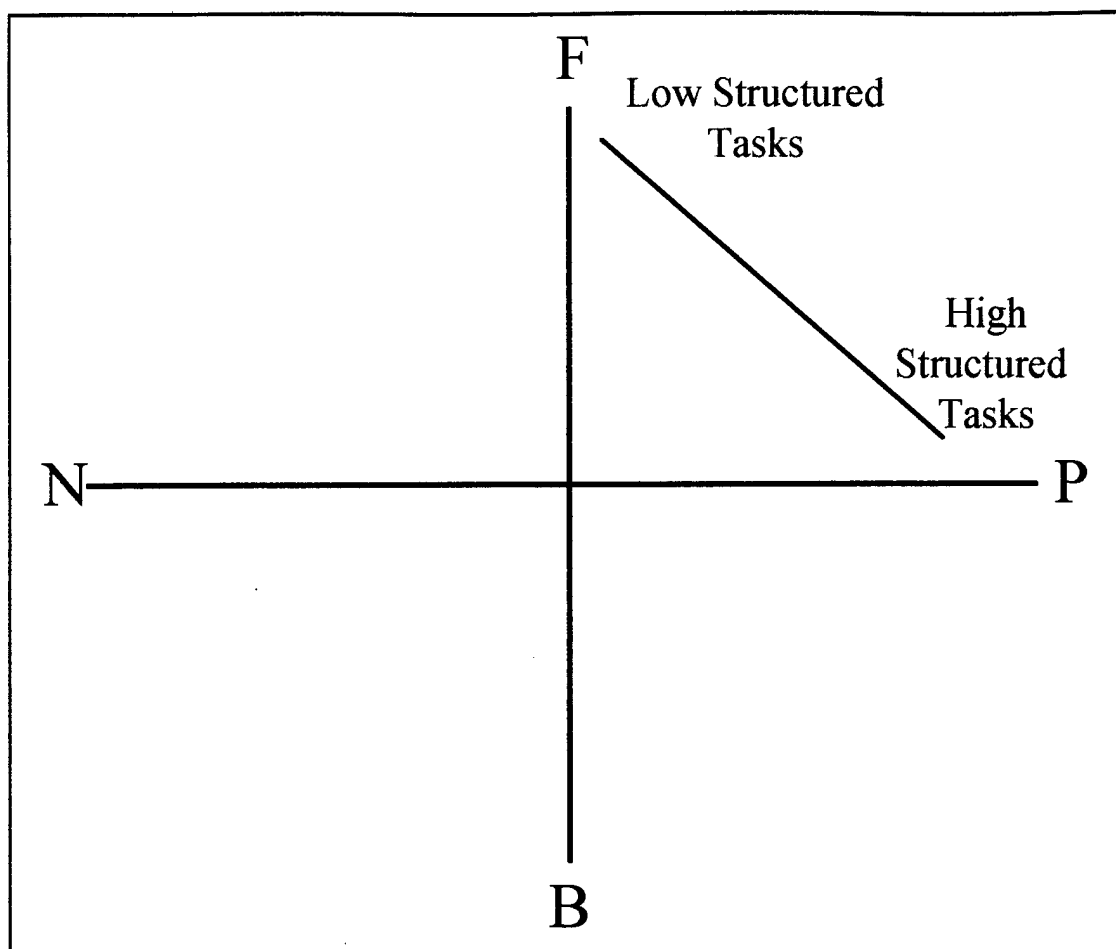


Figure 3. Path-Goal Theory in the SYMLOG Space.

e. McGregor's Theory X and Y with Argyris' Pattern A and B. Chris Argyris expanded McGregor's Theory X and Y into behavior patterns A and B, taking into account the differences between attitude and behavior. Argyris argues that leaders may need to change their behavior patterns in the short run until their workers develop and change to a different set of behaviors. Theory X deals with managers who usually direct, control and closely supervise (the "F" or "UF" dimensions of SYMLOG) while Theory Y deals with managers who are supportive and facilitating (the "P" dimension of SYMLOG). Argyris adds on pattern A behaviors which represent organizational norms associated with

Theory X. Pattern A individuals are those who are not open, who reject experimenting, and who are characterized by close supervision and a high degree of structure. Pattern B behaviors are associated with Theory Y. Pattern B individuals are more supportive and facilitating, resulting in norms of trust, concern, and individuality. Argyris adds to Theory X and Y by identifying behaviors which can be dissonant with X and Y orientations. Thus, XA and YB behaviors would be most likely, but XB and YA behaviors can result due to job circumstances. An XB supervisor believes people are lazy and unreliable but treats people in a supporting or facilitating manner because that is the way the organization is structured. Conversely, YA managers use pattern A behaviors to help people develop skills necessary for self-direction so they can revert to a YB manager (Hershey and Blanchard, 1993:60-62).

SYMLOG graphs X, XA, and YA behavior in the same location because this behavior appears identical to those who are receiving and perceiving the leadership. The same is true with Y, YB, and XB behavior all appearing identical and thus perceptually located in the same SYMLOG space (Figure 4). Argyris points out a dissonance in YA and in XB behavior due to attitudes being different from the perceived behavior. SYMLOG identifies many behaviors and deals with perceptions of these behaviors. SYMLOG points out that leaders need to constantly vary leadership and motivation styles and techniques to fit the audience and the environment. The sum effect of this variation should be an average or conglomerate behavior on or near the most effective profile, which is located about on the center of the line between X and Y behavior. SYMLOG allows for a lot more diverse sets of behaviors and reactions than do Argyris and McGregor.

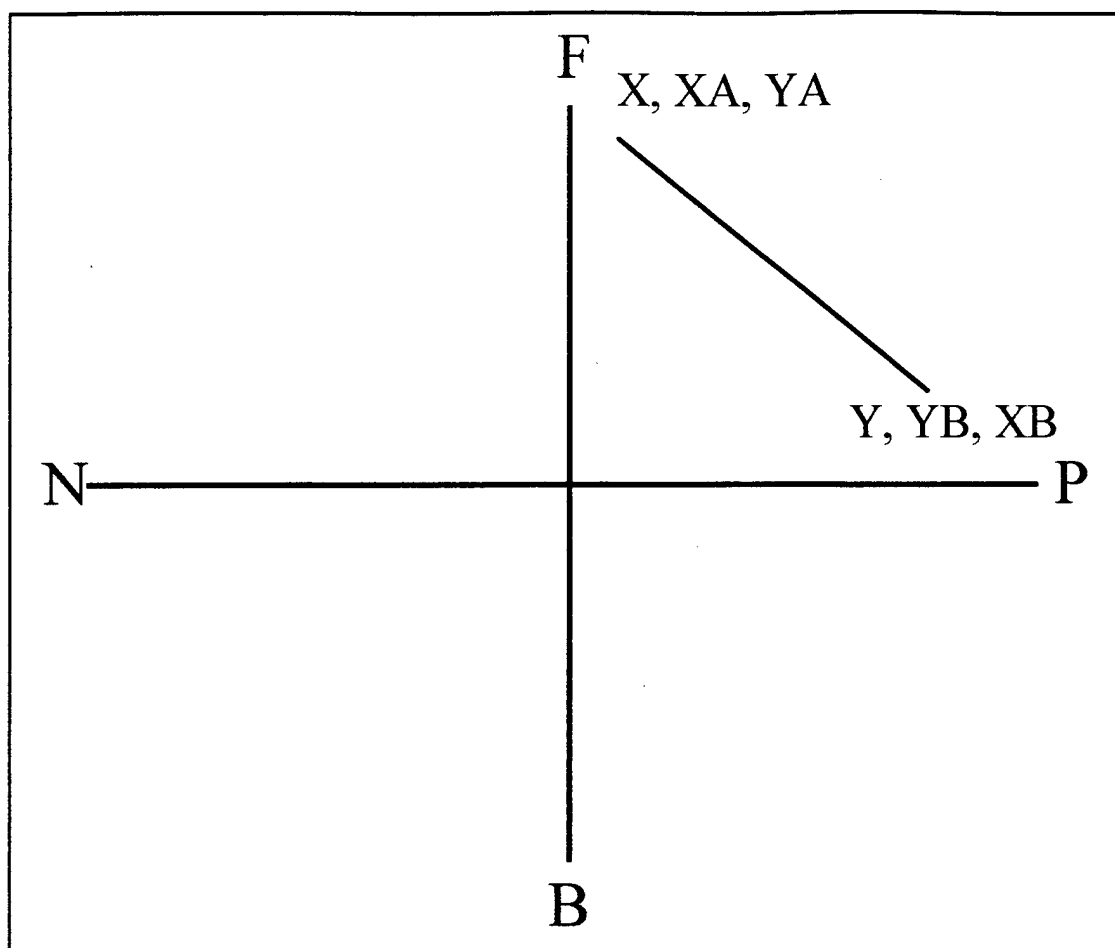


Figure 4. Theory X and Y with Argyris' Pattern A and B in the SYMLOG Space.

There are many other theories of motivation. However, most of these theories are similar to or based upon those discussed previously. SYMLOG, as a field theory and a method, is applicable to most of the motivation theories. However, most of the motivation theories use very few of the possible behaviors and motivations inherent in the SYMLOG sphere. As an instrument, SYMLOG can be used to gauge current motivations and behaviors and how best to deal with individuals or groups to get them to become more effective. It also provides a means to monitor and maintain progress through

periodic reassessments. It provides a very comprehensive theoretical framework to better understand motivation of groups and individuals within a group.

3. SYMLOG and Teamwork. SYMLOG is an excellent tool to measure teamwork. It is specifically set up to do so. Of the twenty-six vector orientations of SYMLOG space, thirteen of them contribute to teamwork, five may be necessary for teamwork but can sometimes be dangerous, and eight almost always interfere with teamwork (Table III).

Teams or leaders can use the SYMLOG instrument results to specifically understand how they are doing in establishing a team environment and then determine what steps, if any, need to be taken to improve the work and leadership environment.

Teamwork and building teams is an integral part of the business community, which is why SYMLOG is so powerful and so important a tool. "Today's competitive environment demands intense improvement in productivity, quality, and response time. Teams can deliver that improvement" (Manz & Sims, 1993: 1). Teams

bring together complementary skills and experiences that, by definition, exceed those of any individual on the team. . . . Second, in jointly developing clear goals and approaches, teams establish communications that support real-time problem solving and initiative. Teams are flexible and responsive to changing events and demands. Third, teams provide a unique social dimension that enhances the economic and administrative aspects of work. Finally, teams have more fun (Katzenbach & Smith, 1994: 18).

To function effectively, teams must have three building blocks: clear goals and performance objectives; well qualified and dedicated people who possess the requisite skills and abilities to accomplish the performance objectives; and high standards of excellence (Larson & LaFasto, 1989: 22). The leader is the one who will provide these

Table III. SYMLOG Vectors and their Relationship to Teamwork

Values Contributing to Effective Teamwork		
No.	Vector	Characteristics
2	UP	Popularity and social success, being liked and admired
3	UPF	Active teamwork toward common goals, organizational unity
4	UF	Efficiency, strong impartial management
8	UB	Having a good time, releasing tension, relaxing control
9	UPB	Protecting less able members, providing help when needed
10	P	Equality, democratic participation in decision making
11	PF	Responsible idealism, collaborative work
16	B	Change to new procedures, different values, creativity
17	PB	Friendship, mutual pleasure, recreation
18	DP	Trust in the goodness of others
19	DPF	Dedication, faithfulness, loyalty to the organization
20	DF	Obedience to the chain of command, complying with authority
21	DNF	Self-sacrifice if necessary to reach organizational goals
Values Which May Be Necessary Sometimes, But Dangerous		
1	U	Individual financial success, personal prominence and power
5	UNF	Active reinforcement of authority, rules, and regulations
6	UN	Tough-minded, self-oriented assertiveness
12	F	Conservative, established, "correct" ways of doing things
13	NF	Restraining individual desires for organizational goals
Values Which Almost Always Interfere with Teamwork		
7	UNB	Rugged, self-oriented individualism, resistance to authority
14	N	Self-protection, self-interest first, self-sufficiency
15	NB	Rejection of established procedures, rejection of conformity
22	DN	Passive rejection of popularity, going it alone
23	DNB	Admission of failure, withdrawal of effort
24	DB	Passive non-cooperation with authority
25	DPB	Quiet contentment, taking it easy
26	D	Giving up personal needs and desires, passivity

three building blocks. The leadership establishes the goals and with the help of the team may establish the performance objectives as well. The leadership hires the workers and team members thereby determining the quality of the team. The leadership sets the tone of

performance in an organization, whether it be high or low standards. The team can have an additional impact on the standards, but the leadership establishes the organizational culture.

There are many methods of building a team or enhancing teamwork in an existing team. These methods can either be applied by internal means to an organization or by an external consultant who can be brought in to provide guidance and help. The internal methods include comparative activities analysis, role reversal, jointly conducted meetings, constructive behavior exchange, advisory committee, or perceived activities exchange. A consultant could provide a process analysis, training, questionnaire surveys, (Cribbin, 1981: 164) or provide assistance using such tools as Adaption-Innovation Theory by Kirton, Fundamental Interpersonal Relations Orientation by Shutz, the Leadership Grid by Blake and Mouton, Myers-Briggs Type Indicator, Situational Leadership by Hersey and Blanchard, or SYMLOG, to name a few. Other ideas for team building might be to go off site to a physically demanding course which forces individuals to work as a team to negotiate a physically demanding event such as a ropes course or mountain climbing or rafting. Off site conferences are also good for defining a vision and setting goals and accomplishing these tasks with the purpose of getting total team buy-in.

a. Team Purposes. Most teams can be broken down into three goal-oriented groups with the purpose of the team being: to solve problems; to create something; or to execute a well-defined task (Table IV). A problem solving team focuses on issues and is based on trust and should be staffed by people who are intelligent, street smart, people sensitive individuals with high integrity (Larson & LaFasto, 1989: 67).

Table IV: Types of Teams and Their Characteristics

TYPE OF TEAM	DOMINANT FEATURE	PROCESS EMPHASIS	DOMINANT SELECTION CRITERIA
1) Problem Resolution	Trust	Focus on Issues	Intelligent Street Smart People Sensitive High Integrity
2) Creative	Autonomy	Explore possibilities & alternatives	Cerebral Independent Thinkers Self - starters Tenacious
3) Tactical	Clarity	Directive Highly focused tasks Role clarity Well-defined operational standards Accuracy	Loyal Committed Action-oriented Sense of Urgency Responsive

In SYMLOG space (Figure 5), this type of team would fall into the "PF" vector with values on responsible idealism and collaborative work and behaviors of being cooperative and constructive. The creative team explores possibilities and alternatives and is based on autonomy and should be staffed with independent thinkers and tenacious self-starters who are cerebral in character (Larson & LaFasto, 1989: 67). This type of team

maps into SYMLOG space in the "B" vector with values based on creativity and the ability to change to new procedures and with behaviors of being expressive. The last team most closely resembles the military, although teams in the military transcend all three types of teams. The team which focuses on well-defined tasks is a tactical team. It is directive with well-defined operational standards and clearly identified roles. This team is based on clarity of task, mission and roles, and should be staffed with loyal, committed, action-oriented and responsive individuals (Larson & LaFasto, 1989: 67). This team maps into the "NF" vector of SYMLOG space with values of restraining individual desires for

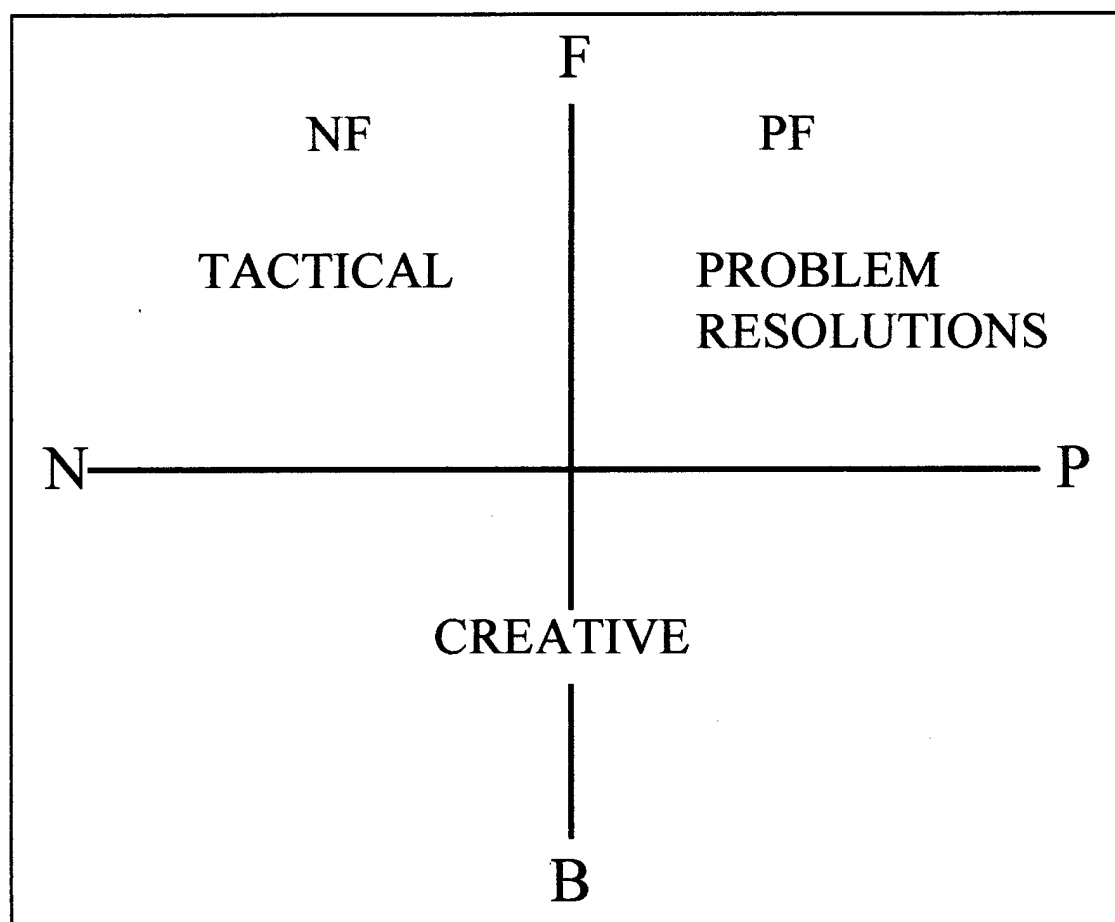


Figure 5. Team Purposes in the SYMLOG Space.

organizational goals and with behaviors of being rule-oriented and somewhat inflexible.

This type of team best fits the military, most of the time.

b. The Army and Building Teams. Building a team, just as motivating people, is a necessary and important part of leadership, especially in the military. General (GEN) (Ret.) Sullivan, former Chief of Staff of the Army, makes the statement that "leadership is about building teams" and that the first priority of a leader is to build their leadership team (Sullivan & Harper, 1996: 112). "An effective fighting force requires teamwork, which is based on individual trust and unit cohesion" (FM 100-5, 1993: 6-5). "Warfighting is a team activity. You must develop a team spirit among your soldiers that motivates them to go willingly and confidently into combat in a quick transition from peace to war" (FM 22-100, 1990: 7). "The complexity of the battlefield for which you are preparing, coupled with the fact that you must fight outnumbered, make TEAMWORK more important for Army leadership today than it has ever been" (Malone, 1983: 87). In the military it is the leader's responsibility to forge a team, often with very different groups and very different individuals.

"A team has two or more people; it has a specific performance objective or recognizable goal to be attained; and coordination of activity among the members of the team is required for the attainment of the team goal or objective" (Larson & LaFasto, 1989: 19). GEN (Ret.) Sullivan defines a team as "a permanent or ad hoc grouping of people to accomplish a task" and further makes an important point that organizations are teams made up of teams (Sullivan & Harper, 1996: 44). Teams in the Army start at the fire team level of about 4 to 6 soldiers. Two fire teams make up a squad, 3 to 4 squads make up a platoon, 3 to 4 platoons make up a company, 3 to 5 companies make up a

battalion and so on up through brigades, divisions, corps, and armies. Each level of command wants to build a team in their command. To highlight this point, look at the Fort Leonard Wood Commander's FY98 Annual Training Guidance (Gill, 1997: 2) which states, "We are and must remain one team, sharing and focused on a common vision and preparing to welcome new team members." MG Gill, the post commander, is talking about a team which consists of about 10,000 soldiers and civilians.

SYMLOG does not provide answers on how to build a team, but very adequately describes whether or not there is a need to build a team or what problems there are in an existing team. Once the need is identified, it is then up to the leader or team to take corrective actions in order to rectify any problems. Building teams is an integral part of the Army and leadership in the Army. SYMLOG provides an excellent tool to measure the Army's effectiveness in training its leaders to build teams.

4. SYMLOG and Leadership Theories. Eight contemporary theories of leadership are examined below, all of which integrate well into SYMLOG space. The first of which is the trait theory which lists traits of successful leaders. Many authors still tend to give long laundry lists of traits which successful or unsuccessful leaders exhibit. SYMLOG lists traits, behaviors, and values of all types of leaders, whether they be good, bad, successful, or unsuccessful. The traits of good leaders are many and vary between one leader and another, just as do the lists of traits of successful leaders put together by scholars and experts. All of these lists can be plotted into SYMLOG space in one form or another.

a. Blake and Mouton's Leadership Grid. The second set of leadership theories fall into the category of situational or contingency theories. Several of the situational or

contingency theories correlate well with SYMLOG. The second leadership theory addressed is Blake and Mouton's leadership grid which lists five different leadership styles: impoverished, country club, task, middle-of-the-road, and team. These five styles are then graphed onto two dimensions of behavior - concern for production and concern for people (Hersey & Blanchard, 1993: 110). This theory maps mostly into the "PF" quadrant (Table V and Figure 6).

The team management style is the ideal style and combines the best of both concern for production and concern for people and is based on relationships of mutual

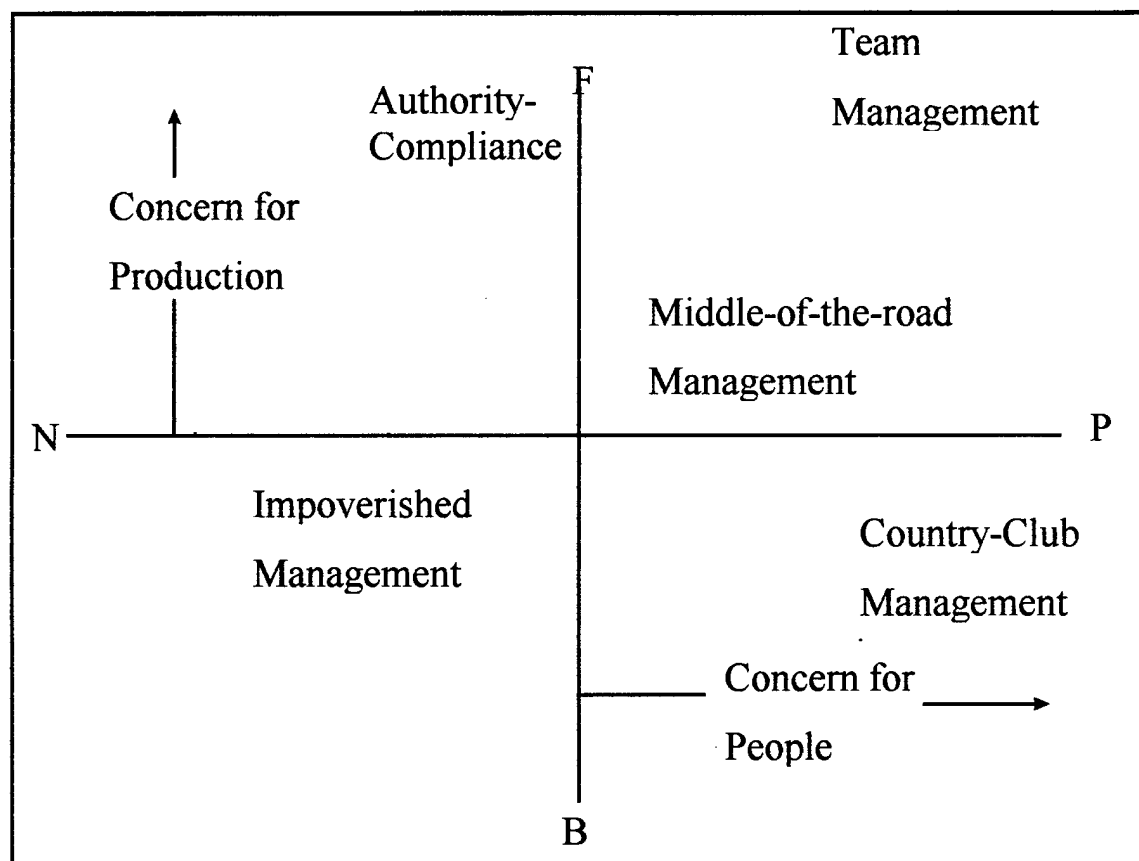


Figure 6. The Leadership Grid in SYMLOG Space (adapted from Hare, 1997).

Table V. The Leadership Grid Correlated to SYMLOG Vectors (adapted from Hare, 1997).

<u>Styles of Leadership Behavior</u>	<u>Characteristics</u>	<u>SYMLOG Vectors</u>
Team Management	Work accomplishment is from committed people; interdependence through a "common stake" in organization purpose leads to relationships of trust and respect.	UPF
Middle of the Road Management	Adequate organization performance is possible through balancing the necessity to get out work with maintaining morale of people at a satisfactory level.	PF, DPF, P, Ave
Authority-Compliance	Efficiency in operations results from arranging conditions of work in such a way that human elements interfere to a minimum degree.	UF, UNF, U, UN, F
Country Club Management	Thoughtful attention to the needs of people for satisfying relationships leads to a comfortable, friendly organization atmosphere and work tempo.	UP, UPB, DP,DPB

trust and respect. This style is solidly in the "UPF" sector of active teamwork and organizational unity, in close proximity with the SYMLOG most effective profile. The middle-of-the-road management style takes into account production and people, but not to the extent the team management style does. It is just as the name implies - adequate or average. This graphs into SYMLOG in the "PF" quadrant, with possibly some "DPF" behavior. The third style of management is the authority-compliance style which stresses production and ignores people. In SYMLOG, this style contains no "P" behavior, but is all in the "F" or "U" or "N" type behaviors. The "UNF" quadrant deals with active reinforcement of authority, rule, and regulations. The opposite of the last style is the country club management style with all of the emphasis on people and a friendly organization and hands off on the production arena. This clearly falls into the "P" or "B" type behaviors and could be either "U" or "D". The "DPB" values are quiet contentment and taking it easy, while the "PB" values are friendship, mutual pleasure and recreation. The theory fails to take into account the full range of leadership styles in the other 3 quadrants and fails to adequately address the variety of organizational settings, situations, and leadership styles (Hare, 1997: 8).

b. Hersey and Blanchard's Situational Leadership Theory. Hersey & Blanchard's situational leadership theory addresses the development level of the followers in deciding how the leader should best lead, encouraging the leader to change his style based on his followers. They take Blake and Mouton's concern for production and concern for people and turn it into task behavior and relationship behavior. The two dimensions are basically the same, but the emphasis moves from evaluating attitudes and measuring values and feelings in Blake and Mouton's theory (Hersey & Blanchard, 1993: 110) to measuring

behavior in Hersey and Blanchard's situational leadership model. The model has four dimensions of leadership styles mapped onto four dimensions of follower readiness (Table VI and Figure 7). These matching readiness levels, leadership styles, and behavioral characteristics all map onto the "PF" quadrant, similar to the managerial grid.

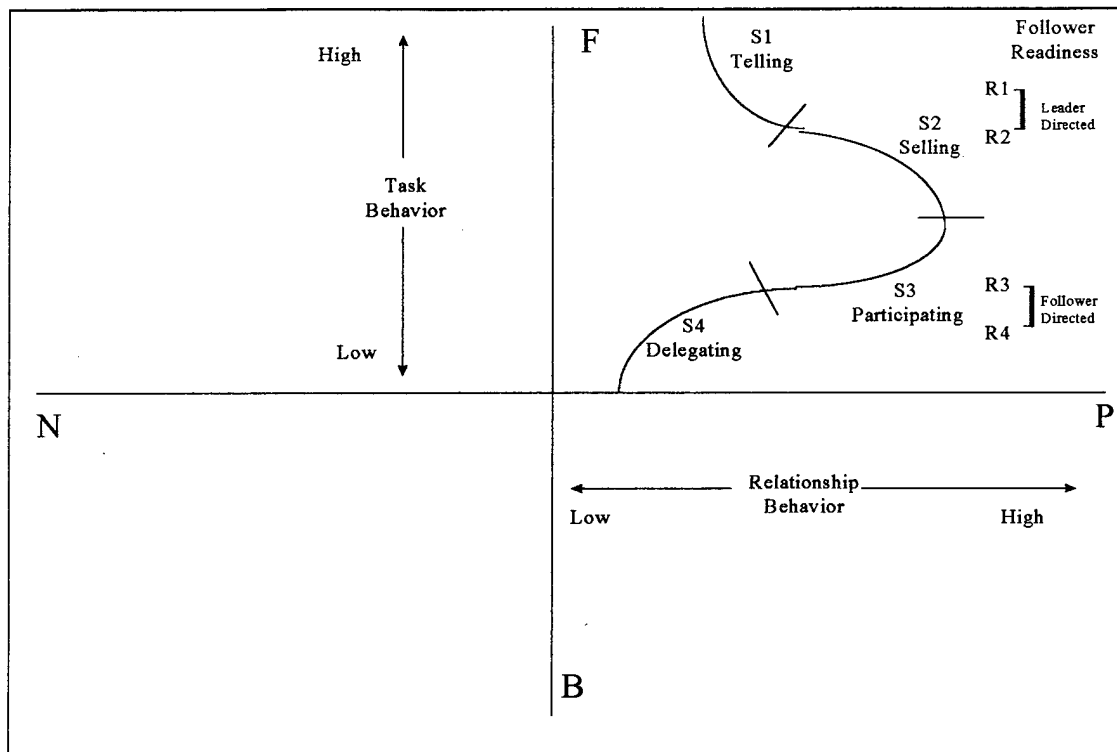


Figure 7. Situational Leadership Theory in the SYMLOG Space (adapted from Hare, 1997).

c.) House's Path-Goal Theory. House's path-goal theory incorporates four major styles of leadership - directive, supportive, participative, and achievement oriented. The directive style is most like the "NF" or "UNF" vector of SYMLOG with controlling, inflexible behavior. The supportive style maps onto the "UPB" vector of providing help when needed and being supportive and encouraging. The participative style falls into the

**Table VI. The Situational Leadership Model Correlated to SYMLOG Vectors
(adapted from Hersey & Blanchard, 1993 and Hare, 1997).**

	<u>Follower Readiness Levels</u>	<u>Appropriate Leadership Style</u>	<u>Behavioral Characteristics</u>	<u>SYMLOG</u>
L O W	R1 Unable and unwilling or insecure	S1 Telling	High Task Low Relationship	PF-F or U-PF-F (moderate U)
M O D E R A T E	R2 Unable but willing or confident	S2 Selling	High Task High Relationship	PF or U-PF (moderate U)
H I G H	R3 Able but unwilling or insecure	S3 Participating	Low Task High Relationship	P-PF or U-P-PF (moderate U)
	R4 Able and willing or confident	S4 Delegating	Low Task Low Relationship	PF or U-PF (high U)

“PF” characteristics of cooperation and collaborative work while the achievement-oriented style is the more dominant “UPF” vector showing task leadership and active teamwork toward goals. In effect, these four styles cover quite a bit of SYMLOG space, but are mostly two-dimensional with little or no orientation in the “D” or submissive space or in the “NB” quadrant (Figure 8).

d. Likert's Management Systems. Rensis Likert came up with four management systems:

System 1 is a task-oriented, highly structured authoritarian management style; System 4 is a relationship-oriented management style based on teamwork, mutual trust, and confidence. Systems 2 and 3 are intermediate stages between two extremes . . . (Hersey & Blanchard, 1993: 106).

Likert put task and relationship on a linear, one-dimensional scale versus a two-dimensional scale like Hersey and Blanchard or Blake and Mouton. The authoritarian style maps into the “UNF” vector while the teamwork style maps into the “UPF” vector (Figure 9).

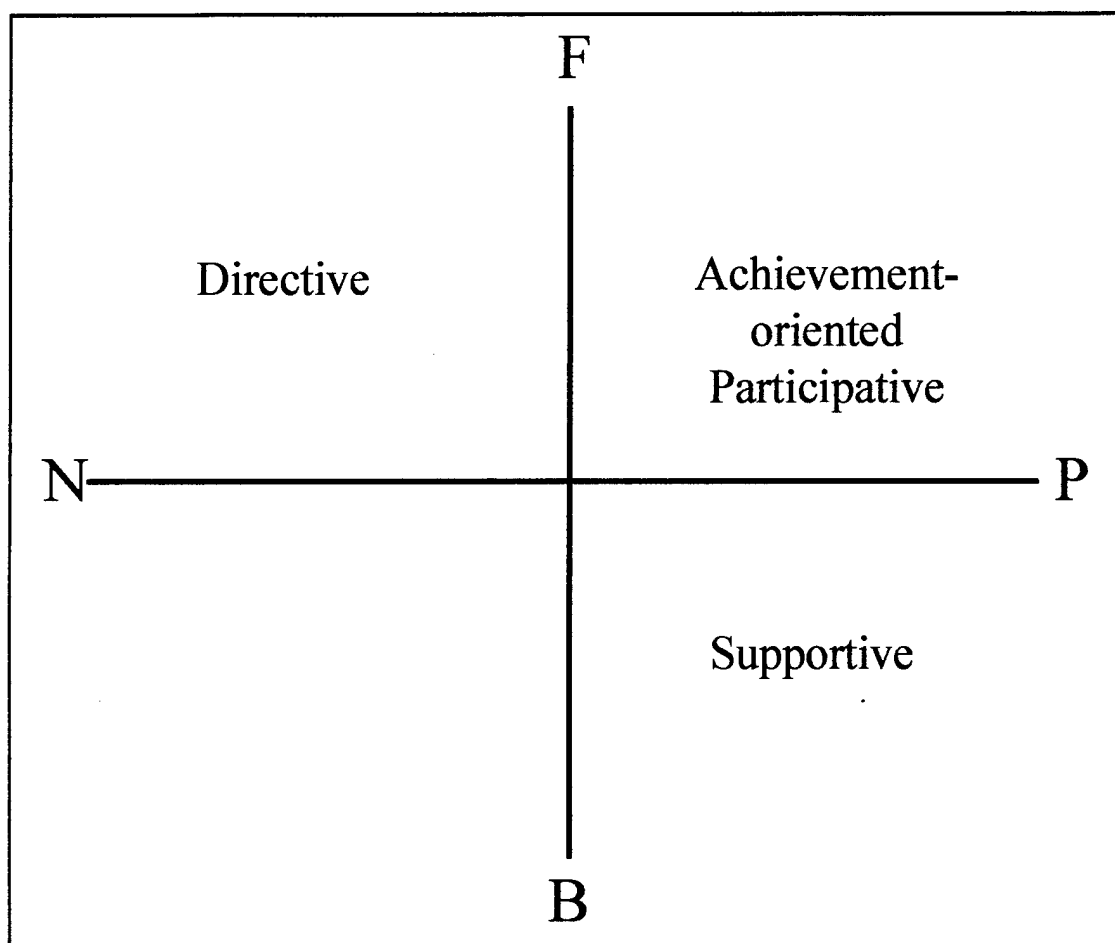


Figure 8. Path-Goal Leadership Styles in the SYMLOG Space.

e. Fiedler's Contingency Model. Fiedler's contingency model of leadership effectiveness is based on three empirically derived dimensions: the leader-member relationship; the degree of task structure; and the leader's position power (Luthans, 1995: 349). This theory most closely resembles Bales' theory. The three dimensions are almost exactly the same as SYMLOG's. The leader-member relationship relates to the P-N, friendly-unfriendly, dimension of SYMLOG. The task structure relates to the F-B dimension of values on accepting or rejecting authority. The leader's position power

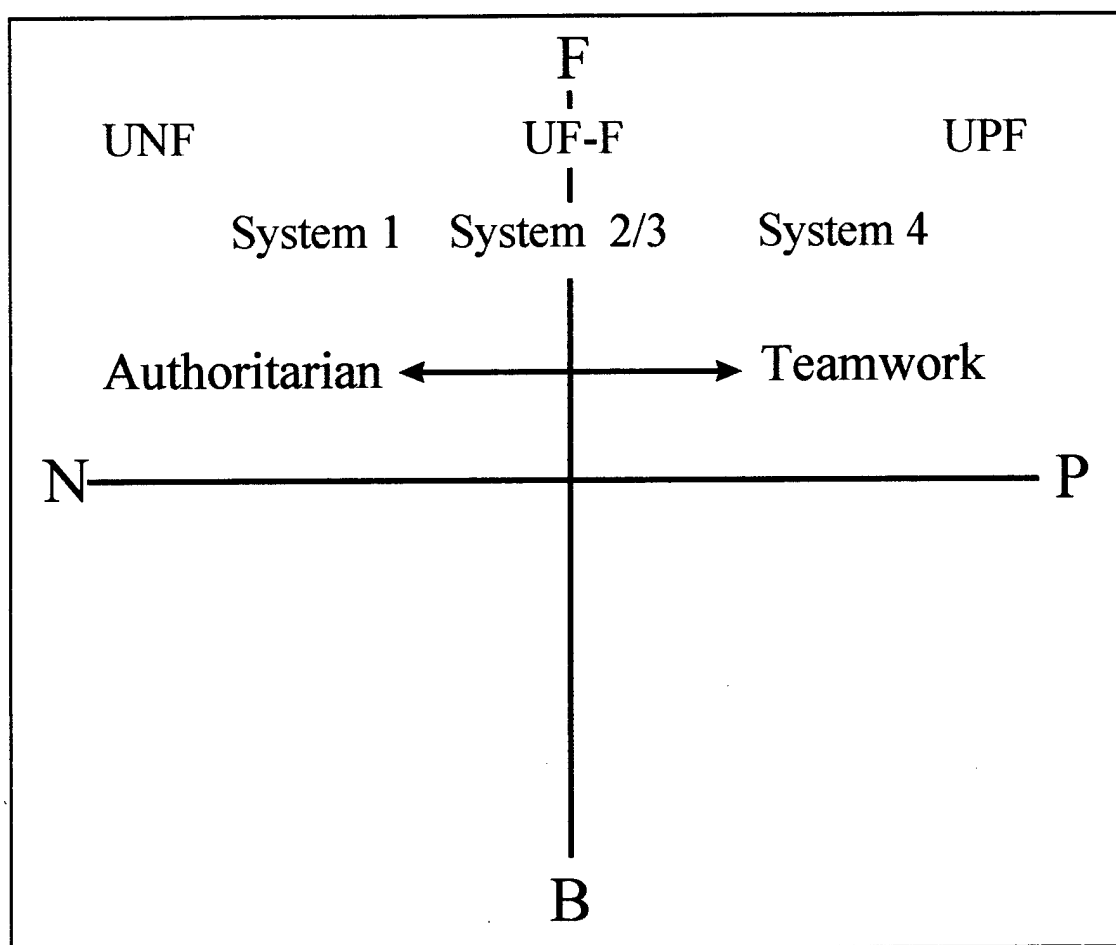


Figure 9. Likert's Four Management Styles in the SYMLOG Space.

relates to the U-D dimension of dominance or submissiveness, although not quite as well as the other two dimensions, since the U-D deals more with behaviors and values on power instead of that power which comes from occupying a position. Fiedler uses his theory to suggest that management would be best served by engineering a job to fit the leader's style instead of developing or training a leader to fit the job (Luthans, 1995: 351). SYMLOG recognizes that leaders change their styles based on many variables and that leaders are trainable and adaptable to their environment, thus taking more of a social learning theory approach to leadership which takes into account the interactions between the leader and his cognitions, the environment, and the leader's behavior (Luthans, 1995: 359).

f. Transactional and Transformational Leadership. The two final theories or styles worthy of discussion are two put forth by Burns in his 1978 book, *Leadership*. Burns talks about transactional leaders who base their influence on an exchange relationship between leaders and followers which maps onto the "PF" sector. The other is the transformational leader who wants to change the values, beliefs, and actions of their followers (Luthans, 1995: 357). This maps into the "UPF" sector of SYMLOG space with values of inspirational, idealized leadership and behaviors of being persuasive, convincing and showing task leadership.

None of the leadership theories provide as comprehensive or as useful a model and theory as does SYMLOG. This model is useful not only in identifying types and behaviors of leaders, but more importantly in identifying behaviors and values which need to be changed to be more effective and productive. Leaders need to know at what level of development their organizations are located in order to move them to where their vision

wants to take the team, group, or company. SYMLOG is an ideal tool, model, and theory to accomplish this. Just as a mechanic has many different tools to repair different things, so are there many different ways or tools to use to analyze and repair an organization. For instance, a mechanic who desires to tighten a nut could use a box end wrench, an open end wrench, a crescent wrench, a socket wrench or a pair of vice grips. But, due to the circumstances surrounding the repair, one wrench might work better than another. There are many leadership theories and personality measurement tools available for use in this current research, but SYMLOG provides the best tool available to measure leadership values and perceptions and to measure a change in these values and perceptions. Thus, SYMLOG is the best tool to use in this research.

III. RESEARCH METHODOLOGY

A. DESIGN METHODOLOGY

EOBC students are commissioned through three different sources - USMA, ROTC, and OCS. As a part of this study, they were tested within the first week of arrival for their values and perceptions on effective leadership. This became the basis of the first hypothesis, to determine differences due to commissioning sources. The second test was administered in the last week of the course to determine if the leadership training received at EOBC had an effect on the students' leadership perceptions. This information was used to determine if leadership can be taught in a relatively short period of time of seventeen weeks, the second hypothesis. The same survey was administered to EOAC classes during their in-processing to the school. The EOAC students have just finished being platoon leaders and company executive officers, positions for which EOBC trains its officers. The EOAC test results were then compared to both the EOBC pre-test and post-test to determine if the training conducted is preparing the EOBC students to succeed in their future leadership positions, the third hypothesis. Finally, a control group of business leaders who have not had this military training was chosen to compare to the EOAC students' perceptions on leadership. This is the fourth hypothesis, to determine if there are cultural biases which may be designated as good leadership behavior in a particular learning environments or culture. This general design methodology is represented in Figure 10.

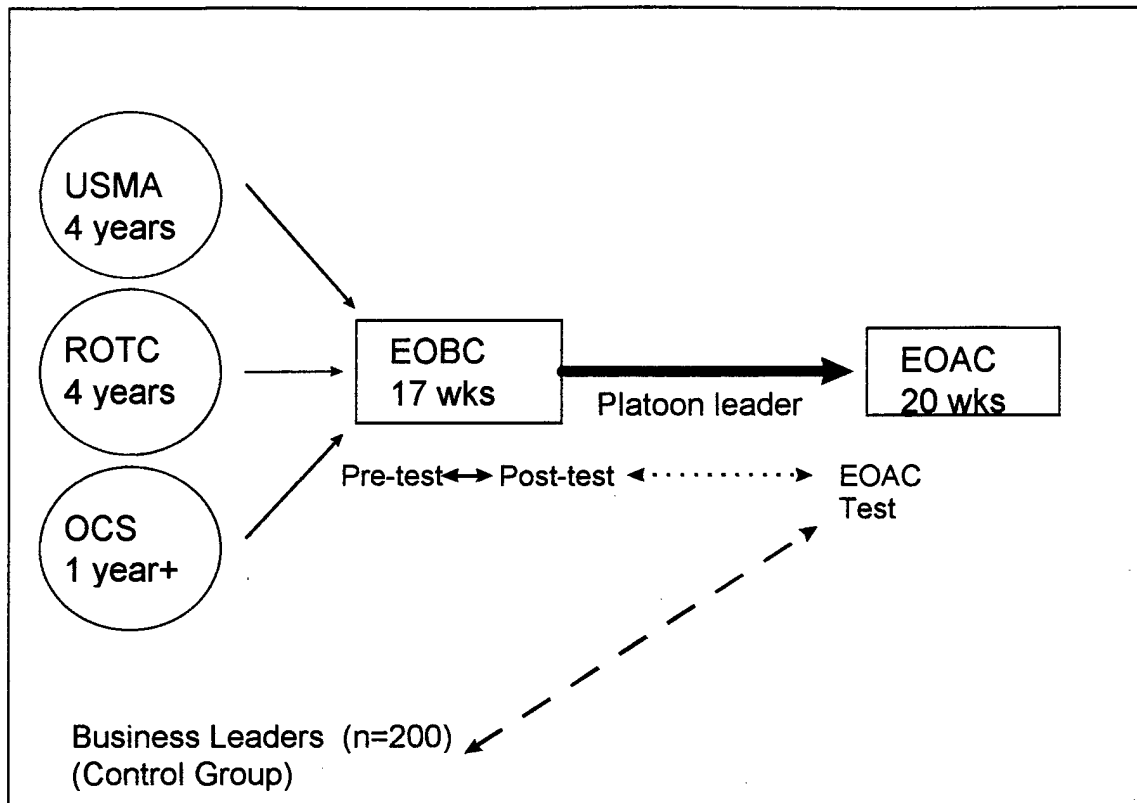


Figure 10. Design Methodology.

B. A DESCRIPTION OF THE DATA

The data contained in this research are of two kinds: primary and secondary data. The primary data are the responses to the SYMLOG survey by EOBC and EOAC students and the demographic data contained therein. It is the data directly collected by the researcher. All students were given the same briefing and conditions for taking the survey. This data was all located with the EOBC and EOAC students at Fort Leonard Wood, Missouri. The secondary data are the 200 random responses on the most effective leader known by business leaders. This data is contained in the SYMLOG database.

The criteria for the admissibility of the primary data was to accept only responses from the survey administered by a trained professional, in this case the researcher who

attended a week long course in San Diego, California, administered by SCG. The survey results were collected from the EOBC and EOAC students at Fort Leonard Wood, Missouri, during the spring, summer and fall of 1997. All data was sent to SCG for grading and processing.

C. THE RESEARCH METHODOLOGY

The research methodology is quantitative using the SYMLOG survey which allows for the measurement of concepts, values and aspects of behavior. These behavioral items are actually qualitative properties and not easily measured without the use of the SYMLOG instrument. The basic research behind SYMLOG has been conducted for over 40 years by R. F. Bales and his colleagues at Harvard University. The SYMLOG questionnaire (Respondent Package, Appendix A) consists of 26 descriptive items concerning individual and organizational values. The respondents were asked to rate these 26 items against a backdrop of two questions: 1) what kinds of values does the most effective leader (MEL) of a task-oriented work team you have actually known show in his or her behavior; and 2) what kinds of values would be ideal for you to show in order to be most effective as a platoon leader (EPL). Thus, MEL is a person whom the respondent actually knows, while EPL could be a real person or an idealized role model which one wants to become. Respondents rate the frequency with which the person is generally perceived to show each of the 26 values or behavior with a response scale of: a) Rarely = 0 points; b) Sometimes = 1 point; and c) Often = 2 points (Velsor & Leslie, 1991: 257).

MEL is considered an important reference image in SCG publications. Research about perceptions of MEL has been conducted with managers of diverse cultures from

America, Belgium, Canada, Germany, Indonesia, Norway, South Africa, Sweden and Thailand to name a few. However, the normative for MEL is taken from American results only. The characteristics of MEL are based on a standard data set from the SCG database, composed of a random sample of 200 responses from American business people. The location of MEL does not imply one best method of leadership, but is the empirical location for the most effective method over time and across many different situations.

The characteristics of the most effective platoon leader (EPL) is a question which has significance for this study only. There is no SYMLOG database on EPL. It is a question used only in this survey to determine the effectiveness of the training received at EOBC.

The reliability of the SYMLOG scales is quite high, with correlations ranging from .95 to .99 (Bales & Cohen, 1979). The validity of the data has been verified in many studies (Hogan, 1983; Jesuino, 1988; Bachman, 1988, to name a few). Specifically, Jesuino and Bachman both dealt with military environments: Jesuino at the Portuguese Naval Academy, and Bachman with commanders of U. S. Naval units.

The data were gathered by administering the survey to the United States officers attending EOBC between the months of April through August 1997 and attending EOAC between the months of April through October 1997. There are about 90 international officers attending the two courses each from about 50 different countries. The international students attending the courses were not administered the survey. Their data were not pertinent to the specifics of this study. The officers surveyed yielded a sample size of approximately 40% of the annual load of EOBC students and 75% of the annual EOAC student load.

Part of the data obtained from the SYMLOG questionnaires was analyzed using the analysis of variance (ANOVA) methodology. ANOVA describes a technique to analyze the total variation in a set of samples. The strength of this approach is that it measures the variance in more than just two samples. However, the weakness is that the variance between two samples can be buried in a bigger sample of three or more components. This study also uses a t-test which only looks at two samples at a time. Since some of the hypotheses are stated in such a manner that the changes in leadership values are expected in only one direction, a one-tailed test is preferred over a two-tailed test. In other hypotheses, a direction is not specified, making a two-tailed test appropriate. The results for an ANOVA analysis involving only two samples are the same as the results for a t-test, but the t-test cannot be run on three or more samples at once. A paired sample t-test was used to compare pre-test and post-test results. Using both the t-test and ANOVA analyses provides a more rigorous approach to determining variations and their significance due to the training environment and the treatments received. The $\alpha = 0.05$ level is used as the level of significance for the hypotheses in this dissertation. Some of the changes in perceptions may not reach the statistically significant level, but the movement of perceptions can still be measured with the SYMLOG instrument by ascertaining overall vector locations.

The SYMLOG Consulting Group processed the data in their data base and provided a printout of the results using a statistical package for the social sciences. They also provided bargraphs and field diagrams shown in Appendices C through F. The zigzag line in the bargraph is the SYMLOG Normative Profile for effective leadership and teamwork. This line represents an average frequency rating given on each item in answer

to various questions asked by SCG. It is based on tens of thousands of observations about leadership and interpersonal behavior in complex organizations. The term "mep" in the field diagram stands for most effective profile. It is a three dimensional representation of the zigzag line in the bargraph. It is plotted on the F-B and the P-N axes for two dimensions, while the third dimension is represented by the size of the circle. The larger the circle, the more U the profile is.

The twenty-six descriptive phrases on a SYMLOG questionnaire represent twenty-six orientations or vectors that can be mathematically combined to measure three bipolar SYMLOG dimensions: values on dominance vs. submissiveness (upward, downward); values on friendly vs. unfriendly behavior (positive, negative); and values on accepting vs. opposing the task orientation of established authority (forward, backward). In the bargraph figure, each of the twenty-six descriptive items has a code that indicates which of the directional vectors that it is associated with (e.g., item 1 U, item 2 UP, item 3 UPF, etc.). A final location score (a dimension score) is derived from arithmetically combining the eighteen vectors that contain an element of that dimension. For example, the formula for computing a score on the dominance-submissiveness dimension is:

$$UD = (U + UP + UPF + UF + UNF + UN + UNB + UB + UPB \\ - DP - DPF - DF - DNF - DN - DNB - DB - DPB - D)$$

where a positive value is reported as a U final location and a negative value as a D final location

Additionally, an expansion multiplier is applied to the Positive-Negative and Forward-Backward scores in order to make plotting on a field diagram easier to read. Thus, for each of these dimensions there is a similar formula to that shown for UD, but the

resultant is multiplied by an expansion factor of 1.2 to make the results easier to read on the field diagram. The possible range of scores for each of the three dimensions is as follows:

<u>DIMENSION</u>	<u>DESCRIPTION</u>	<u>RANGE</u>
UD	Values on dominance vs. submissiveness	-18 to 18
PN	Values on friendly vs. unfriendly behavior	-21.6 to 21.6
FB	Values on accepting vs. opposing the task orientation of established authority	-21.6 to 21.6

D. THE FIRST HYPOTHESIS

First hypothesis. Engineer officers attending their basic course commissioned through USMA, OCS, or ROTC will show a statistical difference in their perceptions of the values shown by the most effective leader (MEL) that they have known.

This hypothesis addresses the question of whether or not the perceptions of effective leadership held by officer attendees in the Engineer Officer Basic Course differ according to the commissioning source of the attendees. The operationalization of perceptions of effective leadership, as used in the first hypothesis, is a subject's rating in answer to the survey question, "In general, what kinds of values does the most effective leader of a task-oriented work team you have known show in his or her behavior?" (reference code: MEL). The operationalization of commissioning source is identification of a subject with one, and only one, of the following entry vehicles for military service: Officer Candidate School (OCS); Reserve Officer Training Corps (ROTC); or the United States Military Academy (USMA).

The first hypothesis has to be addressed through nine subhypotheses, three each for the three primary SYMLOG dimensions of values on (a) dominance vs.

submissiveness, (b) friendly vs. unfriendly behavior, (c) accepting vs. opposing the task orientation of established authority combined with three possible combinations of comparing OCS, ROTC and USMA. This three by three architecture gives a resultant nine subhypotheses. A null hypothesis is given with each of the subhypotheses.

The null hypothesis is an indicator only. It reveals that some influence, force, or factor has either resulted in a significant statistical difference (one that cannot be accounted for by mere chance, that occurs within certain arbitrary statistical limits) or in no such difference (Leedy, 1993: 76).

The nine subhypotheses of the first hypothesis are designated as H1a through H1i. This same convention is also used for the remainder of the hypotheses and subhypotheses.

H1a) Perceptions held by USMA and OCS EOBC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known will not be significantly different.

Null: There will be a significant difference between perceptions held by USMA and OCS EOBC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known.

H1b) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on dominance (UD) than perceptions held by USMA attendees.

Null: There will be no significant difference between perceptions held by ROTC and USMA EOBC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known.

H1c) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on dominance (UD) than perceptions held by OCS attendees.

Null: There will be no significant difference between perceptions held by ROTC and OCS EOBC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known.

H1d) Perceptions held by USMA and OCS EOBC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known will not be significantly different.

Null: There will be a significant difference between perceptions held by USMA and OCS EOBC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known.

H1e) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on friendly behavior (PN) than perceptions held by USMA attendees.

Null: There will be no significant difference between perceptions held by ROTC and USMA EOBC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known.

H1f) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on friendly behavior (PN) than perceptions held by OCS attendees.

Null: There will be no significant difference between perceptions held by ROTC and OCS EOBC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known.

H1g) Perceptions held by USMA and OCS EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known will not be significantly different.

Null: There will be a significant difference between perceptions held by USMA and OCS EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known.

H1h) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on accepting the task orientation of established authority (FB) than perceptions held by USMA attendees.

Null: There will be no significant difference between perceptions held by ROTC and USMA EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known.

H1i) Perceptions held by ROTC EOBC attendees of the values shown by the most effective leader (MEL) known will be significantly lower on accepting the task orientation of established authority (FB) than perceptions held by OCS attendees.

Null: There will be no significant difference between perceptions held by ROTC and OCS EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known.

Table VII correlates the SYMLOG dimensions with the commissioning sources and the subhypotheses. Each commissioning source will be compared to the other two, one at a time in the results section.

Table VII. The First Hypothesis Correlated to SYMLOG Dimension and Commissioning Source.

SYMLOG Dimension	Value orientation of Most effective leader known (MEL)	<u>Commissioning source of officer attendees in EOBC</u>		
		USMA vs. OCS	USMA vs. ROTC	OCS vs. ROTC
UD	Values on dominance	H1a	H1b	H1c
PN	Values on friendly behavior	H1d	H1e	H1f
FB	Values on accepting the task orientation of established authority	H1g	H1h	H1i

E. METHOD OF ANALYSIS FOR THE DATA OF THE FIRST HYPOTHESIS

Two statistical approaches are used to address the first hypothesis. First, to examine the hypothesis in its most general form, an ANOVA was used to compare variations of perceptions of the most effective leader (MEL) known held by EOBC

students according to commissioning source – USMA, OCS, and ROTC. ANOVA was applied three times, once for each primary dimension of value orientation of MEL. For ANOVA, the level of significance for the F value was set at 0.05.

The second statistical approach, comparison of group means using t-tests, addresses each of the nine subhypotheses one at a time. For hypotheses H1a, H1d, and H1g, in which no difference was predicted, a two-tailed test was appropriate. For the remaining subhypotheses, in which direction was predicted, one-tailed tests were used. For t-tests, the level of significance for the *t* value was set at 0.05.

This hypothesis will only look at the students' answers for the most effective leader (MEL) whom they have known. Since the students have not been platoon leaders and in many cases have not seen a platoon leader in action in a military environment, the MEL profile is the most appropriate to use.

The data was also collated in a field diagram and a bar graph (Appendices C through F). The field diagram shows all of the responses from the group and shows how individuals relate to each other and the situation. The field diagram, although two-dimensional, is able to portray the multi-dimensional and multi-level dynamic potentials for unification and polarization that are involved in the exercise of leadership. "The dimensions of the field are scales that are used as coordinates, against which the locations of images are plotted. Points on the scale are the frequencies with which individuals show one aspect or another of certain bipolar behavioral characteristics" (Bales, 1995: 5). The bipolar characteristics are dominance versus submissiveness, friendliness versus unfriendliness, and acceptance versus non-acceptance of authority. The bar graph further explains the reasons why a particular image appears in a given location on the field

diagram. The bar graph gives an item by item profile of the ratings actually received and compares them to the normative most effective profile for that rating. If the actual behavior of the members of the group is more or less frequent than the effectiveness profile, it shows up on the bar graph as being longer or shorter than the most effective frequency.

F. THE SECOND HYPOTHESIS

Second hypothesis. The seventeen weeks of training at EOBC will cause a statistical difference in the perceptions of the values shown by the some of the EOBC attendees regarding their image of the most effective platoon leader (EPL).

This hypothesis addresses the question of whether or not the seventeen weeks of training has an effect on leadership values and perceptions, and it uses the commissioning sources as a means of examining this question. The operationalization of perceptions of most effective platoon leader, as used in the second hypothesis, is a subject's rating in answer to the survey question, "In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?" (reference code: EPL). This hypothesis is a mirror of the first hypothesis, in that the first hypothesis involves a pre-test and the second hypothesis involves a post-test juxtaposed with the pre-test. As such, this hypothesis needs nine subhypotheses to test against the data collected for the nine subhypotheses in the first hypothesis. Once again, a null hypothesis is include for each subhypothesis and is included as follows.

H2a) Perceptions held by USMA EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on

dominance (UD) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by USMA attendees of the values shown on dominance (UD) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2b) Perceptions held by OCS EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on dominance (UD) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by OCS attendees of the values shown on dominance (UD) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2c) Perceptions held by ROTC EOBC attendees of the values shown by the most effective platoon leader (EPL) known will be significantly higher on dominance (UD) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be no significant difference between perceptions held by ROTC attendees of the values shown on dominance (UD) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

2d) Perceptions held by USMA EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on friendly behavior (PN) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by USMA attendees of the values shown on friendly behavior (PN) by the most effective platoon

leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2e) Perceptions held by OCS EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on friendly behavior (PN) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by OCS attendees of the values shown on friendly behavior (PN) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2f) Perceptions held by ROTC EOBC attendees of the values shown by the most effective platoon leader (EPL) known will be significantly higher on friendly behavior (PN) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be no significant difference between perceptions held by ROTC attendees of the values shown on friendly behavior (PN) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2g) Perceptions held by USMA EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on accepting the task orientation of established authority (FB) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by USMA attendees of the values shown on accepting the task orientation of established authority

(FB) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2h) Perceptions held by OCS EOBC attendees of the values shown by the most effective platoon leader (EPL) known will show no significant difference on accepting the task orientation of established authority (FB) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be a significant difference between perceptions held by OCS attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

H2i) Perceptions held by ROTC EOBC attendees of the values shown by the most effective platoon leader (EPL) known will be significantly higher on accepting the task orientation of established authority (FB) after EOBC training than from their initial perceptions upon entering EOBC.

Null: There will be no significant difference between perceptions held by ROTC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective platoon leader (EPL) known after the seventeen weeks of training and education received during EOBC.

G. METHOD OF ANALYSIS FOR THE DATA OF THE SECOND HYPOTHESIS

In the second hypothesis, two measures from the same sample are being compared, i.e., a pre-test and post-test comparison. The appropriate t-test for this case is a paired sample t-test. Only a one-tailed analysis was done for ROTC commissioned students,

since this is the only subhypothesis with an expected direction. A two-tailed test is appropriate for all other categories of students because no direction is given. The ANOVA analysis was not used in this hypothesis since only two samples are being compared at a time, the before treatment and after treatment surveys. The treatment for this hypothesis is the engineer basic course. This hypothesis will be evaluated using the most effective platoon leader (EPL) data. The course is designed to train officers to become effective platoon leaders. Even though the students might have met or seen a new "most effective leader" during the conduct of the course and changed their concept of what constitutes the most effective leader, the real significance of the training is whether or not their perceptions about being the most effective platoon leader are changing. Thus, EPL data will be used to test this hypothesis.

Otherwise, the interpretation of the data is the same as in the first hypothesis. However, the field diagram and bar graph should both show a shift in value orientations due to the training and education received over the 17 week period of EOBC.

H. THE THIRD HYPOTHESIS

Third hypothesis. By the end of the basic course, the EOBC students' perceptions of the most effective platoon leader (EPL) will be closer to the perceptions of the EOAC officers who have been in the military service for at least three years.

The third hypothesis addresses the question of the effectiveness of the training conducted. If the second hypothesis finds no significance to the training conducted, then this question will not find much of significance either. However, if attitudes and values are changed, then the effectiveness of the training conducted can be measured. The answer to

this question has more practical than theoretical significance. If the course is changing attitudes contrary to where they need to be, then the course needs some modification. If the course has no significant impact one way or the other, then the course should be modified to either try to produce an impact or to eliminate blocks of instruction which have no impact and thereby shorten the course and save course costs.

This hypothesis is addressed through three subhypotheses. The hypothesis is broken down into the three major SYMLOG dimensions: dominance vs. submissiveness (UD), friendliness vs. unfriendliness (PN), and accepting vs. rejecting the task orientation of established authority (FB). Each dimension is then examined in detail. Once again, a null hypothesis is used for each subhypothesis.

H3a) Perceptions held by EOBC attendees of the values shown on dominance (UD) by the most effective platoon leader (EPL) known will be closer to the perceptions held by EOAC attendees after the EOBC attendees have completed their training.

Null: Perceptions held by EOBC attendees of the values shown on dominance (UD) by the most effective platoon leader (EPL) known will not be closer to the perceptions held by EOAC attendees after the EOBC attendees have completed their training.

H3b) Perceptions held by EOBC attendees of the values shown on friendly behavior (PN) by the most effective platoon leader (EPL) known will be closer to the perceptions held by EOAC attendees after the EOBC attendees have completed their training.

Null: Perceptions held by EOBC attendees of the values shown on friendly behavior (PN) by the most effective platoon leader (EPL) known will not be closer to the

perceptions held by EOAC attendees after the EOBC attendees have completed their training.

H3c) Perceptions held by EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective platoon leader (EPL) known will be closer to the perceptions held by EOAC attendees after the EOBC attendees have completed their training.

Null: Perceptions held by EOBC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective platoon leader (EPL) known will not be closer to the perceptions held by EOAC attendees after the EOBC attendees have completed their training.

I. METHOD OF ANALYSIS FOR THE DATA OF THE THIRD HYPOTHESIS

Both sets of EOBC data, pre-test and post-test, were compared to the EOAC results for most effective platoon leader. Since no direction was given, the two-tailed test is appropriate. This analysis was done using EPL data. The EOAC students have each been platoon leaders and seen platoon leaders in action. EOBC is designed to help students become platoon leaders. Since the training is geared toward making them better platoon leaders, the study is designed to determine the effectiveness of the training in EOBC. The training should move the lieutenants' perceptions about what values the most effective platoon leader should possess closer to the perceptions of those who have been and have seen effective platoon leaders. Thus, EPL data will be used to test this hypothesis.

The data on the field diagram and bar graph collected from EOBC should more closely resemble the data from the EOAC officers at the end of the 17 weeks of training than at the beginning, as well as have less variation among the different backgrounds due to different sources of commission.

J. THE FOURTH HYPOTHESIS

Fourth hypothesis. There will be a statistically significant difference in the perceptions of the most effective leader (MEL) known between the EOAC students and a sample SYMLOG business MEL profile.

The fourth hypothesis addresses the question of a cultural bias to leadership. Since the EOBC students have not been in the Army for any length of time, the EOAC students are a more appropriate group to use for a cultural comparison to a business control group. This hypothesis is addressed through three subhypotheses, one for each of the three primary SYMLOG dimensions. A null hypothesis was used for each subhypothesis. Since a direction was specified in two of the subhypotheses and two did not turn out as predicted, a second null hypothesis was needed to address the results in directions different from those hypothesized.

H4a) Perceptions held by EOAC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known will be significantly higher than those perceptions held by business leaders.

First Null: There will be no significant difference between perceptions held by EOAC students and business leaders of the values shown on dominance (UD) by the most effective leader (MEL) known.

Second Null: Perceptions held by EOAC attendees of the values shown on dominance (UD) by the most effective leader (MEL) known will be significantly lower than those perceptions held by business leaders.

H4b) Perceptions held by EOAC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known will not be significantly different than those perceptions held by business leaders.

First Null: Perceptions held by EOAC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known will be significantly higher than those perceptions held by business leaders.

Second Null: Perceptions held by EOAC attendees of the values shown on friendly behavior (PN) by the most effective leader (MEL) known will be significantly lower than those perceptions held by business leaders.

H4c) Perceptions held by EOAC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known will be significantly higher than those perceptions held by business leaders.

First Null: There will be no significant difference between perceptions held by EOAC students and business leaders of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known.

Second Null: Perceptions held by EOAC attendees of the values shown on accepting the task orientation of established authority (FB) by the most effective leader (MEL) known will be significantly lower than those perceptions held by business leaders.

K. METHOD OF ANALYSIS FOR THE DATA OF THE FOURTH HYPOTHESIS

EOAC results were compared to a random SYMLOG business profile. This hypothesis used the one-tailed test for both the U and F vectors since a direction was specified, and the two-tailed test for the P vector since a direction was not specified. The results from MEL were used from EOAC and compared to the business profile. There is no business profile for EPL, since EPL is not a standard question used by SYMLOG practitioners. The Captains in EOAC have seen many military leaders in their time in the service. They will never be platoon leaders again. Their focus is on becoming a more effective leader. The most appropriate data set to compare is the MEL data.

If there is a basis for leadership styles based on different situations, then what makes a successful Army engineer leader should be significantly different than the characteristics that make a successful business leader.

IV. RESULTS OF THE RESEARCH

A. INTRODUCTION

The results of the research were unexpected. In general, there was very little difference in leadership values and perceptions between the three commissioning sources. The seventeen weeks of training did have a significant effect on leadership values and perceptions in a couple of areas. However, the training did not need to adjust or modify leadership perceptions to a great extent since, as the third hypothesis determined, the EOBC students' were very close in ratings to EOAC students before the training. Therefore, most of the results in the third hypothesis were inconclusive, with some of the training shown to have a positive effect. Thus, the leadership training was partially validated. The fourth hypothesis produced some major differences in leadership values between the military and business cultures. Only one subhypothesis turned out as predicted, and two did not. The result of the fourth hypothesis, though, was to show a strong cultural bias in leadership values.

B. THE FIRST HYPOTHESIS

The perceptions of effective leadership held by officer attendees in the Engineer Officer Basic Course (EOBC) as represented by the three primary values dimension scores are shown in Table VIII in cells defined by the commissioning source of the attendees. There were basically no significant differences between the three groups.

Table VIII. SYMLOG Values for the First Hypothesis.

SYMLOG Dimension	Value orientation of Most effective leader known (MEL)	Mean (sd*) dimension scores by commissioning source of officer attendees in EOBC		
		USMA (N = 31)	OCS (N = 41)	ROTC (N = 125)
UD	Values on dominance	2.03 (2.40)	1.76 (2.33)	1.77 (2.55)
PN	Values on friendly behavior	4.80 (4.05)	4.65 (3.14)	4.58 (3.78)
FB	Values on accepting the task orientation of established authority	9.72 (3.28)	10.16 (4.19)	9.05 (4.21)

* sd = standard deviation

The results are also portrayed in the figure in Appendix C of a field diagram showing the final locations of perceptions of MEL by the three commissioning source groups. The scatter plots showing the positions of all the respondents are included, organized by commissioning source. Three bar graphs of the responses are included in Appendix C to compare the responses by the three groups to the E-line or the most effective profile as compiled by the SYMLOG Consulting Group.

The application of ANOVA to each of the three primary value dimensions showed no significant differences ($p < 0.05$) in the perceptions of MEL according to commissioning source of subjects. Thus, based on the ANOVA results, it may be concluded that, in general, the perceptions of effective leadership held by officer attendees in the Engineer Officer Basic Course (EOBC) do not differ according to the commissioning source of the attendees.

The ANOVA results, which broadly address the research question, might mask differences that could be detected when commissioning source groups are compared two at a time, as specified in the nine subhypotheses. Thus, each subhypothesis was tested with the t-test analysis for unequal sample sizes of commissioning source groups taken two at a time. The results of the t-tests are stated below, first with reference to the null version of the hypothesis, and secondly with respect to the main hypothesis.

H1a) The probability that the difference in the mean dimension score for values on dominance in perceptions of MEL held by USMA and OCS subjects is caused by chance is greater than 0.05. Therefore, the decision was made to reject the null hypothesis that there is a significant difference between the perceptions of USMA and OCS subjects. Thus, there is sufficient evidence to conclude that perceptions of USMA and OCS subjects do not differ significantly concerning the value orientation on dominance of the most effective leader actually known.

H1b) The probability that the difference in the mean dimension score for values on dominance in perceptions of MEL held by ROTC and USMA subjects is caused by chance is greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis that there is no significant difference between the perceptions of ROTC and USMA subjects. Although the mean score for ROTC subjects is less than that for USMA subjects, as hypothesized, there is insufficient evidence to conclude that perceptions of ROTC and USMA subjects differ significantly concerning the value orientation on dominance of the most effective leader actually known.

H1c) The probability that the difference in the mean dimension score for values on dominance in perceptions of MEL held by ROTC and OCS subjects is caused by chance is

greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis that there is no significant difference between the perceptions of ROTC and OCS subjects. Thus, there is insufficient evidence to conclude that perceptions of ROTC and OCS subjects differ significantly concerning the value orientation on dominance of the most effective leader actually known.

H1d) The probability that the difference in the mean dimension score for values on friendly behavior in perceptions of MEL held by USMA and OCS subjects is caused by chance is greater than 0.05. Therefore, the decision was made to reject the null hypothesis that there is a significant difference between the perceptions of USMA and OCS subjects. Thus, there is sufficient evidence to conclude that perceptions of USMA and OCS subjects do not differ significantly concerning the value orientation on friendly behavior of the most effective leader actually known.

H1e) The probability that the difference in the mean dimension score for values on friendly behavior in perceptions of MEL held by ROTC and USMA subjects is caused by chance is greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis that there is no significant difference between the perceptions of ROTC and USMA subjects. Although the mean score for ROTC subjects is less than that for USMA subjects, as hypothesized, there is insufficient evidence to conclude that perceptions of ROTC and USMA subjects differ significantly concerning the value orientation on friendly behavior of the most effective leader actually known.

H1f) The probability that the difference in the mean dimension score for values on friendly behavior in perceptions of MEL held by ROTC and OCS subjects is caused by chance is greater than 0.05. Therefore, there is insufficient evidence to reject the null

hypothesis that there is no significant difference between the perceptions of ROTC and OCS subjects. Although the mean score for ROTC subjects is less than that for OCS subjects, as hypothesized, there is insufficient evidence to conclude that perceptions of ROTC and OCS subjects differ significantly concerning the value orientation on friendly behavior of the most effective leader actually known.

H1g) The probability that the difference in the mean dimension score for values on accepting the task orientation of established authority in perceptions of MEL held by USMA and OCS subjects is caused by chance is greater than 0.05. Therefore, the decision was made to reject the null hypothesis that there is a significant difference between the perceptions of USMA and OCS subjects. Thus, there is sufficient evidence to conclude that perceptions of USMA and OCS subjects do not differ significantly concerning the value orientation on accepting the task orientation of established authority of the most effective leader actually known.

H1h) The probability that the difference in the mean dimension score for values on accepting the task orientation of established authority in perceptions of MEL held by ROTC and USMA subjects is caused by chance is greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis that there is no significant difference between the perceptions of ROTC and USMA subjects. Although the mean score for ROTC subjects is less than that for USMA subjects, as hypothesized, there is insufficient evidence to conclude that perceptions of ROTC and USMA subjects differ significantly concerning the value orientation on accepting the task orientation of established authority of the most effective leader actually known.

H1i) The probability that the difference in the mean dimension score for values on accepting the task orientation of established authority in perceptions of MEL held by ROTC and OCS subjects is caused by chance is greater than 0.05. Therefore, there is insufficient evidence to reject the null hypothesis that there is no significant difference between the perceptions of ROTC and OCS subjects. Although the mean score for ROTC subjects is less than that for OCS subjects, as hypothesized, there is insufficient evidence to conclude that perceptions of ROTC and OCS subjects differ significantly concerning the value orientation on accepting the task orientation of established authority of the most effective leader actually known.

Table IX. Summary of the First Hypothesis Results.

SYMLOG Dimension	Value orientation of Most effective leader known (MEL)	Commissioning source of officer attendees in EOBC		
		USMA vs. OCS	USMA vs. ROTC	OCS vs. ROTC
UD	Values on dominance	H1a no significant difference	H1b no significant difference	H1c no significant difference
PN	Values on friendly behavior	H1d no significant difference	H1e no significant difference	H1f no significant difference
FB	Values on accepting the task orientation of established authority	H1g no significant difference	H1h no significant difference	H1i no significant difference

C. THE SECOND HYPOTHESIS

No significant changes in leadership values were predicted for the USMA graduates, and this proved to be the case in all three USMA subhypotheses. No significant changes were predicted for OCS graduates which proved to be the case for two of the three subhypotheses. OCS values on acceptance of authority changed significantly, which was not predicted. The ROTC graduates were predicted to show changes in their leadership values, but this only happened in one of the three subhypotheses, the one dealing with dominance.

The perceptions of the most effective platoon leader (EPL) held by officer attendees in the Engineer Officer Basic Course (EOBC) are correlated below by hypothesis, commissioning source, and SYMLOG primary value dimension with the pre-test and post-test results and their significance. The results are also portrayed in Appendix D through field diagrams, scatterplots, and bar graphs. Each subhypothesis was tested using a paired sample t-test, comparing the pre-test results to the post-test results. The results of the paired sample t-test are reported in Table X, first with reference to the null version of the hypothesis, and secondly with respect to the main hypothesis.

H2a) The probability that the difference in the mean dimension scores for values on dominance (UD) in perceptions of EPL held by USMA graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will cause a significant difference in the leadership perceptions and values of USMA subjects. Thus, there is sufficient evidence to conclude that the training received will not significantly change the perceptions of USMA subjects concerning the value orientation on

Table X. Hypothesis 2: Pre-test and Post-test Comparisons for EOBC by Commissioning Source.

Hypothesis	N*	Pre-Test		Post-Test		Significance	Comment
		Mean	(sd**)	Mean	(sd)		
H2a USMA (UD)	31	1.19	(2.36)	1.58	(2.51)	nsd (two-tailed)	as predicted
H2b OCS (UD)	42	1.53	(2.13)	1.4	(2.71)	nsd (two-tailed)	as predicted
H2c ROTC (UD)	119	1.31	(2.32)	1.87	(2.63)	.05 (one-tailed)	as predicted
H2d USMA (PN)	31	4.37	(3.18)	3.6	(3.11)	nsd (two-tailed)	as predicted
H2e OCS (PN)	42	4.33	(3.27)	4.09	(3.26)	nsd (two-tailed)	as predicted
H2f ROTC (PN)	119	4.4	(3.01)	4.21	(3.26)	nsd (one-tailed)	counter to prediction
H2g USMA (FB)	31	9.91	(3.89)	9.48	(4.48)	nsd (two-tailed)	as predicted
H2h OCS (FB)	42	10.91	(3.16)	9.86	(3.64)	.05 (two-tailed)	counter to prediction
H2I ROTC (FB)	119	10.71	(3.48)	10.27	(3.66)	nsd (one-tailed)	counter to prediction

N* = number of students tested; sd** = standard deviation

dominance of the most effective platoon leader. Even though not significant, there was a noticeable increase in the U direction.

H2b) The probability that the difference in the mean dimension scores for values on dominance (UD) in perceptions of EPL held by OCS graduates before and after the

seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will cause a significant difference in the leadership perceptions and values of OCS subjects. Thus, there is sufficient evidence to conclude that the training received will not significantly change the perceptions of OCS subjects concerning the value orientation on dominance of the most effective platoon leader. In this case, there was a slight decrease in emphasis on dominance values, although statistically insignificant.

H2c) The probability that the difference in the mean dimension scores for values on dominance (UD) in perceptions of EPL held by ROTC graduates before and after the seventeen weeks of training at EOBC is caused by chance is less than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will not cause a significant difference in the leadership perceptions and values of ROTC subjects. Thus, there is sufficient evidence to conclude that the training received will significantly change the perceptions of ROTC subjects concerning the value orientation on dominance of the most effective platoon leader. This value had a greater emphasis by this group than by any other tested.

H2d) The probability that the difference in the mean dimension scores for values on friendly behavior (PN) in perceptions of EPL held by USMA graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will cause a significant difference in the leadership perceptions and values of USMA subjects. Thus, there is sufficient evidence to conclude that the training received will not significantly change the perceptions of USMA subjects concerning the value

orientation on friendly behavior of the most effective platoon leader. Emphasis on friendliness values decreased, but not significantly.

H2e) The probability that the difference in the mean dimension scores for values on friendly behavior (PN) in perceptions of EPL held by OCS graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will cause a significant difference in the leadership perceptions and values of OCS subjects. Thus, there is sufficient evidence to conclude that the training received will not significantly change the perceptions of OCS subjects concerning the value orientation on friendly behavior of the most effective platoon leader.

H2f) The probability that the difference in the mean dimension scores for values on friendly behavior (PN) in perceptions of EPL held by ROTC graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to accept the null hypothesis that the training received during EOBC will not cause a significant difference in the leadership perceptions and values of ROTC subjects. Thus, there is insufficient evidence to conclude that the training received will significantly change the perceptions of ROTC subjects concerning the value orientation on friendly behavior of the most effective platoon leader.

H2g) The probability that the difference in the mean dimension scores for values on accepting the task orientation of established authority (FB) in perceptions of EPL held by USMA graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to reject the null hypothesis that the training received during EOBC will cause a significant difference in the

leadership perceptions and values of USMA subjects. Thus, there is sufficient evidence to conclude that the training received will not significantly change the perceptions of USMA subjects concerning the value position on acceptance of the task orientation of established authority of the most effective platoon leader.

H2h) The probability that the difference in the mean dimension scores for values on accepting the task orientation of established authority (FB) in perceptions of EPL held by OCS graduates before and after the seventeen weeks of training at EOBC is caused by chance is less than 0.05. Therefore the decision was made to accept the null hypothesis that the training received during EOBC will cause a significant difference in the leadership perceptions and values of OCS subjects. Thus, there is insufficient evidence to conclude that the training received will not significantly change the perceptions of OCS subjects concerning the value orientation on accepting the task orientation of established authority of the most effective platoon leader.

H2i) The probability that the difference in the mean dimension scores for values on acceptance of the task orientation of established authority (FB) in perceptions of EPL held by ROTC graduates before and after the seventeen weeks of training at EOBC is caused by chance is greater than 0.05. Therefore the decision was made to accept the null hypothesis that the training received during EOBC will not cause a significant difference in the leadership perceptions and values of ROTC subjects. Thus, there is insufficient evidence to conclude that the training received will significantly change the perceptions of ROTC subjects concerning the value orientation on acceptance of the task orientation of established authority of the most effective platoon leader.

D. THE THIRD HYPOTHESIS

The comparison of the results between EOAC and EOBC attendees as represented by the three primary SYMLOG values dimension scores are shown in the table below. All of the EOBC results moved in the direction of the EOAC results. EOBC over shot the emphasis on dominance values, but was closer on the other two dimensions. Only the emphasis on acceptance of authority values had any statistical significance to the results.

The results are also portrayed in Appendix E through field diagrams, scatterplots, bar graphs, and the statistical package results. Each subhypothesis was tested using a t-test. The entire EOBC data was grouped together for a macro comparison with the EOAC data. The comparison was based on the three primary SYMLOG dimensions.

H3a) The probability that the mean difference scores for values on dominance (UD) in perceptions of EPL held by EOBC attendees both before and after the basic course and EOAC attendees is caused by chance is greater than 0.05. Therefore, the decision was made to accept the null hypothesis that there would no movement in perceptions closer to those held by EOAC attendees. Although there is no statistical significance attached to the differences between EOBC pre and post-test results with EOAC, the post-test results were farther from the EOAC position than the pre-test results. This is contrary to the expected results of the hypothesis.

H3b) The probability that the mean difference scores for values on friendly behavior (PN) in perceptions of EPL held by EOBC attendees both before and after the basic course and EOAC attendees is caused by chance is greater than 0.05. Therefore, the decision was made to accept the null hypothesis that there would no movement in perceptions closer to those held by EOAC attendees. Although there is no statistical

Table XI. Hypothesis 3: EOAC Compared with EOBC Pre-test and Post-test (EPL).

Hypotheses	EOAC N*=108		EOBC Pre-test N=201		EOBC Post-test N=194		Significance nsd = no significant difference	Comment
	Mean	(sd**)	Mean	(sd)	Mean	(sd)		
H3a (UD)	1.46	(2.19)	1.38	(2.29)			nsd (two-tailed)	not expected
					1.72	(2.62)		
H3b (PN)	4.18	(3.05)	4.39	(3.04)			nsd (two-tailed)	not expected
					4.09	(3.27)		
H3c (FB)	9.42	(3.90)	10.69	(3.46)			0.01 (two-tailed)	not expected
					10.05	(2.77)		

N* = number of students tested; sd** = standard deviation

significance attached to the differences between EOBC pre and post-test results with EOAC, the post-test results were closer to the EOAC position than the pre-test results.

This is as predicted by the hypothesis.

H3c) The probability that the mean difference scores for values on acceptance of the task orientation of established authority (FB) in perceptions of EPL held by EOBC attendees before the basic course and EOAC attendees is caused by chance is less than 0.05. The probability that the mean difference scores for values on acceptance of the task orientation of established authority (FB) in perceptions of EPL held by EOBC attendees

after the basic course and EOAC attendees is caused by chance is greater than 0.05. Therefore, the decision was made to reject the null hypothesis that there would no movement in perceptions closer to those held by EOAC attendees. There is statistical significance attached to the differences between EOBC pre and post-test results with EOAC. The post-test results were significantly closer to the EOAC position than the pre-test results. This was as predicted by the hypothesis.

E. THE FOURTH HYPOTHESIS

The perceptions of effective leadership held by officer attendees in the Engineer Officer Advance Course (EOAC) compared to a random sample of 200 business respondents as represented by the three primary value dimension scores reflected in the three subhypotheses are shown in Table XII. The results are also given in raw data form in Appendix F, depicted in a field diagram, scatter plots, and bargraphs. Since the hypotheses were directional, a one-tailed t-test was appropriate. The significance level in

Table XII. Hypothesis 4: EOAC Results Compared to a Business Profile.

Hypotheses	Military N*=108		Business n**=200		Significance (one-tailed t-test)
	Mean	(standard deviation)	Mean	(standard deviation)	
H4a (UD)	1.59	(2.52)	2.49	(3.03)	p. < .01 (wrong direction)
H4b (PN)	4.67	(3.56)	6.81	(4.18)	p. < .01 (not predicted)
H4c (FB)	9.20	(3.86)	6.53	(3.93)	p. < .01 (as predicted)

N* = number of students tested; n** = random sample of business responses

the printout in Appendix F is for a two-tailed t-test. In order to convert two-tailed t-tests to one-tailed, it is only necessary to divide the significance level by two. The results of the t-tests are stated as follows. Since the wrong direction was hypothesized for two hypotheses, a second null hypothesis was included. For H4a and H4c, the first null has no difference predicted, and the second null has the difference in the opposite direction from that hypothesized. For H4b, no difference was predicted, so the first null has the emphasis on friendliness being higher for EOAC students, and the second null has the emphasis being lower.

H4a) The probability that the difference in ratings by the military respondents and the business respondents on values on dominance is caused by chance is less than 0.01. Therefore, the decision was made to reject the first null hypothesis that there is no difference between the perceptions of the two types of respondents. Because the mean for ratings by military respondents is less than the mean for business respondents, the second null hypothesis that ratings by business respondents would show more emphasis on dominance values than ratings by military respondents was not rejected. Thus, there is insufficient evidence to conclude that perceptions on dominance held by EOAC attendees of the most effective leader (MEL) known show significantly stronger emphasis compared with perceptions held by people in business. The data show just the opposite to be true, supporting the second null hypothesis, that EOAC attendees show significantly less emphasis on dominance values than the business sector.

H4b) The probability that the difference in ratings by the military respondents and the business respondents on values on friendly behavior is caused by chance is less than 0.01. Therefore, the decision was made to reject the first null hypothesis that there is no

difference between the perceptions of the two types of respondents. Because the mean for ratings by military respondents is less than the mean for business respondents, the second null hypothesis that ratings by business respondents would show more emphasis on values on friendly behavior than ratings by military respondents was not rejected. Thus, there is insufficient evidence to conclude that perceptions on dominance held by EOAC attendees of the most effective leader (MEL) known show significantly stronger emphasis compared with perceptions held by people in business. The data, once again, show just the opposite to be true, supporting the second null hypothesis that EOAC attendees show significantly less emphasis on friendliness values than the business sector.

H4c) The probability that the difference in ratings by the military respondents and the business respondents on values on accepting the task orientation of established authority is caused by chance is less than 0.01. Therefore, the decision was made to reject the first null hypothesis that there is no difference between the perceptions of the two types of respondents. Because the mean for ratings by military respondents is greater than the mean for business respondents, the second null hypothesis that ratings by business respondents would show more emphasis on accepting the task orientation of established authority than ratings by military respondents was also rejected. Thus, there is sufficient evidence to conclude that perceptions on accepting the task orientation of established authority held by EOAC attendees of the most effective leader (MEL) known show significantly stronger emphasis compared with perceptions held by people in business.

V. INTERPRETATION AND DISCUSSION

A. THE FIRST HYPOTHESIS

It was first hypothesized that students attending EOBC would have different values and perceptions on leadership based on their prior training, received from their commissioning source. The experiences received through training at USMA, OCS or ROTC are certainly varied enough to provide a wide range of training and education between them, but a certain amount of uniformity within each respective course.

The results of the analysis indicate that the perceptions of effective leadership differ, but not significantly among any of the three groups. The perceptions of USMA and OCS graduates were not expected to differ and were actually found to be closer in value to each other than the ROTC perceptions, as hypothesized. Thus, hypotheses H1a, H1d, and H1g were upheld by the research. For the rest of the hypotheses, the null hypotheses were confirmed by the research. For hypotheses H1b, H1e, and H1h, USMA was expected to be higher in U, P, and F than ROTC commissioned officers. This was in fact the case, but the results were not dramatic enough to carry any significance to them. For hypotheses H1c, H1f, and H1i, OCS was expected to be higher than ROTC in U, P, and F. There was virtually no difference in their value orientations on dominance (UD), and OCS was found to be higher than ROTC in friendliness (PN) and in acceptance of the task orientation of authority (FB), but once again, not significantly so.

These results most likely mean one of three things. First, that ROTC is doing a better job than expected in preparing their students for military leadership. Second, that the military attracts a person with a certain set of preconceived notions and perceptions

about leadership. Third, the commissioning sources do a good job of weeding out those individuals whose leadership perceptions do not fit the military mold.

The ramifications resulting from the uniformity of leadership perceptions and values among these three commissioning sources could result in great cost savings for the military. If the military is basically receiving the same product regardless of commissioning source, then the best system to produce officers becomes the cheapest method, especially in times of cost cutting and downsizing. Since OCS is the cheapest method of producing officers, then the greatest cost savings would come from doing away with both the military academies and ROTC. However, there are many other factors involved in going to a sole source procurement of military officers, such as the recruiting needs of the military. There may not physically be enough soldiers willing to become officers through the OCS route. Since the results of the survey were so uniform, it becomes difficult to separate any differences between the three groups in training and educating methods. To try to say one method of training soldiers or officers in leadership is better than another is not valid, since there was no significant difference in their leadership values and perceptions.

The second reason that there is no significance to the differences in leadership perceptions among the three groups may have more to do with who is attracted to the military than how they are trained. Since the military is a totally volunteer organization, only those with specific leadership profiles and perceptions may even be attracted to the military way of life. The survey and research may have confirmed or identified the type of individual who would desire to be in the military. Thus, the results may have little to do with training, educating or indoctrinating officers. If that is the case, then SYMLOG

could be used as a job placement type tool to determine who is best fitted for what type of job. To do the current research justice, a survey on the most effective leader known should be given to college graduates who have had no contact with the military and compare these students' leadership perceptions to those contained in this research.

The third reason for the uniform results may follow from the second. The military may attract a certain personality type, but the commissioning sources may also weed out the non-military profiles, eliminating from the program those individuals who do not fit the mold. The military academies and ROTC both have four years to cull their ranks, which they do. OCS officers serve in the military for years and attend officer school for months, once again providing ample opportunity to cull the ranks. To investigate this area further, another set of surveys needs to be administered. The next step in this research is to administer the survey to college freshmen who both start attending ROTC and to those who do not attend ROTC. Then one could easily determine if the military attracts a certain personality or if it weeds out the non-military type personalities or if it builds a certain profile and mind set through the training and education received.

The results of this part of the survey are so uniform that even going down to the detail of examining differences between the groups in each of the twenty-six SYMLOG vectors reveals very few significant differences (see Appendix C). Examining each of the vectors for significance between USMA and OCS reveals no difference worth noting, just as hypothesized. However, comparing USMA and ROTC reveals that USMA officers are higher in the UPF and DPF vectors. The UPF vector emphasizes active teamwork toward common goals. The environment at USMA actively encourages teamwork, through sports (mandatory intramural or intercollegiate athletics), parades, military exercises, and a

stressful first year environment where the cadets learn that they need to rely on each other in order to survive and to graduate. OCS officers, as well as USMA officers were significantly higher in the DPF vector than ROTC officers. The DPF vector emphasizes dedication and loyalty to the organization. Both groups of officers, OCS and USMA, actually belonged to a military organization for months or years, as compared to an ROTC student who only had to be in a military environment for short periods of time over the course of their four year education. For USMA and OCS attendees to succeed in their military environments, they needed to be loyal and dedicated. ROTC officers were significantly higher than OCS officers in the NB vector which is rejection of established procedures and rejection of conformity. The military environment demands acceptance of established authority and rules and regulations. The military is built on established operating procedures. In fact, in many instances, deviation from established rules and procedures can mean death or injury in a combat or training environment. In a college atmosphere, minus military influences, nonconformity often becomes a valued behavior. However, from an overall viewpoint, there is remarkable consistency in results between the three groups.

The very fact of the conformity of the results speaks highly of the performance of the commissioning sources in training and educating their cadets in leadership and the military culture. Military academies place an emphasis on leadership and attaining leadership positions, but so do the other commissioning sources. The results of the survey, which reflects the amount of socialization and culturization received through the three commissioning sources, speaks highly of the uniformity of the training and indoctrination received in all three. The next step in this research is to look at how well

the initial Army training is performing in further molding the leadership values and perceptions of these officers, and in determining if the leadership values and perceptions of these new officers are moving closer to those exhibited by successful junior engineer leaders in the Army.

B. THE SECOND HYPOTHESIS

This hypothesis looked at the concept of a most effective platoon leader versus the most effective leader known, as in the previous hypothesis. The second hypothesis focused more on the particular training received while attending EOBC. The EOBC students did not have practical experience in leading a platoon and being a platoon leader, but received training during EOBC in how to act and lead when they become platoon leaders. They also received practical, hands-on experience by being put in charge and leading for relatively short periods of time.

The second hypothesis measured changes in leadership values and perceptions resulting from seventeen weeks of military training. Out of the nine subhypotheses, only two showed any statistically significant movement in attitudes, one of which was predicted and one of which was not.

On the surface, the results may lead one to conclude that the training had little to no effect in molding beliefs and attitudes. However, if the students' values were already close to where they needed to be before the training, then the training would only reinforce the values already held. The results of the first hypothesis showed how uniformly the students' values were, with no statistical significance in any of the three primary SYMLOG dimensions. This uniformity of belief is a testament to the

pre-commissioning training received. If their prior training moved their values to where they should be, then EOBC would only strengthen previously learned values.

The two areas where values did change significantly were for ROTC graduates' perceptions on dominance and OCS perceptions on the acceptance of authority. The ROTC increase in emphasis on dominance values was predicted. However, this prediction was based on the fact that the ROTC initial emphasis would be significantly lower than either USMA or OCS graduates, which it was not. There was no significant difference between the three groups in the pre-test results. The post-test showed ROTC emphasis on dominance greater than either USMA or OCS. This increase in emphasis did not appear from any one of the 26 SYMLOG vectors, but from a gradual change in several. It appeared from a gradual increase in emphasis on U or dominance values almost across the board, as well as a gradual decrease in D or submissiveness values. The results indicate a more realistic approach to leadership after the training. The pre-test data was more idealistic in certain areas. For instance, dedication, loyalty and obedience were all values very strongly endorsed in pre-test and post-test data, but were a little less so in post-test results, which reflects less of an idealistic or school solution approach to leadership.

The second area of change in emphasis was the OCS decrease in choosing acceptance of authority oriented values. This was counter to the hypothesized results which predicted no significant change for OCS graduates. These officers came from a very regimented program in which there was very little freedom of action and in which authority and rigidity were stressed. These officers were also enlisted soldiers and Non-commissioned Officers before attending OCS. Their view and outlook on leadership took on a different feel due to their different position in the military hierarchy. Once again, the

reality of being put in leadership positions instead of being taught about leadership or constantly being a follower probably changed their outlook on leadership. The emphasis on creativity and relaxing control increased which caused a decrease in the F or authority orientation. Overall, there was not a lot of movement.

There were also two subhypotheses which predicted a change in emphasis for ROTC graduates in both friendliness and acceptance of authority values. Since there was no significant difference between the three groups to begin with, contrary to hypothesized prediction in the first hypothesis, then the training should not polarize the groups and cause a divergence of attitude. The decrease in emphasis on authority by OCS graduates actually brought their overall emphasis in this area more in line with the USMA and ROTC graduates, which was expected.

In the final analysis, the training did produce changes in attitudes and beliefs. The follow on question to ask is if these changes will produce changes in behavior. This study did not address this question, but SYMLOG can and is used to measure behaviors. For future research, the soldiers in a unit could be asked to rate their leader's behavior both before and after leadership training received and correlate these results with the leader's ratings on his or her own changes in perceptions on leadership.

C. THE THIRD HYPOTHESIS

The second hypothesis measured learning and changes in leadership values. The third hypothesis checked to validate the learning. This hypothesis also used the construct of the most effective platoon leader to gain the data. If the training at EOBC prepared the Lieutenants to become better platoon leaders, then, after EOBC, their leadership values

should be closer to the EOAC students' leadership values who were platoon leaders. This hypothesis was validated.

The first subhypothesis, H3a, showed no statistical difference in dominance values either before (pre-test) or after (post-test) the training. The evidence is a little inconclusive in that respect. Once again, the pre-commissioning sources are doing an excellent job in preparing future officers for junior leadership positions. The actual numbers were a little farther apart after the training, but not too much should be inferred without any statistical relevance. Two of the three groups, USMA and OCS, were actually closer after the training. The ROTC results skewed the results a little due to the larger sample size.

The second subhypothesis, H3b, showed no statistical difference in friendliness values either before or after EOBC. However, the actual numbers were closer after the training, with OCS and ROTC both moving closer to the EOAC responses and USMA moving past the EOAC position. Once again, the results were inconclusive, other than to say that EOBC reinforced the proper leadership values.

The third subhypothesis, H3c, showed significant change in acceptance of authority perceptions. There was a significant difference before the training between EOBC and EOAC, and no significant difference after the training. This helped to validate the course program of instruction. The practical experience of being in leadership positions, albeit for short periods of time, was of great experience in taking the school book solutions for leadership and applying them to real world leadership situations. These experiences and training helped mold the leadership perceptions of the future platoon leaders on their own position of authority significantly closer to where it needed to be.

Most of the EOBC students have been in follower type positions where the exercise of authority over them in the past may have seemed a little heavy. A new perspective was gained from being in the authority position, a perspective in line to where it needed to be.

D. THE FOURTH HYPOTHESIS

The last hypothesis looked at a cultural bias on leadership. It compared leadership values and perceptions of EOAC officers who have been in the Army for at least three years and have been through a pre-commissioning experience or training for approximately four years to a random set of business leaders' data. The expected results from this hypothesis were based on a study of senior Naval officers by Bachman (1988). The hypothesized results, which were based on the results of Bachman's research, do not correspond to the actual data gathered for junior engineer Army officers in two of the three subhypotheses. This may be attributed to one or two reasons. The first assumption upon which the hypothesized results were based on is that the same culture existed in both the Army and the Navy. This fact has not been disproved, but the results of the surveys would tend to make one think that there is a cultural difference between the Army and the Navy, just as there seems to be between the Army and the business community. The second problem with the hypothesized results is that senior officer results on the SYMLOG survey were expected to be the same as junior officer results. The data do not prove that values are different or the same between junior and senior leaders, but the results do seem to indicate a great potential for a difference. Further research definitely needs to be conducted to analyze the differences in values on leadership between junior and senior officers. The Army has a very hierarchical structure with General Officers at

the top of the pyramid and Lieutenants and Captains at the bottom of the pyramid. The freedom of action and creativity is much greater at the top or strategic level versus at the bottom or execution level.

The explanation for the large difference in values on leadership between the Army Engineer respondents and the business respondents may most logically be explained by the strong military culture which emphasizes Army core values and characteristics. These values and characteristics are taught and ingrained in officers from their pre-commissioning sources to the end of their careers. The Army culture is very strong and pervasive. Culture is defined in Army doctrine as a "system of shared values, assumptions, beliefs, and norms that unite the members of the organization." It represents a shared expectation and self-image of the organization and is not created or changed by individual leaders (FM 22-100, 1997: Glossary-1).

General Reimer, the Chief of Staff of the Army, talks about changing and molding soldiers by instilling them with Army values. "To achieve these objectives, we focus our efforts on behavioral change through teaching Army values. Although our ultimate goal is to change attitudes, our initial focus is to modify behavior" (Leadership and Change, 1997: 13). The results of this survey seem to indicate that the Army is doing well in changing attitudes at the junior officer level.

To further pursue this line of reasoning, one needs to look at what are the core Army values and characteristics and how do they relate to the SYMLOG dimensions and vectors. There are seven Army values: Honor, Duty, Loyalty, Integrity, Courage, Respect, and Selfless Service. There are two other key characteristics of Army culture which need to be placed into the equation: Teamwork and Discipline.

There are many definitions of the foregoing concepts, but the most appropriate to use in an Army context and setting are the Army doctrinal definitions. The first core Army value, which subsumes the other values, is that of honor. Honor is a moral virtue that people possess by living up to the set of values that make up the moral code for the Army. It includes the other Army values of integrity, courage, loyalty, respect, selfless service, and duty. Honor provides a motive for action and demands adherence to the moral code over the protection of a reputation. "Honor and moral identity stand together because the honorable individual identifies with the Army values" (FM 22-100, 1997: Glossary-2).

Some particularly cogent points to be taken out of this definition are the concepts of how this definition of honor applies strictly to the Army. The definition of honor includes all of the other core Army values. Being honorable is an active part of military service and puts doing what is right above one's reputation and career. One's honor and identity in the Army become inseparably connected with Army values. Being honorable requires action. It is not enough to stand by passively watching dishonorable things occur. Honor is acting on one's beliefs through performance and supervision. Because honor includes all of the Army values, the other values will be looked at individually in comparison to the twenty-six SYMLOG vectors. Comparing the twenty-six SYMLOG vectors to the value of honor then becomes a total of the comparison of the other six Army values to SYMLOG.

The Army value of duty is doctrinally defined as the "sum total of all laws, rules, etc., that make up our organizational, civic, and moral obligations" (FM 22-100, 1997: Glossary-2). Duty also involves doing what needs to be done at the right time, regardless

of the difficulty or danger. It is obedience and disciplined performance. It is performance at or above standard, regardless if anyone is watching or checking. Duty de-emphasizes the SYMLOG vectors of UNB, DB, NB, and P. The UNB vector emphasizes self, individualism and resistance to authority. These values are expressly counter to the concept of obedience and discipline in performing one's job. Duty plays down the individualism and selfishness in putting one's own obligations first. The SYMLOG vector of DB emphasizes passive non-cooperation with authority, which runs explicitly counter to the concept of performing one's job despite difficulty or danger. Doing one's duty requires action as does being honorable. The vector NB is rejection of conformity. Duty in the military involves following established procedures. The military is a complex machine which is built on established procedures. Doing one's own thing and making one's own rules will get people killed. Lives in the military depend on conformity to doctrine and established procedures. There is very little room in the Army for rejection of doctrine and established procedures. The P vector stresses equality in decision making. Duty stresses following orders and obedience. In combat, there is no time for equality and democratic participation in making decisions. When the enemy is attacking, combat teams do not pause to take a vote on what course of action to take. Staffs deliberate and make a recommendation, but the commander makes the decision.

The Army value of duty emphasizes eight SYMLOG vectors: UNF, DNF, DPF, UF, NF, DF, D and F. The UNF vector stresses active reinforcement of authority, rules and regulations. That is an officer's duty. Soldiers take an oath upon entering the Army:

I do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; and that I

will obey the orders of the President of the United States and the orders of the officers appointed over me, according to regulations and the Uniform Code of Military Justice. So help me God!

A soldier's duty is to obey; a leader's duty is to enforce. The Army is a chain of command driven, authoritarian organization built on rules and regulations governing everything from how to wage war to how long to wear one's hair. The DNF vector accentuates self-sacrifice to accomplish the mission. Part of the Army's Ranger Creed, which every Ranger memorizes, is: "Readily will I display the intestinal fortitude required to fight on to the Ranger objective and complete the mission, though I be the lone survivor." This type of attitude is a selfless, mission first focus, in line with the DNF vector. The DPF vector emphasizes dedication, faithfulness and loyalty to the organization. Doing one's duty inherently involves dedication and faithfulness to the organization. The NF vector stresses putting the organization before oneself, just as does the concept of duty. The DF vector is obedience to the chain of command and complying with authority. "Obedience to proper orders and submission to appropriate authority is central to all that the Army does" (Leadership and Change, 1997: 13). Disobedience to the chain of command makes for a short, unsuccessful career in the Army. A part of doing one's duty is obedience and compliance to the chain of command, which is how the Army operates. To espouse any other value or concept is tantamount to anarchy in a society and culture where lives and victory depend on obedience to orders. UF stresses efficiency and strong impartial management. Impartiality (UF) becomes a value inseparably tied into duty, as demonstrated in the following paragraph which every United States Military

Academy cadet is required to memorize - Brevet Major William Jenkins Worth's Battalion

Orders:

But an officer on duty knows no one - to be partial is to dishonor both himself and the object of his ill-advised favor. What will be thought of him who exacts of his friends that which disgraces him? Look at him who winks at and overlooks offenses in one, which he causes to be punished in another, and contrast him with the inflexible soldier who does his duty faithfully, notwithstanding it occasionally wars with his private feelings. The conduct of one will be venerated and emulated, the other detested as a satire upon soldiership and honor.

The F vector emphasizes conservative and established or correct ways of doing things. There is some flexibility at the top of the military hierarchy, but after obeying orders and procedures from many layers of leaders over the platoon leader, there is little room left over for flexibility. The emphasis is on performing to an established Army standard. Doing one's duty is to perform to that standard or better. The last vector emphasized by the concept of duty is the D vector which focuses on giving up personal needs and desires and on passivity. The military mind focuses on giving up personal needs and desires and doing one's duty, even if it conflicts with one's private feelings, as Brevet Major Worth states in his Battalion Orders above. The active enforcement of rules in UNF is at odds with passivity in D, but the emphasis in duty is on doing what is right, over self interest. Had the D vector been rephrased to place passivity first, written as, "Passivity, giving up personal needs and desires," then the military responses would be significantly different.

Looking at duty and the three dimensional SYMLOG space, this value emphasized seven vectors containing F values, four with D values, two with U, three with N, one P and no vectors with B values. This core Army value of duty then places a heavy emphasis

on F values or the acceptance of the task orientation of established authority, less emphasis on dominance of the individual or U values and more on putting the organization ahead of the individual, and less emphasis on friendly behavior or P values and more on doing what is right, regardless of the personalities and feelings involved. This value is a microcosm of the results from the survey in contrasting military and business responses. The military was significantly higher ($p. < 0.01$) than the business sample on seven of the eight vectors emphasized by the Army concept of duty. There was no significant difference between the two in the UF vector, which is also emphasized by business leaders. According to the principles espoused by the value of duty, the military should be significantly higher in F (acceptance of authority) values and showing less concern over U (dominance) and P (friendliness) values than the business sector which is exactly what the data reflect.

The value of loyalty is an intangible bond based on a legitimate obligation. It “demands commitment to the institution and is a pre-condition for trust, cooperation, teamwork, and camaraderie” (FM 22-100, 1997: Glossary-3). Loyalty starts with the Constitution and the nation and extends down to the Army and to the soldiers who comprise the Army. It is a concept for which soldiers fight and die.

This value of loyalty is heavy in the DPF, DNF, DF, NF and UNF vectors. The DPF vector speaks directly to the concept of loyalty to the organization, as well as dedication and faithfulness. Loyalty demands commitment to the organization, which requires much self-sacrifice (DNF) in the Army. An essential part of loyalty to one’s superiors in the Army is obedience to the chain of command and compliance to their orders which is the DF vector. The NF vector requires putting the organization before

individual desires. This is what loyalty to the US Constitution, the Army, and the unit requires. Finally, loyalty to the organization also demands enforcement of the rules and regulations which is the concept behind the UNF vector. In many ways and areas, the values of duty and loyalty overlap. All five of these SYMLOG vectors or leadership values are significantly more emphasized by the military than the business sector, as evidenced by the data and as follows from the Army's emphasis on loyalty.

The value of loyalty de-emphasizes four SYMLOG vectors: DB, UNB, N, and P. The DB vector, passive non-cooperation with authority, and the UNB vector, resistance to authority, are not emphasized by the business community, either, so there is no statistically significant difference between the two groups. However, the Army is significantly lower in emphasizing N and P vectors. The N vector emphasizes self first while the value of loyalty emphasizes the organization first. The P vector emphasizes equality and democracy in decision making while loyalty emphasizes following the orders of those appointed over the individual.

Overall, the core Army value of loyalty emphasizes three D vectors, five F vectors, three N vectors, and one P vector. This, again, reinforces the fact that the Army is less U and P than the business community, but a lot more F than the business sample.

The value of integrity is a moral virtue that entails a consistent adherence to a set of moral beliefs. "Over time, an Army leader's integrity, his private moral code, should converge and be consistent with the publicly declared code of honor for the Army" (FM 22-100, 1997: Glossary-3). Integrity is also a steadfast adherence to a standard of honesty, uprightness, and particularly to the avoidance of deception. This value de-emphasizes the N vector of self-interest first, since the primary interest involved in

integrity is doing what is right, even if it involves damaging one's own interests. Integrity emphasizes the UN vector of tough-minded assertiveness because maintaining integrity involves standing up for truth and right. It also emphasizes the correct way of doing things as expressed in the F vector. There are not enough SYMLOG vectors encompassed by the value of integrity to draw conclusions for a location in the three primary SYMLOG dimensions.

The core Army value of courage enfolds both the concepts of physical and moral courage. It is a military virtue that enables one to conquer fear, danger, or adversity, no matter what the context happens to be (physical or moral). It includes the notion of taking responsibility for one's decisions and actions. It also involves the ability to perform critical self-assessment, to confront new ideas, and to change. (FM 22-100, 1997: Glossary-1)

None of the SYMLOG vectors are de-emphasized by this value. Courage emphasizes DNB, DN, UN, and B vectors. The DNB vector involves admission of failure. As the definition of courage states, self-assessment and taking responsibility for one's decisions and actions, which often involves admission of failure, are a fundamental part of courage. The DN vector places emphasis on going it alone, even if it necessitates rejection of popularity. Courage, combined with integrity and duty, often requires an individual to stand alone at the expense of being popular. Making the right decisions based on duty and integrity is often not popular and requires courage. The military leader's primary responsibility is not popularity, but getting the mission accomplished to standard. This value does not preclude being popular; it just puts primary emphasis elsewhere. Courage requires one to be tough-minded and assertive (UN) in doing what is

right. It involves the ability to confront new ideas and to change (B) as stated in the definition above.

This core Army value has two D vectors, three N, two B, and one U vector. This Army value emphasizes the SYMLOG dominance and friendliness values less, but enables the military leader to withstand authority when the authority is doing something wrong. It reinforces the lesser Army emphasis on P or friendliness values and on U or dominance values and moderates the increased military emphasis by the other core Army values on F vectors or the acceptance of the task orientation of established authority. There is statistically no significant difference between the two groups for the B vector on creativity and change, but the military significantly emphasized the other three vectors, DNB, DN, and UN, more than the business respondents.

The core Army value of respect is defined as treating people with the dignity and justice that they deserve. Respect is "indicative of compassion and consideration of others, which includes a sensitivity to and regard for the feelings and needs of others and an awareness of the effect of one's own behavior on them." (FM 22-100, 1997: Glossary-3 & 4)

Only one SYMLOG vector embodies the Army value of respect, UPB - protecting less able members and providing help when needed. Respect involves compassion and consideration and encompasses the "Golden Rule" of doing unto others as you would have them do unto you. It does not equate to the P vector of democratic participation in decision making. Respect does not supplant the chain of command. It does not necessitate an equal vote in decision making. It does require a leader to take care of his

soldiers. There are not enough SYMLOG vectors embodied in this Army value to analyze a trend or to determine a position in the three primary dimensions of SYMLOG space.

The core Army value of selfless service is defined as service before self. It precludes selfish careerism and places the welfare of the nation and the organization before that of the individual (FM 22-100, 1997: Glossary-4). Since this value embodies service before self, it definitely de-emphasizes the N vector of putting self first. Military leadership often states that the Army is not the place to get rich, but to provide service to the country. If anyone is looking for financial success and power, the Army is not the place to achieve it. In this respect, selfless service places less emphasis on financial success. With the emphasis on service, it also places less emphasis on personal prominence and power, thereby placing less emphasis on the U vector values. There are four concepts which this value emphasizes: DNF, DPF, NF, and D. All four of these vectors involve putting the organization before self, giving up personal needs and desires and self-sacrifice. The Army's mission demands this type of behavior. Currently, tens of thousands of soldiers are deployed annually to over one hundred countries. Families are continually separated and soldiers deployed and put in harm's way to meet the political aims of the President of the United States. This value down plays careerism which involves putting oneself and one's career first over mission and other fellow soldiers. A professional soldier is concerned about the mission and doing what is right first and then in taking care of personal needs, desires, and ambition.

The value of selfless service emphasizes three D vectors, three F vectors, two N, and one P vector. Once again, this reflects the comparison between the military and the business samples in three dimensional SYMLOG space - lower U or dominance, lower P

or friendliness, and a much higher F or acceptance of authority. All four of the vectors emphasized by the military in this group are statistically significant in being more emphasized by the military.

There are two other key characteristics intrinsic to the Army environment and culture which need to be compared to the SYMLOG vectors and dimensions. These key characteristics are discipline and teamwork. "To develop discipline, the Army inculcates its members with the need to follow legitimate orders ... Obedience to orders and submission to appropriate authority is central to all that the Army does" (Leadership and Change, 1997: 13). This idea of discipline is extended to the point where soldiers are willing to sacrifice their lives in service to the Nation and in accomplishing the Army's mission: "To fight and win our Nation's wars." The Army's concept of discipline embodies nine of the SYMLOG vectors and rejects four. The concept of discipline emphasizes UNF, UPF, DNF, DPF, UF, DF, NF, F, and D. The U vectors are almost balanced by the D vectors, as are the P and N vectors. There is no balance at all between the F and B vectors with eight F vectors stressed and zero B vectors. Discipline involves working toward common goals and organizational unity (UPF), enforcement of rules and regulations (UNF) and obedience to the same (DF), self sacrifice (DNF and D) and loyalty (DPF), impartial management (UF), putting the mission or organization first (NF), and operating by established rules and standards (F).

The characteristic of discipline rejects the concepts found in three SYMLOG vectors: UNB, NB, and P. Discipline is opposed to the resistance of authority (UNB) as evidenced by the strong emphasis on enforcing authority (UNF) and obedience to the chain of command (DF). Discipline is opposed to the rejection of established procedures

(NF). The Army is built on established procedures and following appropriate rules and regulations (UF, F, and DF). Discipline emphasizes following orders (DF) and not consensus voting as in the P vector.

SYMLOG lists thirteen vectors which contribute to teamwork (Table III, pg. 51).

The military emphasis on teamwork includes ten of these vectors. Teamwork is “the ability to work together for a common cause” and is “critical to everything the Army does” (Leadership and Change, 1997: 13). The Army is one huge team made up of increasingly smaller teams. When we go to war, we fight as a combined arms team. Teamwork is critical to success on the battlefield. However, military teams do not necessarily have the same construct and focus that a business team would have. Leaders of military teams do not overly concern themselves with popularity. Being popular (UP) with soldiers often leads to a lack of discipline and poor decision making. In wartime, combat decisions require sacrifice, hard work, pain and suffering and many times it involves death, but not popularity. Decisions made democratically (P) often will not meet the higher commander’s intent and more likely will be made on the immediate welfare of the small group and not on the big picture of winning the battle and the war. Military leaders are still authoritarian, although open to suggestions and constructive criticism. The military leader makes the final decision and leads the team. The military frowns on fraternization between soldiers of different ranks. Disciplinary action can and is taken on soldiers who fraternize within the ranks. There is an emphasis on relaxing and releasing tension (UB) because war and preparing for war is a very tense business, but friendship, mutual pleasure and recreation (PB) go beyond the bounds of good order and discipline, passing into the fraternization realm. Mutual trust and respect are key pieces in leading

military teams. Trusting in the goodness of others (DP) is not a concept which is employed in building military teams. The team leader trusts that orders will be followed and obeyed regardless of the personality traits of those following the orders. Thus, the UP, P, PB, and DP vectors which SYMLOG lists as contributing to teamwork apply more to a business team than to leading a military team. Significantly, there was no significant difference in three of the four vectors between the military and business samples. Since the military does not emphasize or de-emphasize these concepts, one would expect there to be little difference between the two samples, as is the case. The military does de-emphasize the P vector of democratic decision making, not so much in the characteristic of teamwork, but in the characteristic of discipline and in the values of duty and loyalty. This fact is duly reflected in the significantly lower emphasis which the military places in this concept over the business sector.

Seven of the other ten vectors (UPF, DPF, DNF, UF, NF, DF, and B) listed as contributing to teamwork are addressed previously in the Army core values. There is no reason to review these vectors or concepts which build teamwork both in military teams and in business teams. However, there are three vectors which have not been previously addressed: PF, UPB, and UB. The PF vector of responsible idealism and collaborative work is so much a part of teamwork that no further explanation relating it to the military is needed. There was no significant difference found between military and business emphasis of this concept. Part of a team's responsibility is to take care of its own and to provide help when needed (UPB). The very nature of the military is demanding and requires soldiers to help one another and to rely on one another, which is also why integrity is so important a value to the Army. Because of the high job tension and long hours and the

many deployments away from home, the military stresses opportunities for relaxation and having a good time together (UB). Rest and recreation facilities and equipment are often some of the first things provided, after the deployment area is secure and the soldiers' safety is assured. Sports and other activities to relax together help build unit cohesion and are strongly encouraged throughout the Army. Both the UPB and the UB vectors are significantly more emphasized by the Army.

Examining military teamwork and the three dimensional SYMLOG space, the four teamwork vectors left out in military team building all contain a P component. Three of these vectors were not found to be statistically different. Of the ten vectors emphasized by military teamwork, the U and D vectors are almost balanced; the P and N vectors are almost balanced; and the F vectors far out weigh the B vectors. Teamwork is such a universal concept that the main difference between the Army and business cultures is in the lesser emphasis on P or friendliness values and the heavy emphasis on F or acceptance of authority values by the Army. The military stresses some different areas and inculcates some other concepts of teamwork better in its soldiers than does the business community and de-emphasizes some areas which the business sector holds in higher esteem.

The preceding results are all summarized in Table XIII. This table relates the SYMLOG vectors to core Army values and to the two key Army characteristics.

In order to better understand the results, the data need to also be summarized in relation to the subhypotheses. The first subhypothesis, H4a, stated that the military would be higher in emphasizing U or dominance values than the business group chosen. This turned out to be not only incorrect, but opposite to reality. The business sectors

Table XIII. Army Core Values Correlated to SYMLOG Vectors

Core Army Values & Characteristics	SYMLOG Vectors	
	Emphasized	De-emphasized
Honor	Encompasses all listed below	
Duty	UNF, D, DNF, DF, DPF, NF, F, UF	UNB, DB, NB, P
Loyalty	UNF, DPF, DNF, DF, NF	DB, UNB, N, P
Integrity	UN, F	N
Courage	DNB, DN, UN, B	
Respect	UPB	
Selfless Service	DPF, DNF, NF, D	N, U
Discipline	UNF, DNF, UPF, DPF UF, DF, NF, F, D	UNB, NB, P
Teamwork	UPF, DPF, DNF, UPB NF, PF, UB, UF, DF, B	UNB, NB, DB, N

emphasize certain U vectors on teamwork and efficient management, but the Army emphasizes them a little more. The military emphasizes other values such as reinforcing authority and assertiveness a lot more than the business sample. This falls in line with the predicted emphasis in H4a. However, the military emphasizes almost all of the D or submissiveness values more than the business community. The business sample emphasized loyalty, but not as much as the military did. While both emphasized obedience and self-sacrifice values, the military clearly emphasized them more than the business sample. The end result of the core Army values emphasis was to place more emphasis on D or submissiveness values which drove the expected results in the opposite direction from the predicted one.

The second subhypothesis, H4b, predicted no difference in friendliness values. This proved to be incorrect, also. The military emphasized organizational values significantly more than the business sample. After examining the core Army values and comparing the bargraph results between the two groups (Appendix F), it is easier to pick out why the Army data came out less P or friendly than the business sample. The real difference came out in the number of N or unfriendly vectors which were emphasized by the Army core values and hence by the Army respondents. These were values dealing with authority, selfless service, and courage. This added emphasis in these areas tipped the results in an unpredicted direction.

The last subhypothesis turned out as predicted. Army core values incorporate every single SYMLOG vector which contains an F component or one which accepts the task orientation of established authority. The authority type values emphasize the organization, selfless service, loyalty, obedience, and duty type values, which is what service in the Army is all about. The B component values or those which tend to reject the task orientation of established authority were spread out in the range of inclusion and exclusion of core Army values and thus by the Army sample.

Table XIV summarizes the results by subhypotheses. These subhypotheses are based on the three dimensional SYMLOG space. All of the vectors emphasized by Army values and characteristics are collated by one of the SYMLOG primary dimensions (UD, PN, and FB) to compare to the subhypotheses.

Table XV sums up all of the SYMLOG vectors which the military sample emphasized significantly more, or less, than the business sample and includes those vectors

Table XIV. SYMLOG Vectors Correlated to the Fourth Hypothesis.

Hypothesis	SYMLOG Vectors		
	Emphasized	De-emphasized	Neutral
H4a (UD)	U: UPF, UPB, UNF, UN, UF, UB D: DNF, DPF, DNB, DN, DF, D	U: UNB, U D: DB	U: UP D: DPB, DP
H4b (PN)	P: UPB, DPF, UPF, PF N: UNF, DNF, UN, DNB, DN, NF	P: P N: UNB, NB, N	P: UP, PB, DP DPB N:
H4c (FB)	F: UNF, DNF, DPF, UPF, DF, NF, UF, PF, F B: UPB, DNB, UB, B	F: B: UNB, NB, DB	F: B: PB, DPB

not addressed by Army values and characteristics. This last table clearly shows the impact which the military culture has on the leadership perceptions held by junior Army engineer officers. The SYMLOG vectors not included in the Army culture bear no significant difference in emphasis between the two groups. These are the four vectors in the neutral category. Of the sixteen vectors emphasized by the Army culture, thirteen are emphasized significantly more by the military than the business sector. Of the six vectors looked down upon by the Army culture, three are significantly lower than found in the business sector. There is no significant difference in the other three because those concepts are also rated very low in the business sector. These three tables clearly show the impact of Army values on the military mind. In effect, they also show that the learning of leadership values has transpired.

Table XV. Military versus Business Ratings of SYMLOG Vectors.

Military vs. Business	SYMLOG Vectors		
	Emphasized by Army Values	De-emphasized by Army Values	Not Included in Army Values
Significantly Higher ($p < .05$)	UPB, UNF, DNF, DPF UPF, DNB, UN, DN UB, DF, NF, D, F		
Significantly Lower ($p < .05$)		N, U, P	
No Significant Difference	UF, PF, B	UNB, DB, NB	UP, PB, DP DPB

In summary, Army values tend not to accentuate self, but to place an emphasis on service, the organization, and a mission that is greater than the individual. These values translate into stressing dominance (U) concepts less than the business community. The military is not as concerned with wealth, popularity, and doing things their own way. The military accentuates friendliness (P) values less because of its focus on accomplishing the mission and on doing one's duty with impartiality. The military greatly stresses obedience, operating by doctrinal procedures, and placing the mission and organization before individual desires. This cultural emphasis translates into a heavy reliance on F values in accepting the task orientation of established authority. The Army is obviously doing

extremely well in instilling its values and culture in its junior leaders as reflected in the results of the data. The control group or business sample has no such focused effort on instilling a set of core values on its members.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY AND CONCLUSIONS

This study was conducted to answer the question of whether or not leadership can be taught, and the answer is, "yes it can." Leadership values and perceptions were measured, training applied and changes in attitudes were made. A comparison of two different cultural leadership environments was also made, showing significantly different learning and emphasis on leadership between the two cultures. The study showed leadership changes from a relatively short period of training, seventeen weeks, and from a more lengthy period of training of one to four years during a pre-commissioning environment. It showed a large influence on leadership values due to a strong cultural bias which starts in the pre-commissioning arena. The study showed that the Army is doing an outstanding job of indoctrinating its junior officers into the Army culture. The three commissioning sources are producing a remarkably similar product which product is almost where it needs to be to succeed in a platoon leadership position.

The study followed a logical sequence: it determined the entry level perceptions and values on leadership; it measured the differences due to the training conducted; it compared the lessons learned from the training to the lessons needed to be learned; and it compared the whole process to a control group which underwent none of the training.

The first hypothesis determined the entry level leadership perceptions and found them to be very similar. It established a base line to measure from. The second hypothesis measured the differences due to the training in EOBC. Very few differences were found. The third hypothesis compared the perceptions the EOBC students need to have, using

EOAC data as the goal. The results of this hypothesis basically explained why there was so little movement in the perceptions from the second hypothesis. There was little movement because only a little was needed. After the training, the one major area of difference between EOBC and EOAC leadership perceptions was gone. The fourth hypothesis validated the effectiveness of military training and culture in general by noting significant differences with a sample business group.

The study validated the effectiveness of military training from both a short term and a long term perspective. Both sets of training were found to be effective, although the longer term training had greater overall effects on leadership perceptions.

B. RECOMMENDATIONS

Five recommendations came out of this study, two with regard to EOBC, one regarding the Army, one regarding leadership training, and one regarding the use of SYMLOG in research. First, EOBC is about the right length of time and needs to remain that length. Not only are there a lot of subjects to cover in seventeen weeks in order to train the new officers to be tactically and technically proficient, but seventeen weeks also provides sufficient time to rotate students through leadership positions, giving them practical, hands-on experience in leading prior to going to a unit.

The second recommendation is to put an increased emphasis on core Army values in the course. These values are an integral part of success as an officer and need to be instilled at the earliest opportunities and reinforced throughout the course. These core Army values are what dramatically set the Army apart in its leadership emphasis and style.

The third recommendation is for the Army to reexamine the need for a military academy. The product being turned out by ROTC and OCS is almost indistinguishable from USMA graduates at the EOBC level. Certainly more research with a longer term view needs to be taken before any action is taken, but it is worth researching. The Army and the nation could possibly save millions of dollars with little to no difference in product by eliminating the academies.

The fourth recommendation is for those in the business of leadership training to look at some of the Army's leadership training techniques. The study shows that the techniques used in EOBC work to change values. Millions of dollars are spent in training leaders with doubtful results. The Army uses techniques and systems which work and SYMLOG provides a tool to measure the effectiveness. One caveat to this line of reasoning is that a change in values does not necessarily correspond to a change in behavior. This idea of measuring leader behavior is addressed in the following section.

The last recommendation is to encourage the use of SYMLOG as a research tool and as a training effectiveness tool to measure learning. It is a proven reliable and valid tool for measuring values, behaviors, and characteristics. It can measure education effectiveness by measuring changes in values and perceptions and changes in behavior. It has wide applications for use as a practical tool and as a research instrument.

C. SUGGESTIONS FOR FUTURE RESEARCH

The higher in rank one attains in the military, the further one gets from direct contact with soldiers. The leadership style of senior military leaders would probably more closely start to resemble that of business or political leaders. A comparison of junior

military leadership values and perceptions with senior officers' and a contrast with business and political norms would provide a good avenue for research and valuable insights on leadership development and leadership styles.

Even though this research did not address the issues of gender and race, further research should be conducted to validate the findings of Fiedler and House that gender and race has no influence on leadership. Another interesting avenue of research would be to compare and contrast the leadership values and orientations between leaders in different service components. At the junior officer level, there should not be much difference between Active Army, National Guard, and Reserve officers, but, at more senior levels, there is a cultural difference between the three groups which should manifest themselves in the leader values and perceptions.

Junior officers normally go through a fairly extensive and lengthy indoctrination into the military and the military culture. Newly enlisted privates come into the military straight out of high school or off the street. An analysis of their perceptions on the most effective leader known is a valid area of research to compare with newly commissioned officers to determine how much culturization the military performs. Further analysis could be done on more senior Noncommissioned Officers (NCOs) to analyze the differences in culturization between the officer and enlisted ranks.

Engineers are taught in school to be very analytical and rational in solving technical problems. The emphasis in their college education is not on building effective leaders. Engineer branch jobs in the military deal with managing and leading large amounts of people, equipment and money. This study did not address degree background at all. The statistics by rank and degree given in Table I may be misleading since many of the

engineer majors get out of the military due to good job offers. The question remains, what affect does one's education have on their leadership values and perceptions? Would a liberal arts major be more biased to lead a different way than a math or science major? It is a question worthy of further research.

Since there were virtually no differences found in perceptions due to commissioning sources, further research should be conducted by testing college graduates who have not attended any military training or indoctrination on their perceptions of the most effective leader (MEL) known. This testing would then provide a good comparison and test of the validity for the military training conducted by the varying commissioning sources. The college freshmen who do and do not attend military training need to be evaluated for their leadership perceptions to determine if the commissioning sources mold the leadership perceptions of their students or if they weed out the non-military profiles.

The research did not evaluate behavior change, only changes in attitudes and values. It may be logical to conclude that a change in attitude would necessitate a change in behavior, but that is a statement which needs to be proven. This study measured attitude changes. The SYMLOG instrument can also be used to measure behavior changes. Further research should be conducted to correlate leadership attitude and perception changes with leadership behavior changes. The SYMLOG tool could be administered to individuals under specified leaders who are given a pre-test and a post-test after their leaders have undergone some leadership training. These results could then be correlated with the leaders' changes in perceptions from a pre-test and post-test to determine if the change in attitude equals a change in behavior.

A corollary to this last recommendation for research is to test the leaders and followers several months or a year past the training to determine the retention of the perception changes and behavior modifications. The instruction effects may only be short lived with the subject returning to prior behaviors and attitudes after some short period of time. Once again, an area worthy of further research.

APPENDIX A
RESPONDENT PACKAGE

ENGINEERING STUDENT SURVEY

Please complete the information section and answer two (2) survey questions. Your responses are strictly confidential. Individual responses will be aggregated so no person can or will be identified.

Information Section—Your Background

Print your name				
		Last name	First initial	Middle initial
<i>Check only one response for each background item below.</i>				
1. Gender	male <input type="checkbox"/>	female <input type="checkbox"/>		
2. Age (years)	20-25 <input type="checkbox"/>	26-30 <input type="checkbox"/>	31-35 <input type="checkbox"/>	36-40 <input type="checkbox"/>
		41+ <input type="checkbox"/>		
3. Undergraduate degree background	Engineering related <input type="checkbox"/>	Math/science <input type="checkbox"/>	Liberal arts <input type="checkbox"/>	
4. Source of commission	USMA <input type="checkbox"/>	ROTC <input type="checkbox"/>	OCS <input type="checkbox"/>	Direct commission <input type="checkbox"/>
5. Rank	2LT <input type="checkbox"/>		1LT <input type="checkbox"/>	
			CPT <input type="checkbox"/>	
6. Years in military service	0-2 <input type="checkbox"/>		3-4 <input type="checkbox"/>	
			5-10 <input type="checkbox"/>	
			11+ <input type="checkbox"/>	
7. Course	EOBC <input type="checkbox"/>		EOAC <input type="checkbox"/>	
8. Are you	Active Army <input type="checkbox"/>		National Guard <input type="checkbox"/>	
			US Army Reserve <input type="checkbox"/>	
			Active Guard & Reserve (AGR) <input type="checkbox"/>	

Survey Questions

Focus 1 The most effective leader of a task-oriented team you have known

Please consider the most effective leader of a task-oriented team you have actually known. Think about how this person interacted with members of the team, particularly when they were together as a group. Keep these reflections in mind as you answer the question below.

Question 1 In general, what kinds of values does the *most effective leader* of a task-oriented group you have known show in his or her behavior?

To answer this question, turn this page over and locate the column labeled CODE NAME 1 MEL. Mark your responses with a No. 2 pencil. Go down the column marking **R** = Rarely, **S** = Sometimes, or **O** = Often for each of the 26 descriptive items. Not all parts of a descriptive item may seem to go together. *If any part applies, then use it as your guide.*

When you have finished marking all 26 items for Question 1 please proceed.

Focus 2 You as the most effective platoon leader

Now, consider your experience as a platoon leader, or, if you have never served as a platoon leader, your experience in another military leadership position. Think about how you interact with members of the platoon, or unit, particularly when they work together as a group. Keep these reflections in mind as you answer the question below.

Question 2 In general, what kinds of values would be ideal for you to show in order to be *most effective* as a platoon leader?

Mark your responses down the column labeled CODE NAME 2 EPL. Thank you.

ANSWER SHEET

Rater's Code Name: (3 vertical letters)

Code Name of Persons or Concepts Rated: (3 vertical letter code names)

1

2

3

4

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Individual and Organizational Values

- U 1 Individual financial success, personal prominence and power
- UP 2 Popularity and social success, being liked and admired.
- UPF 3 Active teamwork toward common goals, organizational unity
- UF 4 Efficiency, strong impartial management
- UNF 5 Active reinforcement of authority, rules, and regulations
- UN 6 Tough-minded, self-oriented assertiveness
- UNB 7 Rugged, self-oriented individualism, resistance to authority.
- UB 8 Having a good time, releasing tension, relaxing control
- UPB 9 Protecting less able members, providing help when needed.
- P 10 Equality, democratic participation in decision making.
- PF 11 Responsible idealism, collaborative work.
- F 12 Conservative, established, "correct" ways of doing things
- NF 13 Restraining individual desires for organizational goals
- N 14 Self-protection, self-interest first, self-sufficiency.
- NB 15 Rejection of established procedures, rejection of conformity
- B 16 Change to new procedures, different values, creativity.
- PB 17 Friendship, mutual pleasure, recreation.
- DP 18 Trust in the goodness of others.
- DPF 19 Dedication, faithfulness, loyalty to the organization.
- DF 20 Obedience to the chain of command, complying with authority.
- DNF 21 Self-sacrifice if necessary to reach organizational goals.
- DN 22 Passive rejection of popularity, going it alone.
- DNB 23 Admission of failure, withdrawal of effort.
- DB 24 Passive non-cooperation with authority.
- DPB 25 Quiet contentment, taking it easy.
- D 26 Giving up personal needs and desires, passivity.

	CODE NAME 1	CODE NAME 2	CODE NAME 3	CODE NAME 4
	MEL	EPL		
1	R S O	R S O	R S O	R S O
2	R S O	R S O	R S O	R S O
3	R S O	R S O	R S O	R S O
4	R S O	R S O	R S O	R S O
5	R S O	R S O	R S O	R S O
6	R S O	R S O	R S O	R S O
7	R S O	R S O	R S O	R S O
8	R S O	R S O	R S O	R S O
9	R S O	R S O	R S O	R S O
10	R S O	R S O	R S O	R S O
11	R S O	R S O	R S O	R S O
12	R S O	R S O	R S O	R S O
13	R S O	R S O	R S O	R S O
14	R S O	R S O	R S O	R S O
15	R S O	R S O	R S O	R S O
16	R S O	R S O	R S O	R S O
17	R S O	R S O	R S O	R S O
18	R S O	R S O	R S O	R S O
19	R S O	R S O	R S O	R S O
20	R S O	R S O	R S O	R S O
21	R S O	R S O	R S O	R S O
22	R S O	R S O	R S O	R S O
23	R S O	R S O	R S O	R S O
24	R S O	R S O	R S O	R S O
25	R S O	R S O	R S O	R S O
26	R S O	R S O	R S O	R S O
	R=RARELY	S=SOMETIMES	O=OFTEN	



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APPENDIX B
DEFINITION OF TERMS

Definition of Terms

Bargraph - a histogram of the average relative frequency of ratings on each of the 26 items on the SYMLOG Rating Form.

Courage - depicts the premier military virtue that enables us to conquer fear, danger, or adversity, no matter what the context happens to be (physical or moral). Courage includes the notion of taking responsibility for decisions and actions. Additionally, the idea involves the ability to perform critical self-assessment, to confront new ideas, and to change. (FM 22-100, 1997: Glossary-1)

Culture - the long-term complex phenomenon that can be affected by strategic leaders. Culture represents the shared expectations and self-image of the organization. The mature values that create "tradition", the playout of "climate" or "the feel of the organization" over time, and the deep, unwritten code that frames "how we do things around here" contribute to the culture. Organizational culture is a system of shared values, assumptions, beliefs, and norms that unite the members of the organization. Individual leaders cannot easily create or change culture. (FM 22-100, 1997: Glossary-1)

Doctrine - fundamental principles by which military forces guide their actions in support of national objectives; doctrine is authoritative but requires judgment in application (TRADOC Pamphlet 525-5, 1994: Glossary-3). It guides how the Army organizes, trains, and modernizes (Sullivan & Harper, 1996: 12).

DTLOMS Process - DTLOMS is the Army acronym for doctrine, training, leader development, organizations, materiel, and soldiers. The process uses these major concepts or activities to study the synergistic effect of any new procedures on the total Army force. For instance, a change in doctrine may necessitate a change in organizations which may effect the materiel used in that new organization which may impact the training and the skills of the soldiers needed.

Duty - delineates the sum total of all laws, rules, etc., that make up our organizational, civic, and moral obligations. Our values originate with duty because we expect all members of the Army to fulfill their obligations, at a minimum. We often expect individuals to exceed their duty, especially in ethical matters that are not prescribed by obligations. The nation's highest award, the Medal of Honor, imparts the notion of an individual acting "above and beyond the call of duty." (FM 22-100, 1997: Glossary-2)

E-line - the profile seen on the bargraph when all of the "E's" or optimum locations for most effective teamwork have been connected. It is also referred to as the "effectiveness profile."

Education - those learning experiences concerned with providing a broad understanding. It is essentially concerned with the transfer of knowledge to be applied across many situational circumstances (Harris, 1978: 128).

Established authority - when speaking of established authority, the intention is to describe those individuals, roles, or institutions external to the group who will evaluate the performance of individuals or the group.

Expansion multiplier - a factor used when plotting images on the field diagram to spread the images out, thus making the distinctions easier to view. The factor used by SCG is 1.20. The expansion multiplier is applied only to the P-N and F-B dimensions; the size of the circles (the U-D dimension) are not expanded by the 1.2 factor.

Field Diagram - a two-dimensional map of the three-dimensional SYMLOG space, showing the location of the images of individuals and concepts rated, and the relationship of various images to one another and to the situation.

Force XXI - the Army's modernization process to change the Army in preparation for future warfare in the 21st century.

Honor - is a moral virtue, a state of being or state of character, that people possess by living up to the complex or the set of all the values that make up the public moral code for the Army, "public" meaning the Army's public declaration of espoused values. These publicly declared values provide the objective standard for the Army. "Public" does not refer to the public's perception of what honor means to the Army, nor does it refer to a legal code, complete with very specific rules, regulations, and sanctions. Honor includes: integrity, courage, loyalty, respect, selfless-service, and duty. Honor and moral identity

stand together because the honorable individual identifies with the Army values.

Significantly, honor provides the motive for action. Honor demands adherence to a public moral code, not protection of a reputation. (FM 22-100, 1997: Glossary-2)

Leadership - the process of influencing others to accomplish the mission by providing purpose, direction, and motivation (FM 22-100,1990: 1).

Integrity - is also a moral virtue, one that encompasses the sum total of a person's set of values, his private moral code. A breach of any of these values will damage the integrity of the individual. Integrity, coming from the same Latin root (integritas) as the word "integer," really refers to a notion of completeness, wholeness, and uniqueness.

Integrity also entails the consistent adherence of action to one's personal moral beliefs.

Over time, an Army leader's integrity, his private moral code, should converge and be consistent with the publicly declared code of honor for the Army. (FM 22-100, 1997: Glossary-3)

Loyalty - an intangible bond based on a legitimate obligation; it entails the correct ordering of our obligations and commitments, starting with the Constitution, but also including the US Army, the unit, the family, friends, and finally the self. Being unswerving in our allegiance to the Constitution and faithful to the lawful government will prevent us from misplacing our loyalties. All Army leaders take an oath in which they swear allegiance to the US Constitution. Loyalty demands commitment to the institution and is a pre-condition for trust, cooperation, teamwork, and camaraderie. (FM 22-100, 1997: Glossary-3)

Most Effective Leader (MEL) - the empirical position on the field diagram and a particular research bargraph resulting from surveys which ask the question: "In general, what kinds of values does the *most effective leader* of a task-oriented team you have actually known show in his or her behavior?"

Most effective profile - the location on the field diagram indicating the location of the normative profile, which is the E-line on the bargraph; this location is designated on the field diagram as a dotted-line circle with the code letters "mep."

Rating - a set of responses on 26 SYMLOG items in answer to a survey question.

Reliability - a statistical term used to denote the ability of a measurement system to measure the same thing in a dependable, consistent, and unvarying manner over time and under different conditions.

Respect - the regard and recognition of the absolute dignity that every human being possesses. Respect is treating people as they should be treated. Specifically, respect is indicative of compassion and consideration of others, which includes a sensitivity to and regard for the feelings and needs of others and an awareness of the effect of one's own behavior on them. Respect also involves the notion of treating people justly. Respect is the value that informs the Army leader on those issues related to equal opportunity and the prevention of sexual harassment. (FM 22-100, 1997: Glossary-3 & 4)

Scatterplot - one of several field diagrams produced by SCG; a multiple rater, single image field diagram; a diagram showing the unique results of multiple ratings on a single image.

Selfless Service - the proper ordering of priorities. Think of it as service before self. The welfare of the nation and the organization come before the individual. While the focus is on service to the nation, this does not mean that the individual member neglects to take care of family or self. The value does not preclude the Army leader from having a healthy ego or self esteem, nor does it preclude the leader from having a healthy sense of ambition. It does, however, preclude selfish careerism. (FM 22-100, 1997: Glossary-4)

Subject - a student enrolled in EOBC or EOAC.

Training - the instruction of personnel to individually and collectively increase their capacity to perform specific functions and tasks (FM 25-101, 1990: Glossary- 9).

Validity - the degree to which an instrument measures what it is intended to measure; determined through statistical analysis.

Values - for purposes of most SYMLOG applications what an individual or group determines to be somewhere on a scale from good to bad. This is in contradistinction to beliefs (true or false) and attitudes (for or against).

Values on Accepting the Task-Orientation of Established Authority versus Opposing the Task-Orientation of Established Authority - acceptance or opposition to the rules and procedures that have been set up by authorities, immediately external to the working group, who will evaluate the performance of the group (Bales, 1995: 10-11).

Values on Dominance versus Submissiveness - represents prominence, status, power, and personal influence. Dominant members may be high participators, probably extroverts. They may also show a tendency to impose their views on the group. The more submissive members are typically seen as quiet, passive, or introverted (Bales, 1995: 8-9).

Values on Friendly Behavior versus Unfriendly Behavior - behaviors and values perceived as equalitarian, cooperative, or protective of others versus behaviors and values perceived to be self-interested and self-protective (Bales, 1995: 9).

Vector - there are 26 discrete items on the rating form; each item measures a specific direction and magnitude (or vector) from the center of three-dimensional SYMLOG space. Each vector represents a particular set of values identified by the content of the corresponding item on the SYMLOG rating form, and are represented graphically on the Field Diagrams.

APPENDIX C

FIRST HYPOTHESIS

FIELD DIAGRAMS, SCATTERPLOTS, AND BARGRAPHS

Group Average Field Diagram
Based on ratings made by the Group

Report based on ratings from: Three commissioning sources
Research by Ted Thomas

The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

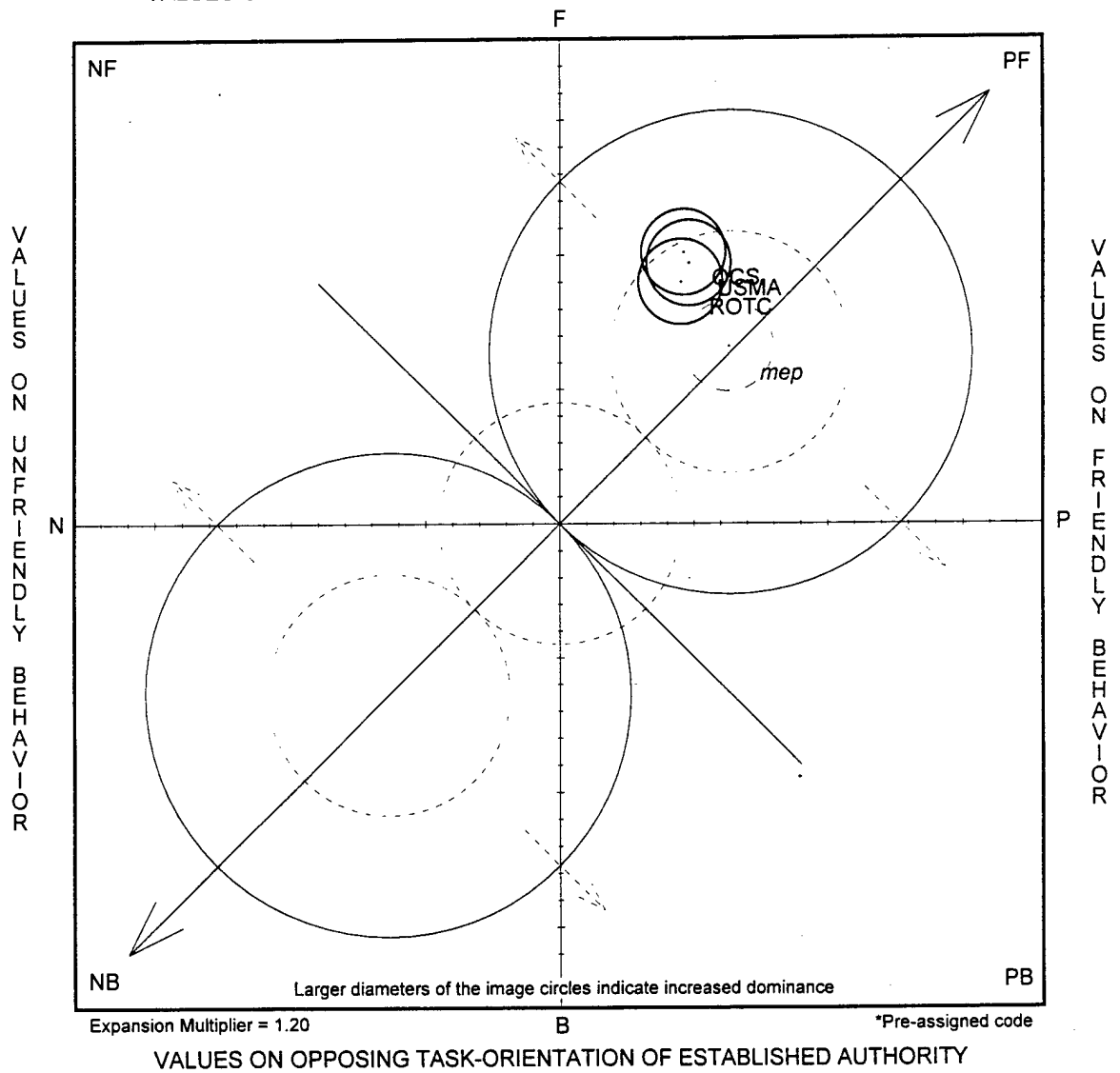
	Code Name	Final Image Location					
Images of Concepts							
Images of Persons							
	USMA	2.0	U	4.8	P	9.7	F
	ROTC	1.8	U	4.6	P	9.1	F
	OCS	1.8	U	4.7	P	10.2	F

*Pre-assigned code

Group Average Field Diagram
Based on ratings made by the Group

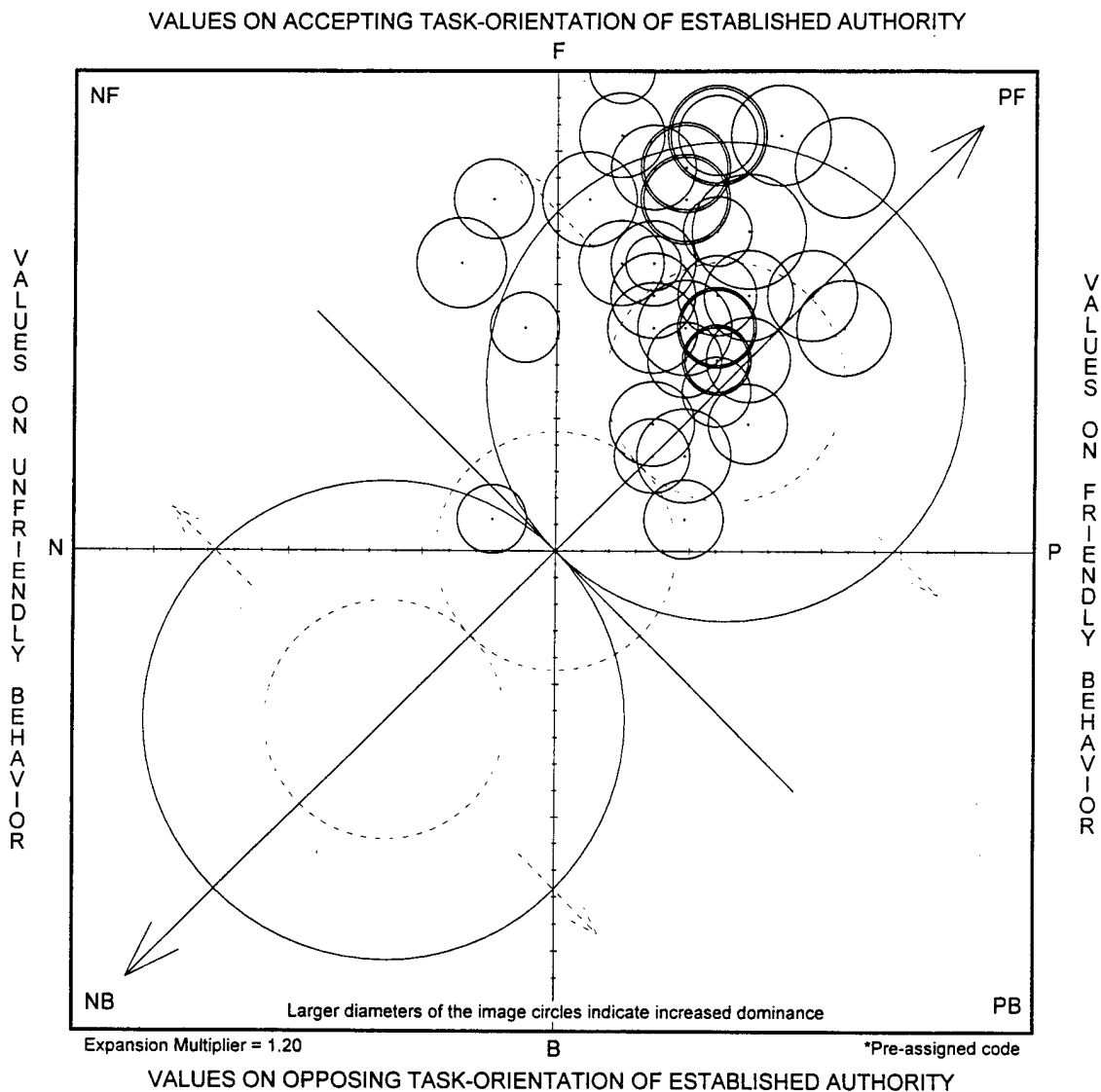
Report based on ratings from: Three commissioning sources
Research by Ted Thomas

VALUES ON ACCEPTING TASK-ORIENTATION OF ESTABLISHED AUTHORITY



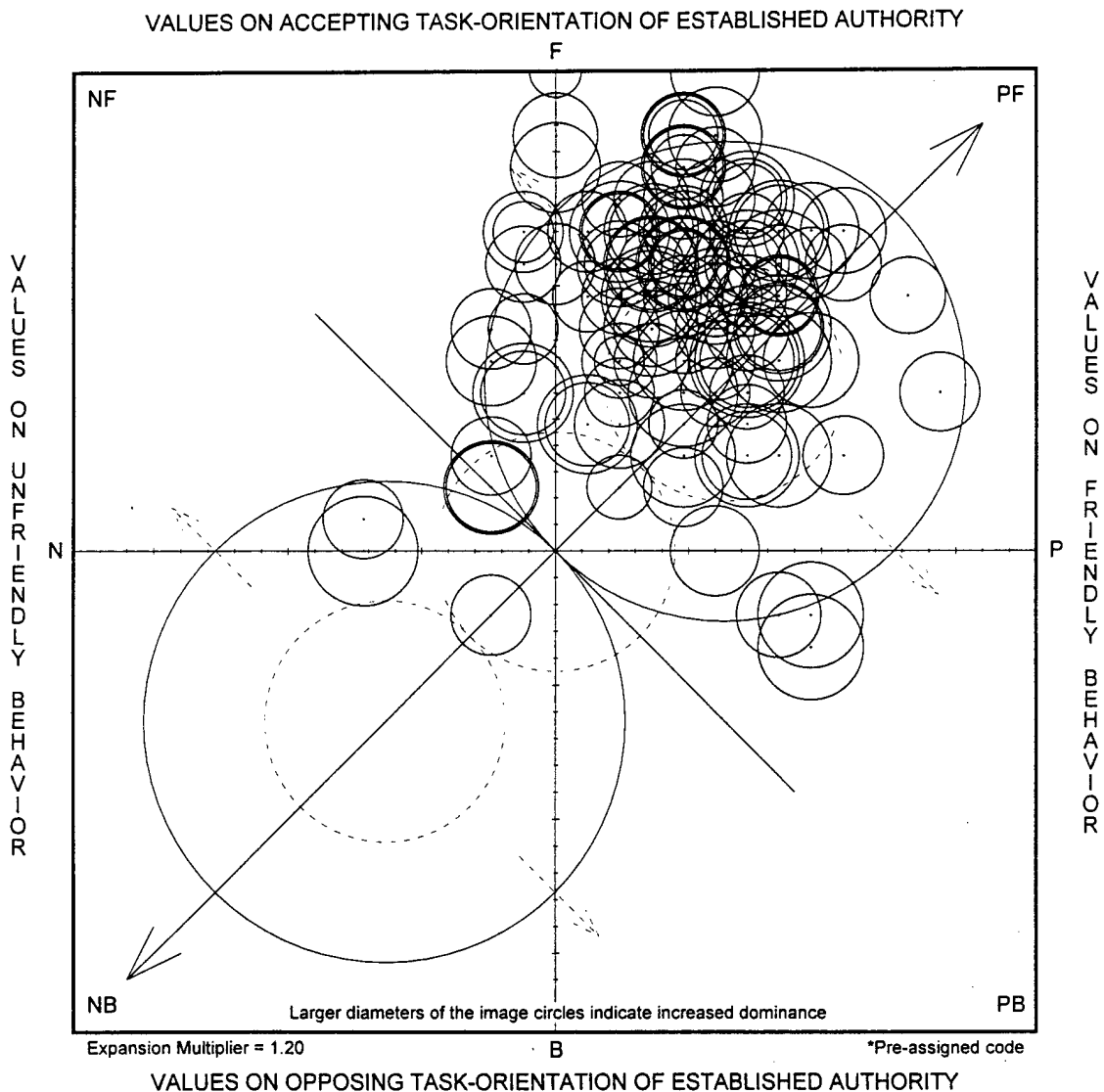
Scatterplot Field Diagram of individual ratings made on: MEL
 Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: OCS
 Research by Ted Thomas



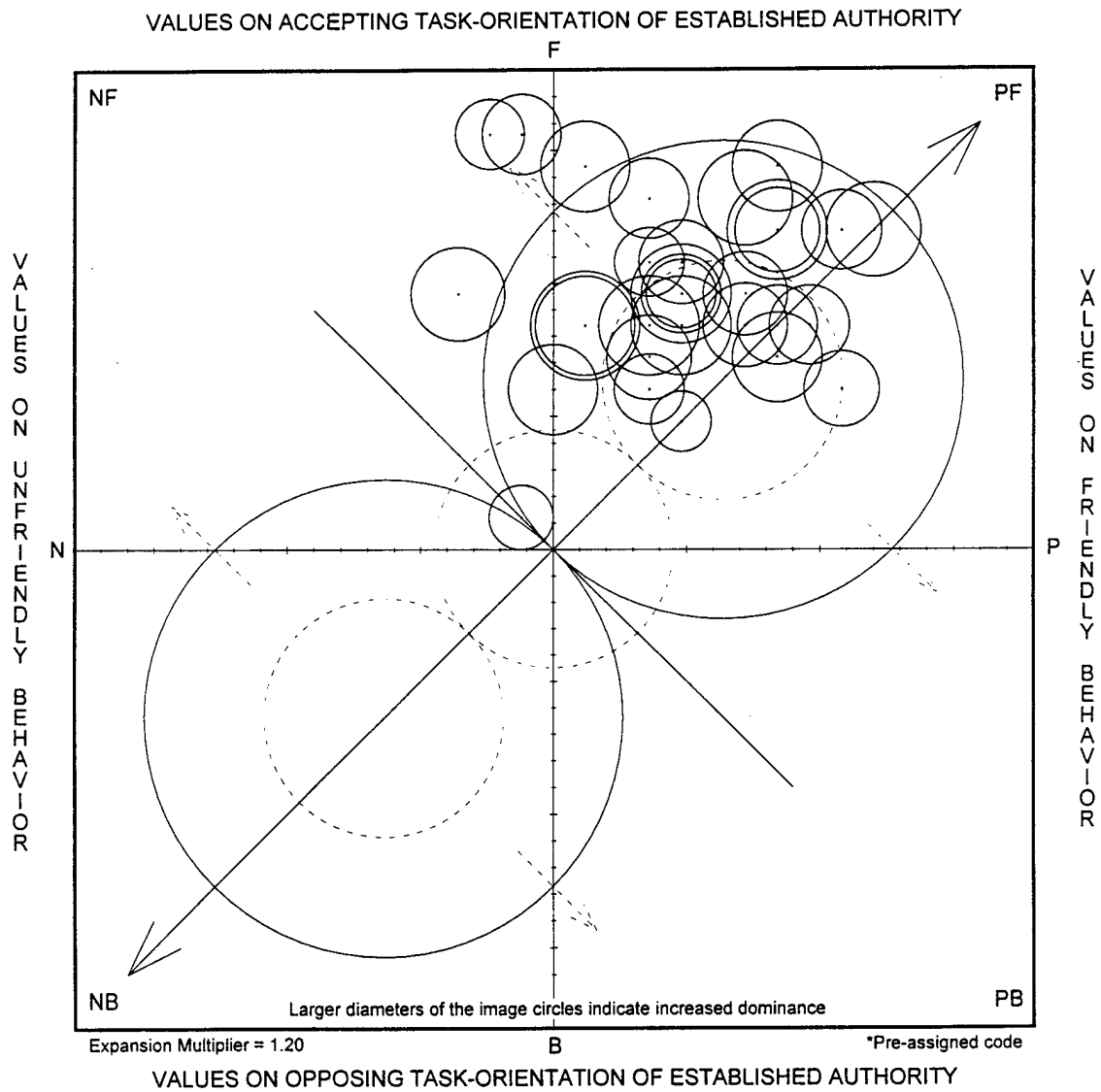
Scatterplot Field Diagram of individual ratings made on: MEL
Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: ROTC
Research by Ted Thomas



Scatterplot Field Diagram of individual ratings made on: MEL
 Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: USMA
 Research by Ted Thomas



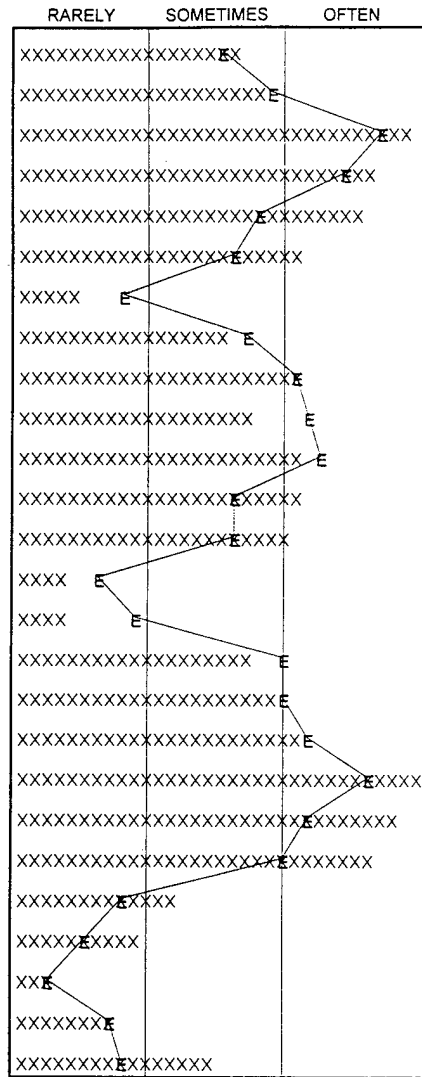
Bargraph of the average of all ratings made on: MEL
 Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: OCS

Type: PF Final Location: 1.8U 4.7P 10.2F
 Ratings: 41

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

- 1 U Individual financial success, personal prominence and power
- 2 UP Popularity and social success, being liked and admired
- 3 UPF Active teamwork toward common goals, organizational unity
- 4 UF Efficiency, strong impartial management.
- 5 UNF Active reinforcement of authority, rules, and regulations
- 6 UN Tough-minded, self-oriented assertiveness
- 7 UNB Rugged, self-oriented individualism, resistance to authority
- 8 UB Having a good time, releasing tension, relaxing control.
- 9 UPB Protecting less able members, providing help when needed
- 10 P Equality, democratic participation in decision making.
- 11 PF Responsible idealism, collaborative work
- 12 F Conservative, established, "correct" ways of doing things
- 13 NF Restraining individual desires for organizational goals
- 14 N Self-protection, self-interest first, self-sufficiency
- 15 NB Rejection of established procedures, rejection of conformity
- 16 B Change to new procedures, different values, creativity
- 17 PB Friendship, mutual pleasure, recreation
- 18 DP Trust in the goodness of others
- 19 DPF Dedication, faithfulness, loyalty to the organization
- 20 DF Obedience to the chain of command, complying with authority
- 21 DNF Self-sacrifice if necessary to reach organizational goals.
- 22 DN Passive rejection of popularity, going it alone.
- 23 DNB Admission of failure, withdrawal of effort.
- 24 DB Passive non-cooperation with authority
- 25 DPB Quiet contentment, taking it easy
- 26 D Giving up personal needs and desires, passivity

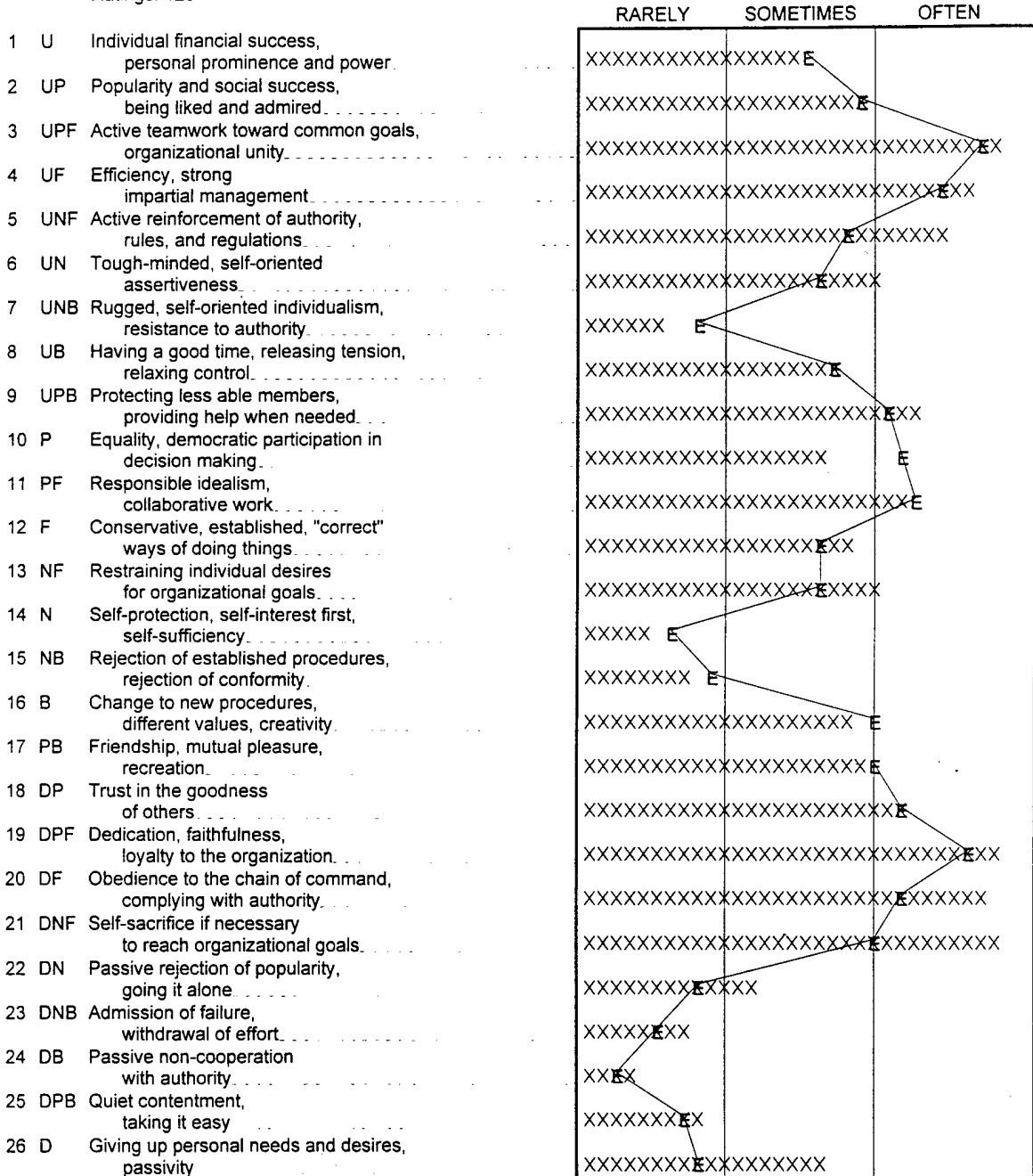


Bargraph of the average of all ratings made on: MEL
 Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: ROTC

Type: PF Final Location: 1.8U 4.6P 9.1F
 Ratings: 125

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

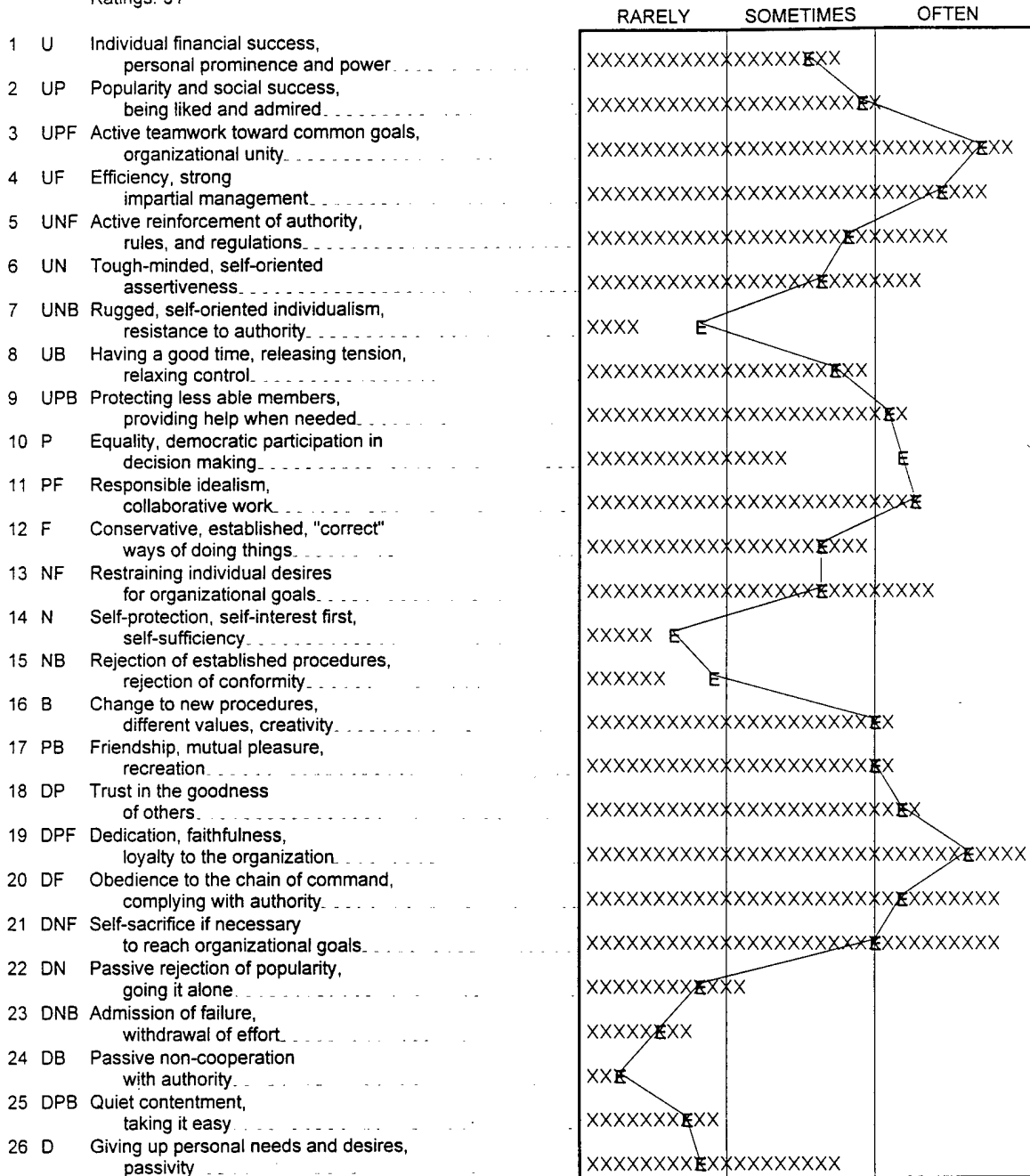


Bargraph of the average of all ratings made on: MEL
 Rating question: In general, what kinds of values does this person show in his or her behavior?

Report based on ratings from: USMA

Type: PF Final Location: 2.0U 4.8P 9.7F
 Ratings: 31

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork



Hypothesis 1: commissioning source (9/29/97)

Summary of tests for bargraph comparisons

			USMA vs. OCS	ROTC vs. USMA	ROTC vs. OCS
1	U	Individual financial success, personal prominence and power .	ns	ns	ns
2	UP	Popularity and social success, being liked and admired .	ns	ns	ns
3	UPF	Active teamwork toward common goals, organizational unity .	ns	ROTC low (.05 1- tailed)	ns
4	UF	Efficiency, strong impartial management .	ns	ns	ns
5	UNF	Active reinforcement of authority, rules, and regulations .	ns	ns	ns
6	UN	Tough-minded, self-oriented assertiveness .	ns	ns	ns
7	UNB	Rugged, self-oriented individualism, resistance to authority .	ns	ns	ns
8	UB	Having a good time, releasing tension, relaxing control	ns	ns	ns
9	UPB	Protecting less able members, providing help when needed .	ns	ns	ns
10	P	Equality, democratic participation in decision making	ns	ns	ns
11	PF	Responsible idealism, collaborative work .	ns	ns	ns
12	F	Conservative, established, "correct" ways of doing things .	ns	ns	ns
13	NF	Restraining individual desires for organizational goals .	ns	ns	ns
14	N	Self-protection, self-interest first, self-sufficiency .	ns	ns	ns
15	NB	Rejection of established procedures, rejection of conformity .	ns	ns	ROTC high (.01 1-tailed)
16	B	Change to new procedures, different values, creativity .	ns	ns	ns
17	PB	Friendship, mutual pleasure, recreation	ns	ns	ns
18	DP	Trust in the goodness of others .	ns	ns	ns
19	DPF	Dedication, faithfulness, loyalty to the organization .	ns	ROTC low (.01 2- tailed)	ROTC low (.05 2- tailed)
20	DF	Obedience to the chain of command, complying with authority .	ns	ns	ns
21	DNF	Self-sacrifice if necessary to reach organizational goals	ns	ns	ns
22	DN	Passive rejection of popularity, going it alone	ns	ns	ns
23	DNB	Admission of failure, withdrawal of effort .	ns	ns	ns
24	DB	Passive non-cooperation with authority .	ns	ns	ns
25	DPB	Quiet contentment, taking it easy	ns	ns	ns
26	D	Giving up personal needs and desires, passivity .	ns	ns	ns

APPENDIX D
SECOND HYPOTHESIS
FIELD DIAGRAMS, SCATTERPLOTS, AND BARGRAPHS

Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from USMA Pre- and Post-test
Research by Ted Thomas
12/16/97

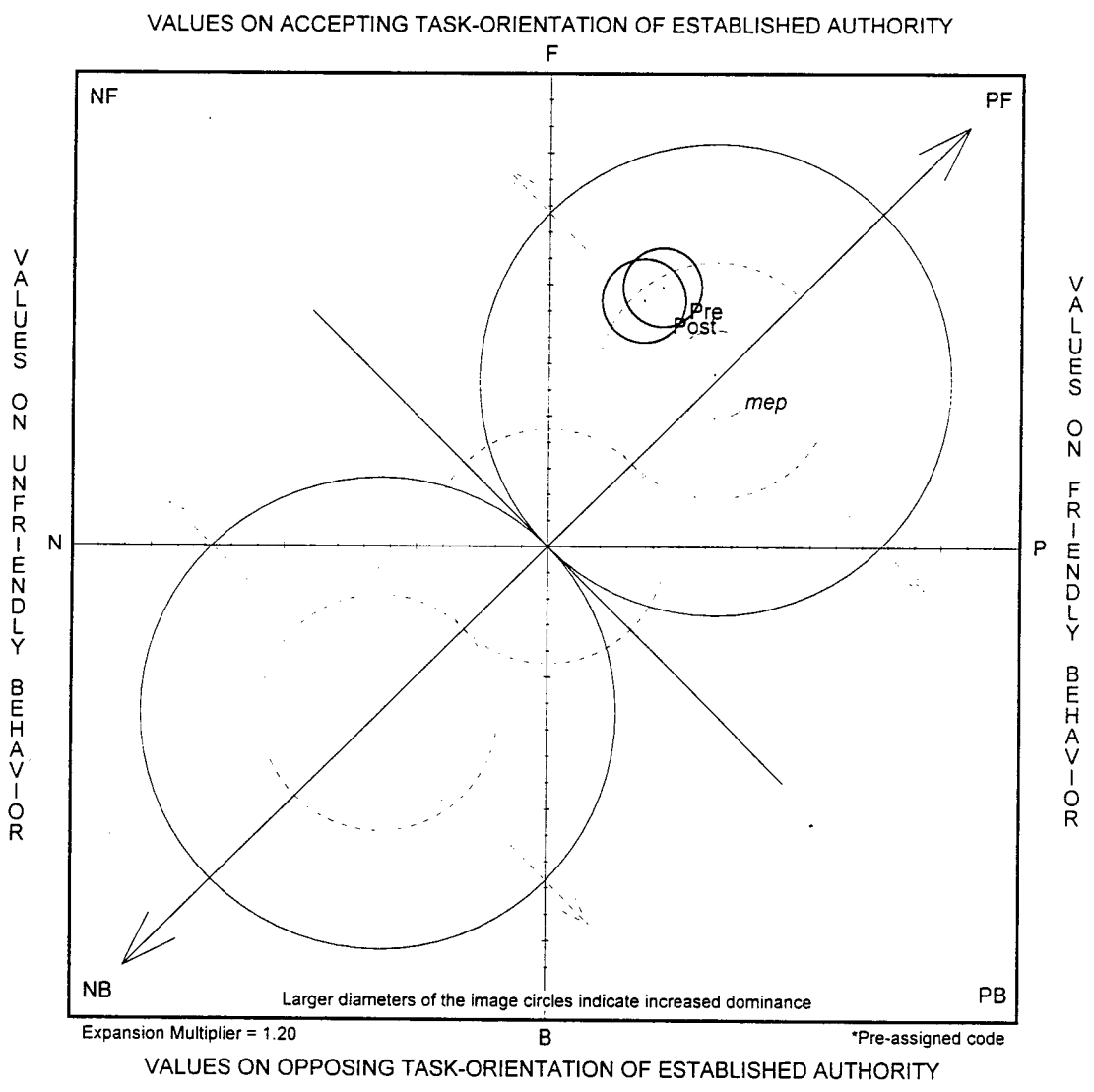
The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

	Code Name	Final Image Location					
Images of Concepts							
Images of Persons	Post	1.6	U	3.6	P	9.5	F
	Pre	1.2	U	4.4	P	9.9	F

*Pre-assigned code

Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from USMA Pre- and Post-test
Research by Ted Thomas
12/16/97



Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from OCS Pre- and Post-test
Research by Ted Thomas
12/16/97

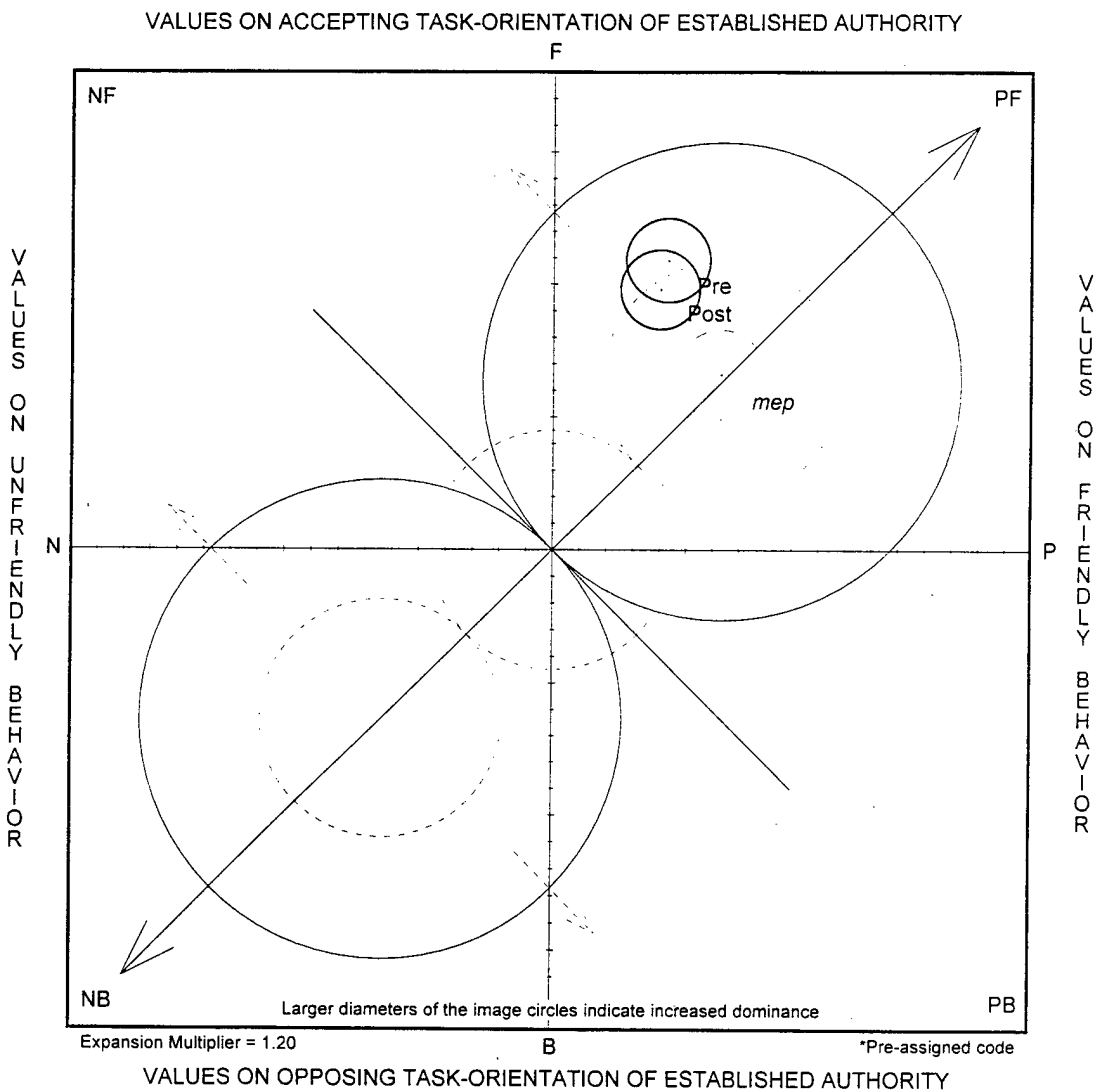
The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

	Code Name	Final Image Location				
Images of Concepts						
Images of Persons	Pre	1.5	U	4.3	P 10.9	F
	Post	1.4	U	4.1	P 9.9	F

*Pre-assigned code

Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from OCS Pre- and Post-test
Research by Ted Thomas
12/16/97



Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from ROTC Pre- and Post-test
Research by Ted Thomas
12/16/97

The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

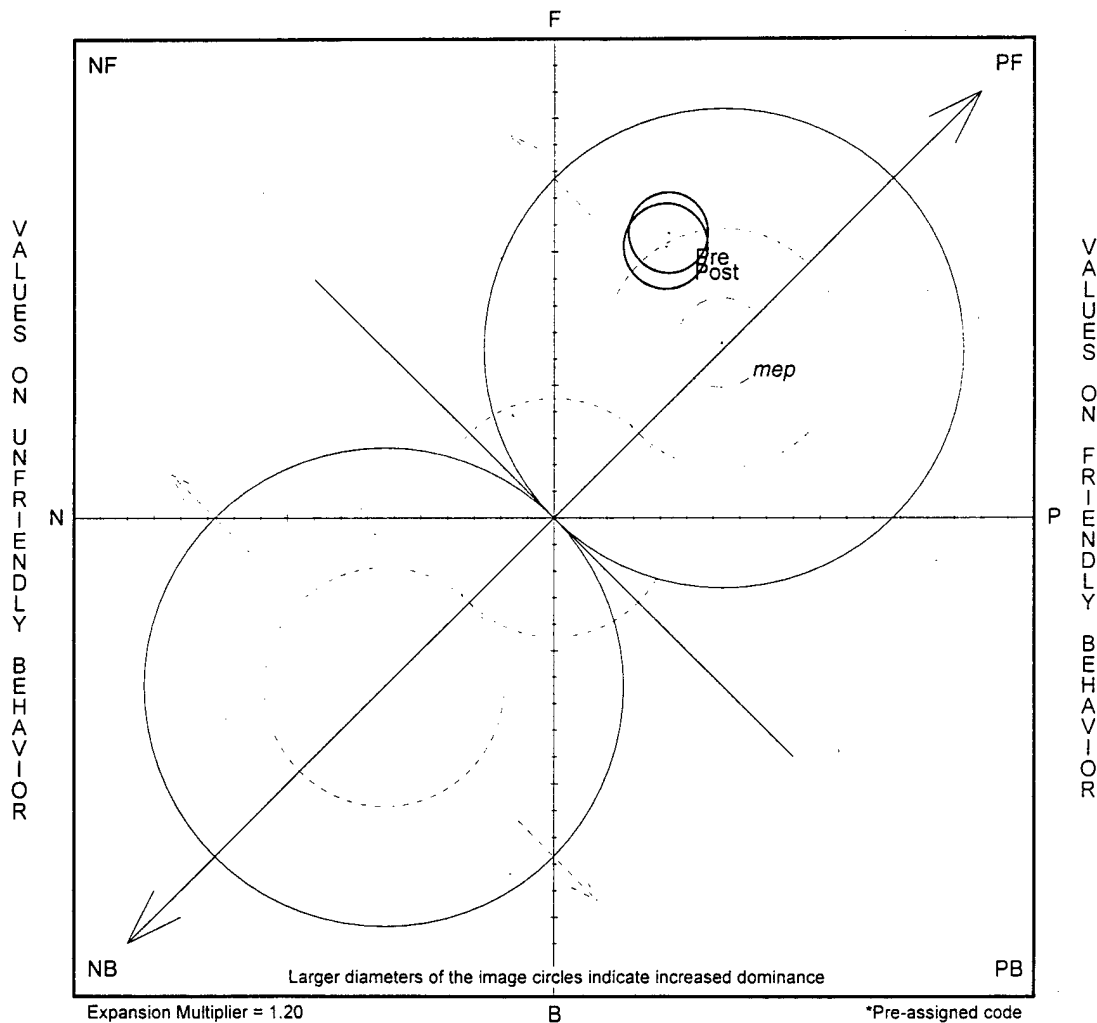
	Code Name	Final Image Location					
Images of Concepts							
Images of Persons	Post	1.9	U	4.2	P	10.3	F
	Pre	1.3	U	4.4	P	10.7	F

*Pre-assigned code

Group Average Field Diagram
Based on ratings made by the Group

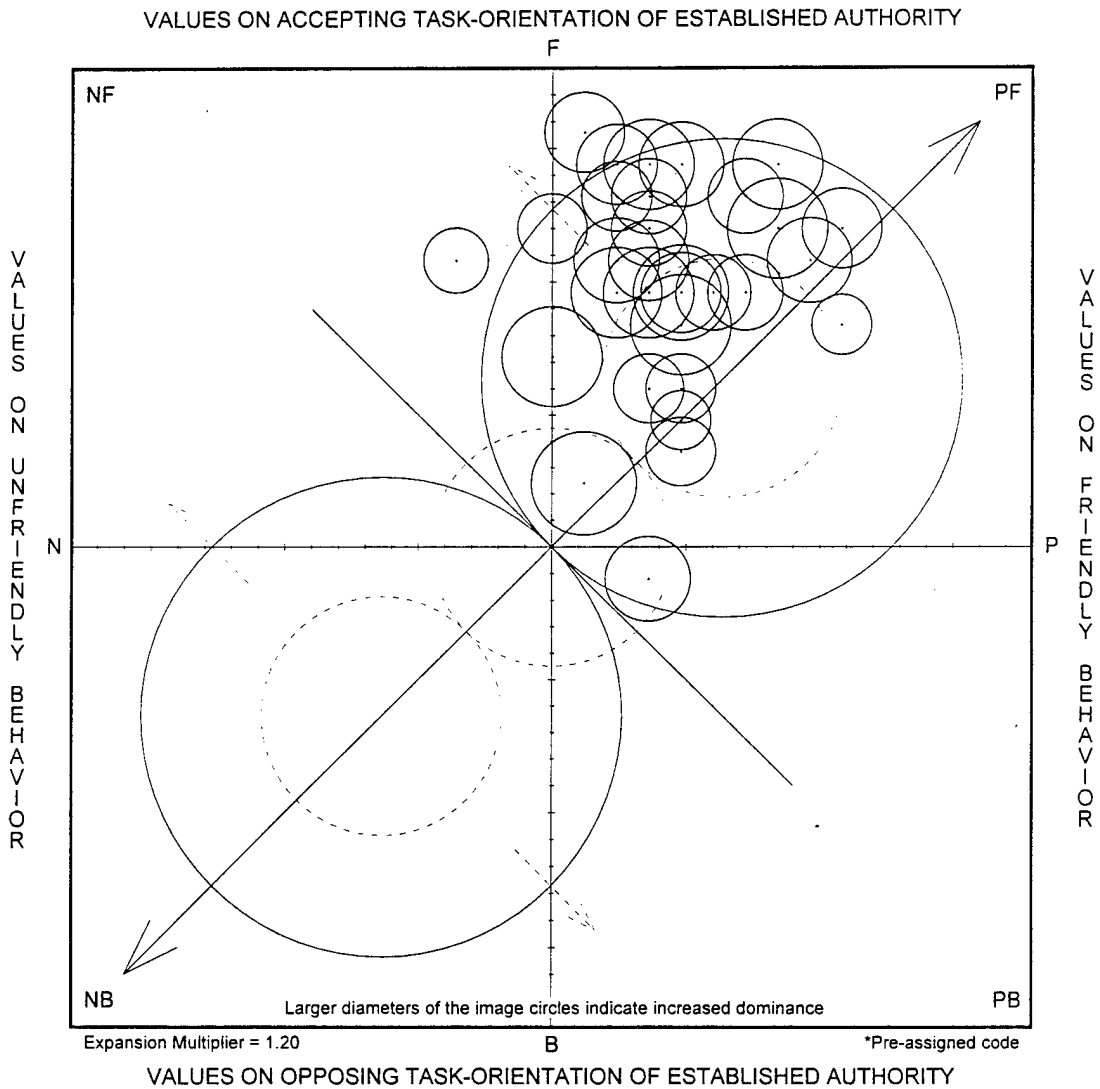
Ratings on *EPL from ROTC Pre- and Post-test
Research by Ted Thomas
12/16/97

VALUES ON ACCEPTING TASK-ORIENTATION OF ESTABLISHED AUTHORITY



Scatterplot Field Diagram of individual ratings made on: *EPL
Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

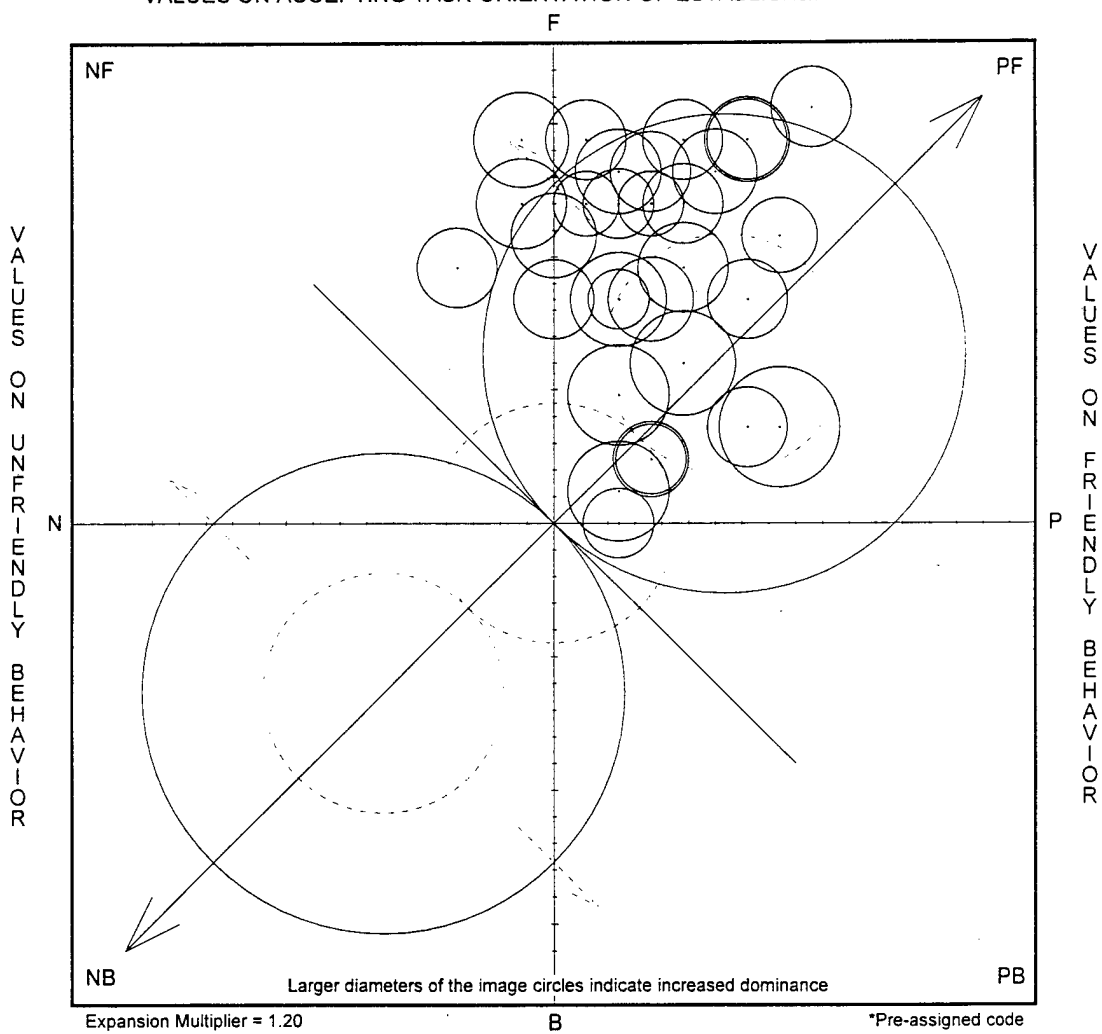
Ratings from USMA Pre-test
Research by Ted Thomas
12/16/97



Scatterplot Field Diagram of individual ratings made on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

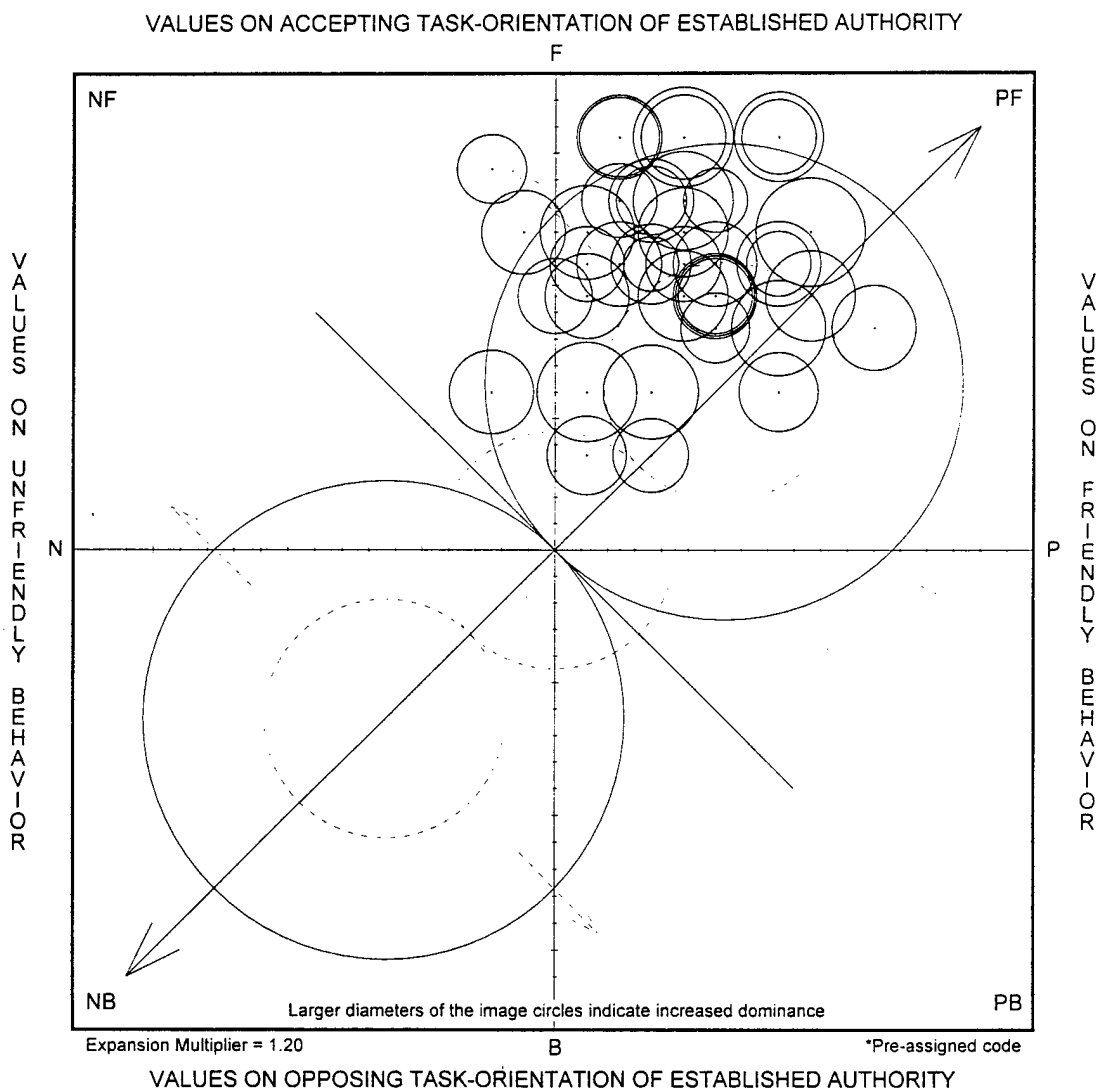
Ratings from USMA Post-test
 Research by Ted Thomas
 12/16/97

VALUES ON ACCEPTING TASK-ORIENTATION OF ESTABLISHED AUTHORITY



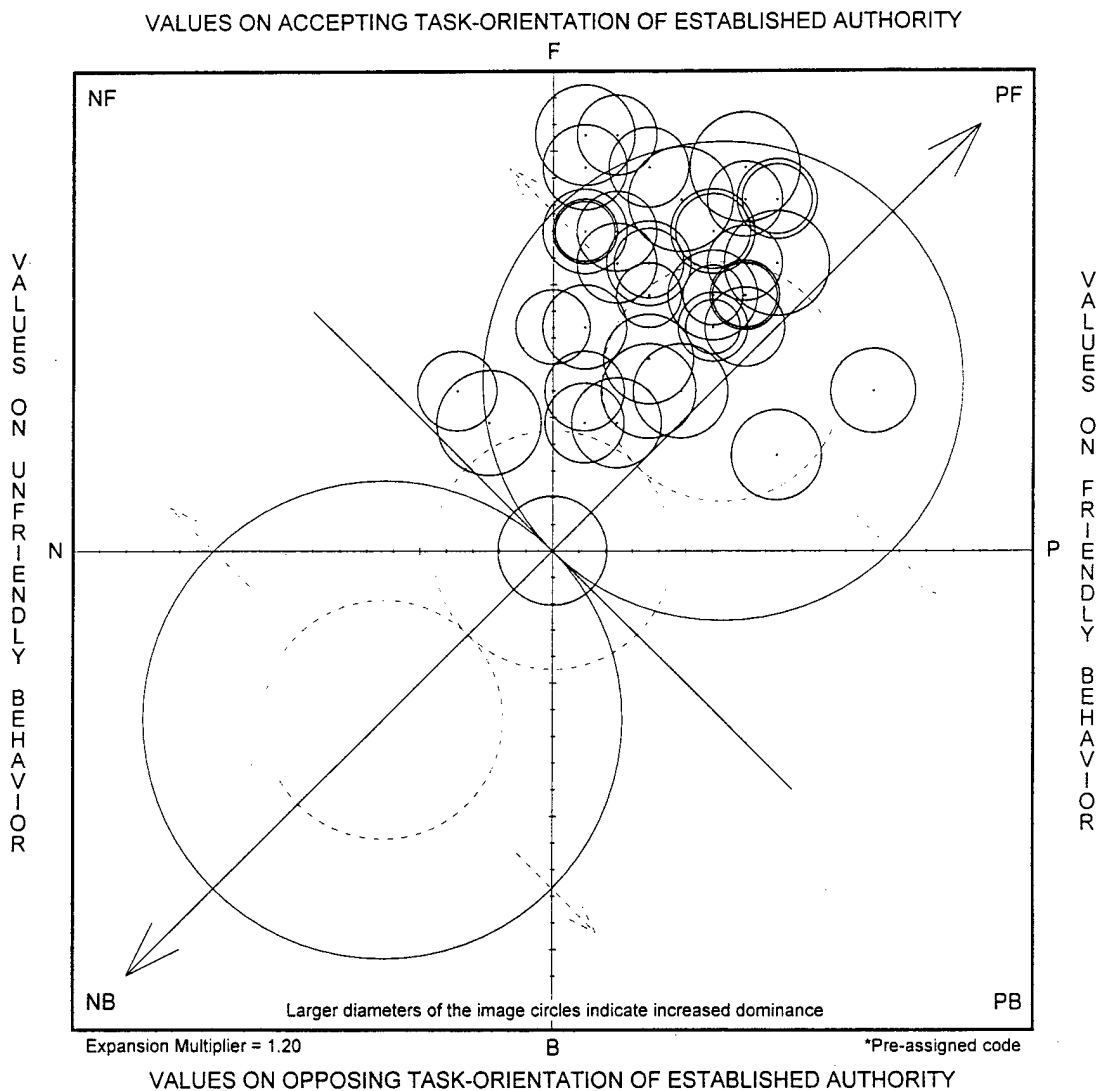
Scatterplot Field Diagram of individual ratings made on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from OCS Pre-test
 Research by Ted Thomas
 12/16/97



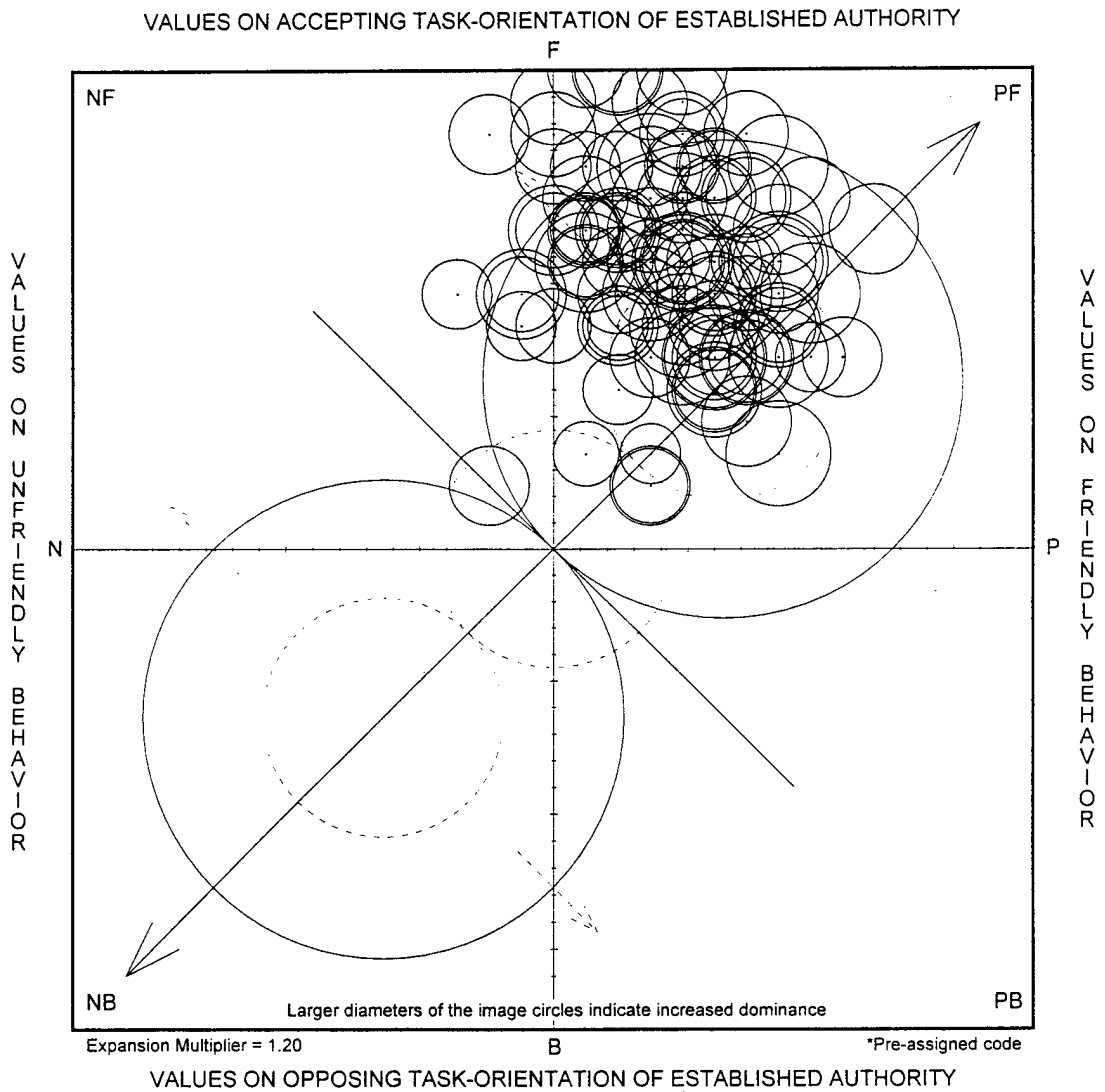
Scatterplot Field Diagram of individual ratings made on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from OCS Post-test
 Research by Ted Thomas
 12/16/97



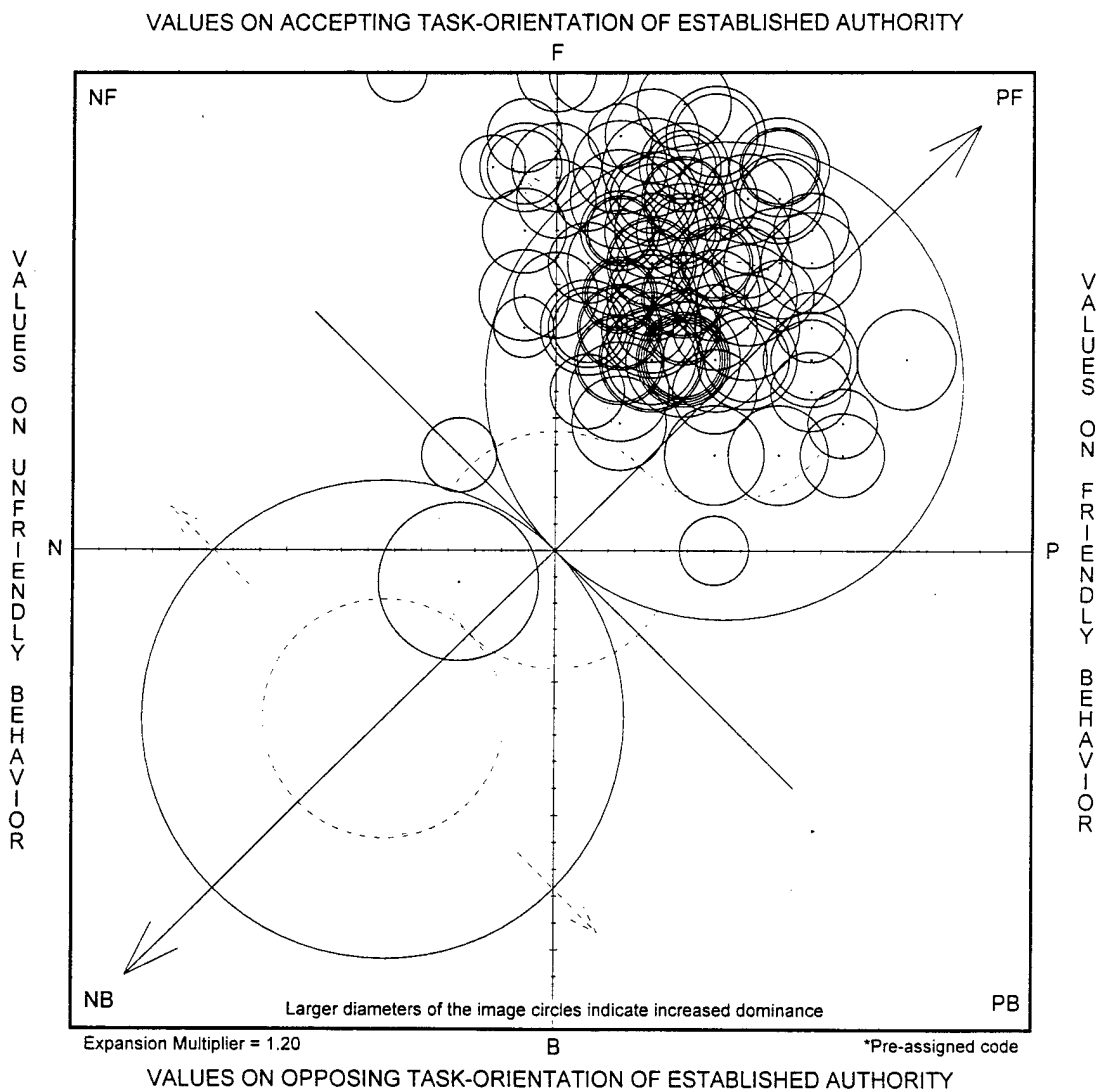
Scatterplot Field Diagram of individual ratings made on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from ROTC Pre-test
 Research by Ted Thomas
 12/16/97



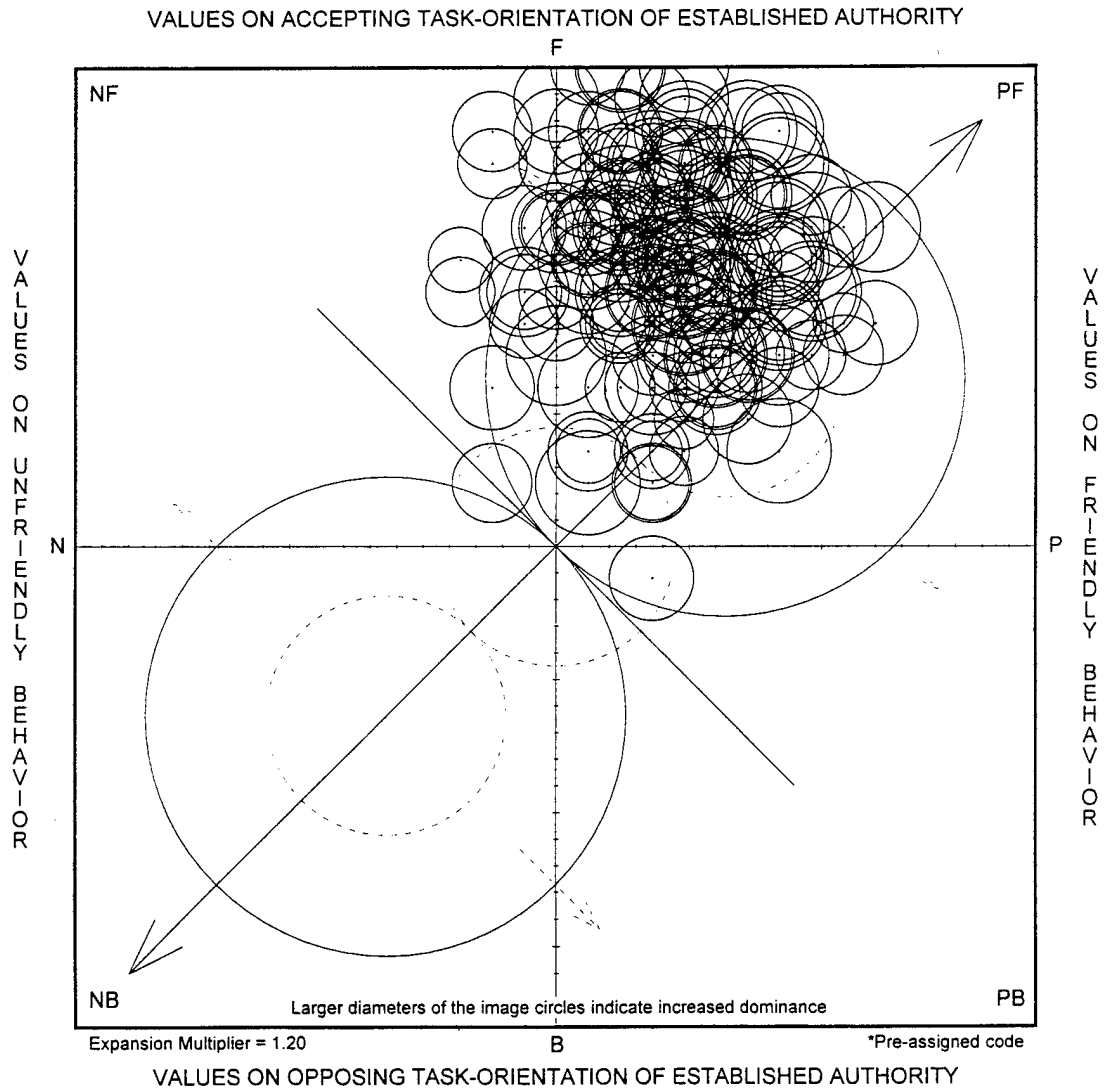
Scatterplot Field Diagram of individual ratings made on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be
 most effective as a platoon leader?

Ratings from ROTC Post-test
 Research by Ted Thomas
 12/16/97



Scatterplot Field Diagram of individual ratings made on: *EPL
Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

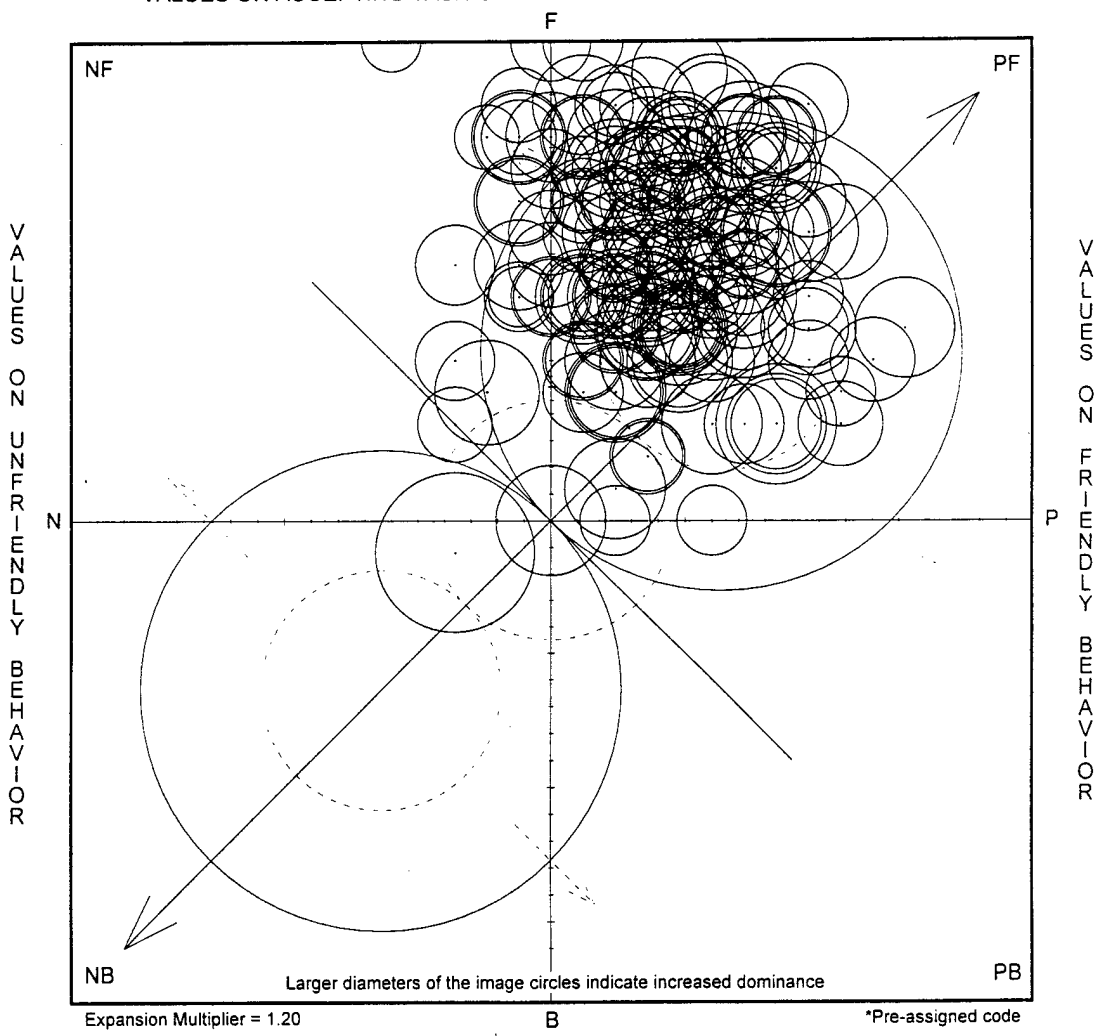
Ratings from EOBC Pre-test
Research by Ted Thomas
12/16/97



Scatterplot Field Diagram of individual ratings made on: *EPL
Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from EOBC Post-test
Research by Ted Thomas
12/16/97

VALUES ON ACCEPTING TASK-ORIENTATION OF ESTABLISHED AUTHORITY

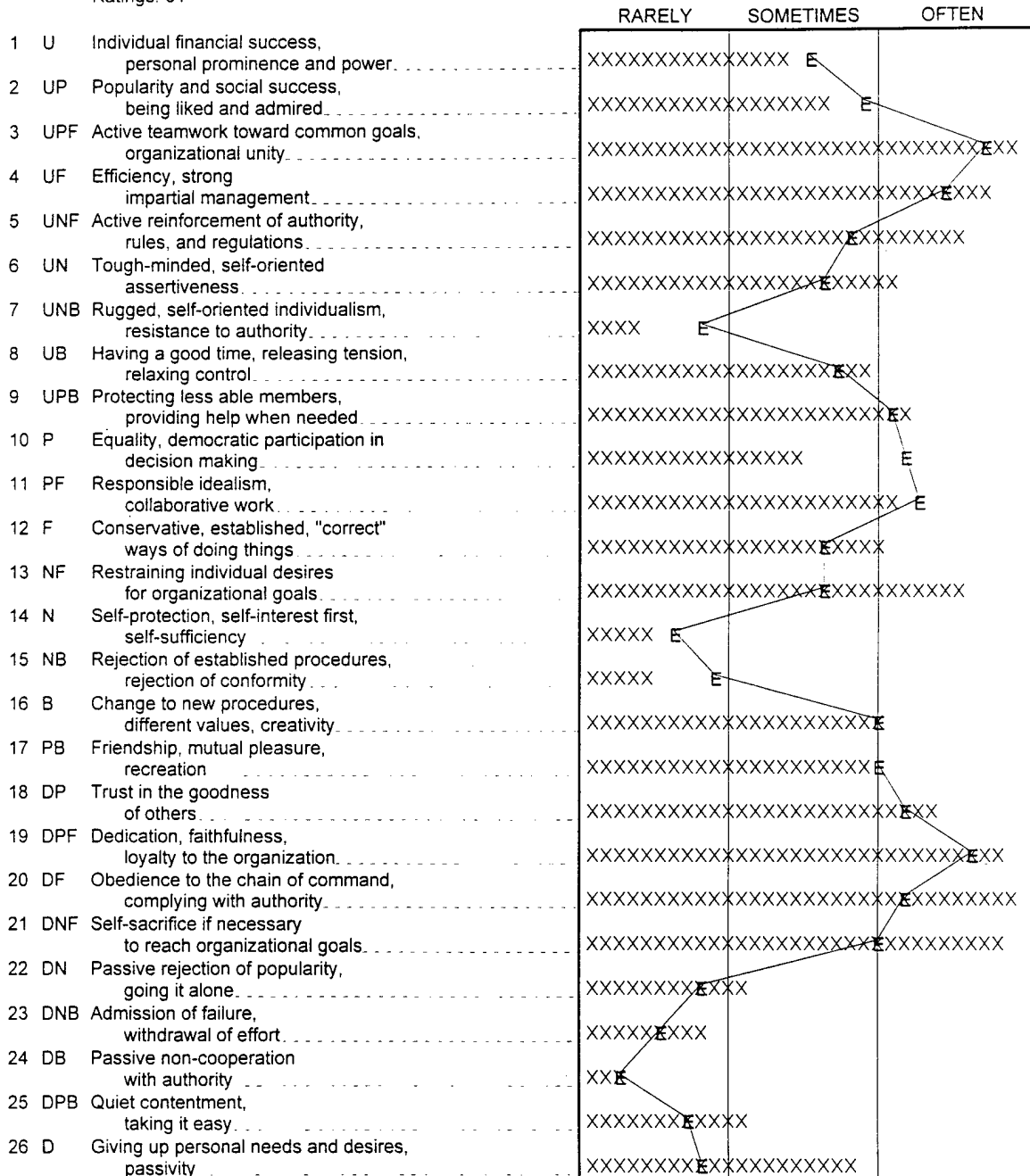


Bargraph of ratings made by the Group on: "EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be
 most effective as a platoon leader?"

Ratings from USMA Pre-test

Type: PF Final Location: 1.2U 4.4P 9.9F
 Ratings: 31

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork



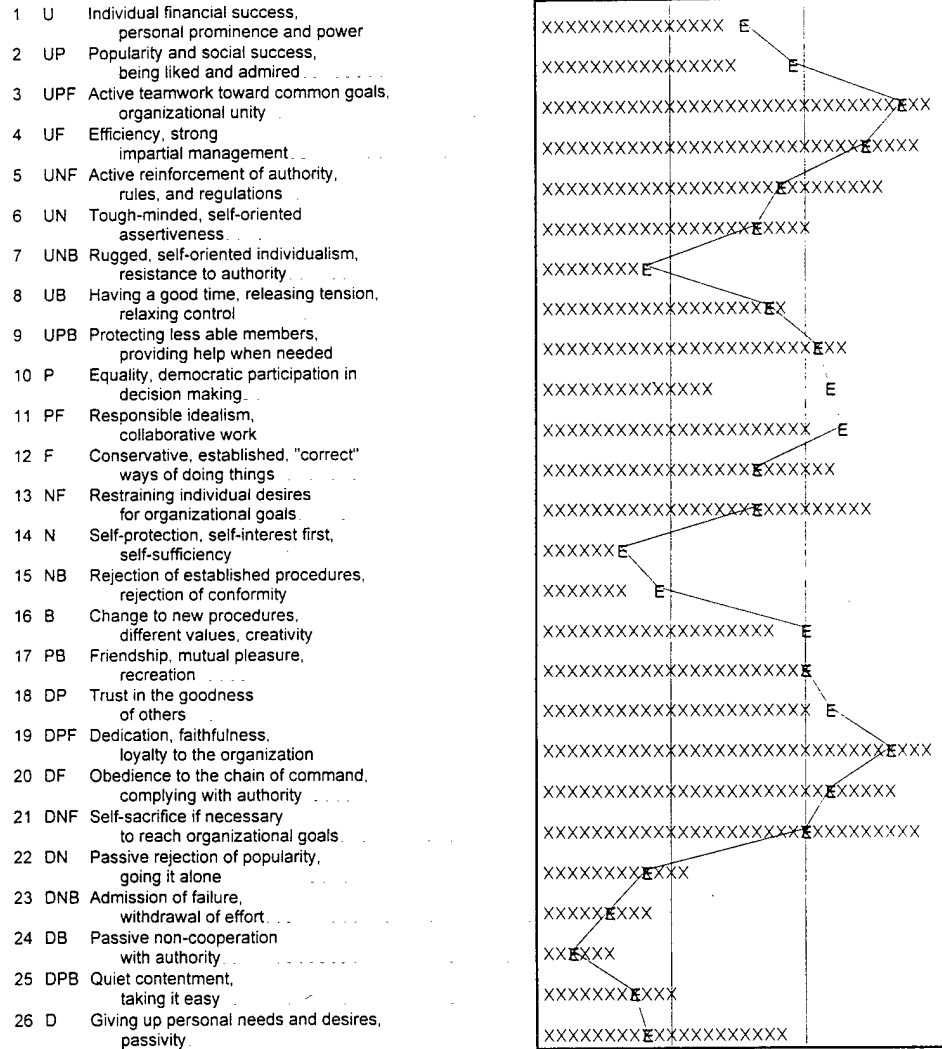
Bargraph of ratings made by the Group on: 'EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be
 most effective as a platoon leader?

Ratings from USMA Post-test

Type: F Final Location: 1.6U 3.6P 9.5F
 Ratings: 31

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

RARELY SOMETIMES OFTEN



Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

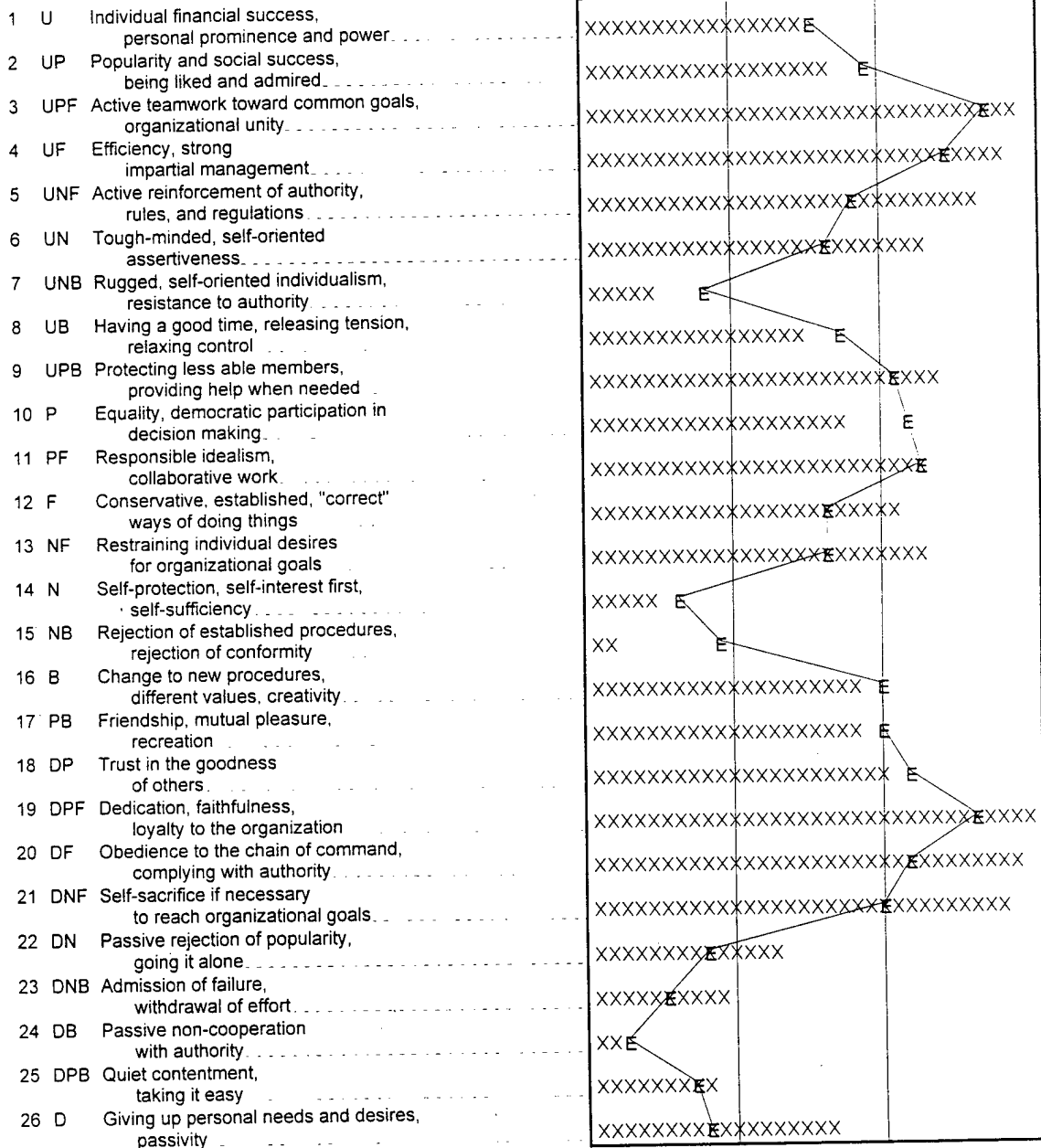
Ratings from OCS Pre-test

Type: F
 Ratings: 43

Final Location: 1.5U 4.3P 10.9F

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

RARELY SOMETIMES OFTEN

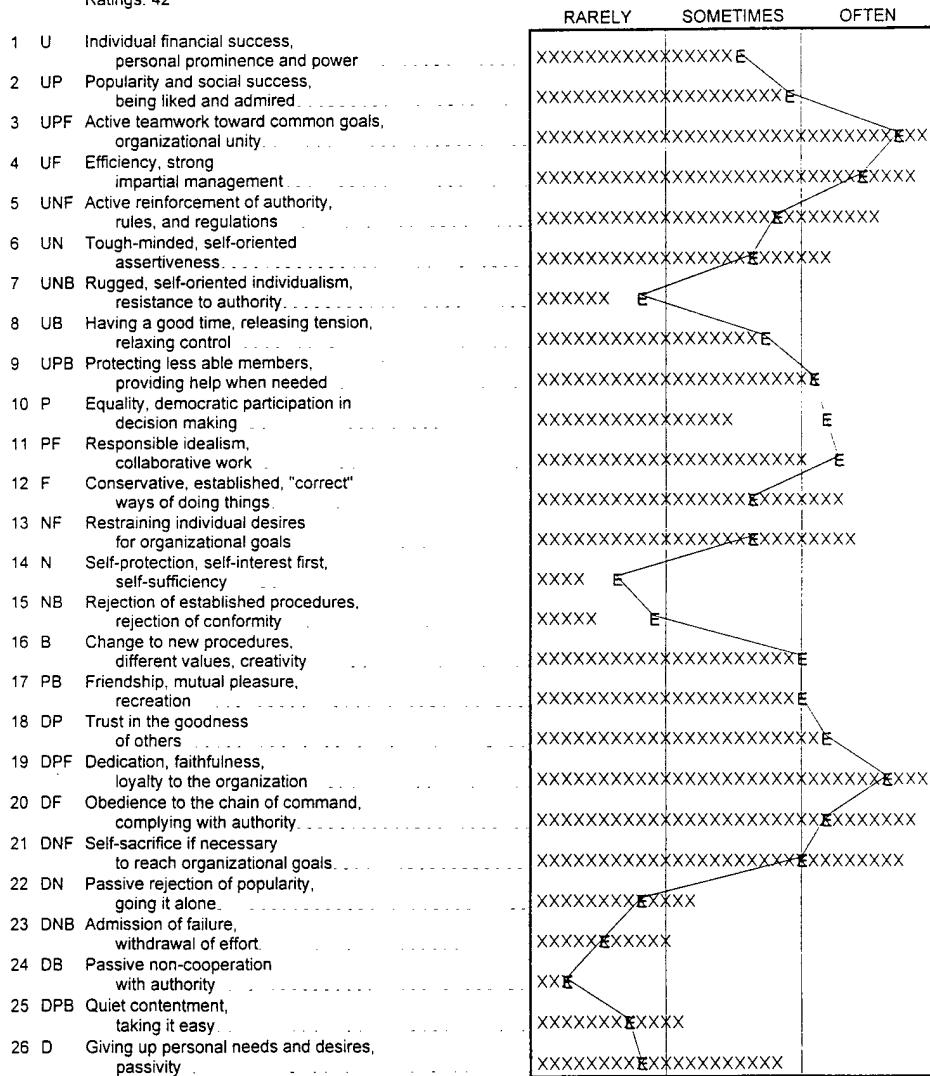


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from OCS Post-test

Type: PF Final Location: 1.4U 4.1P 9.9F
 Ratings: 42

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

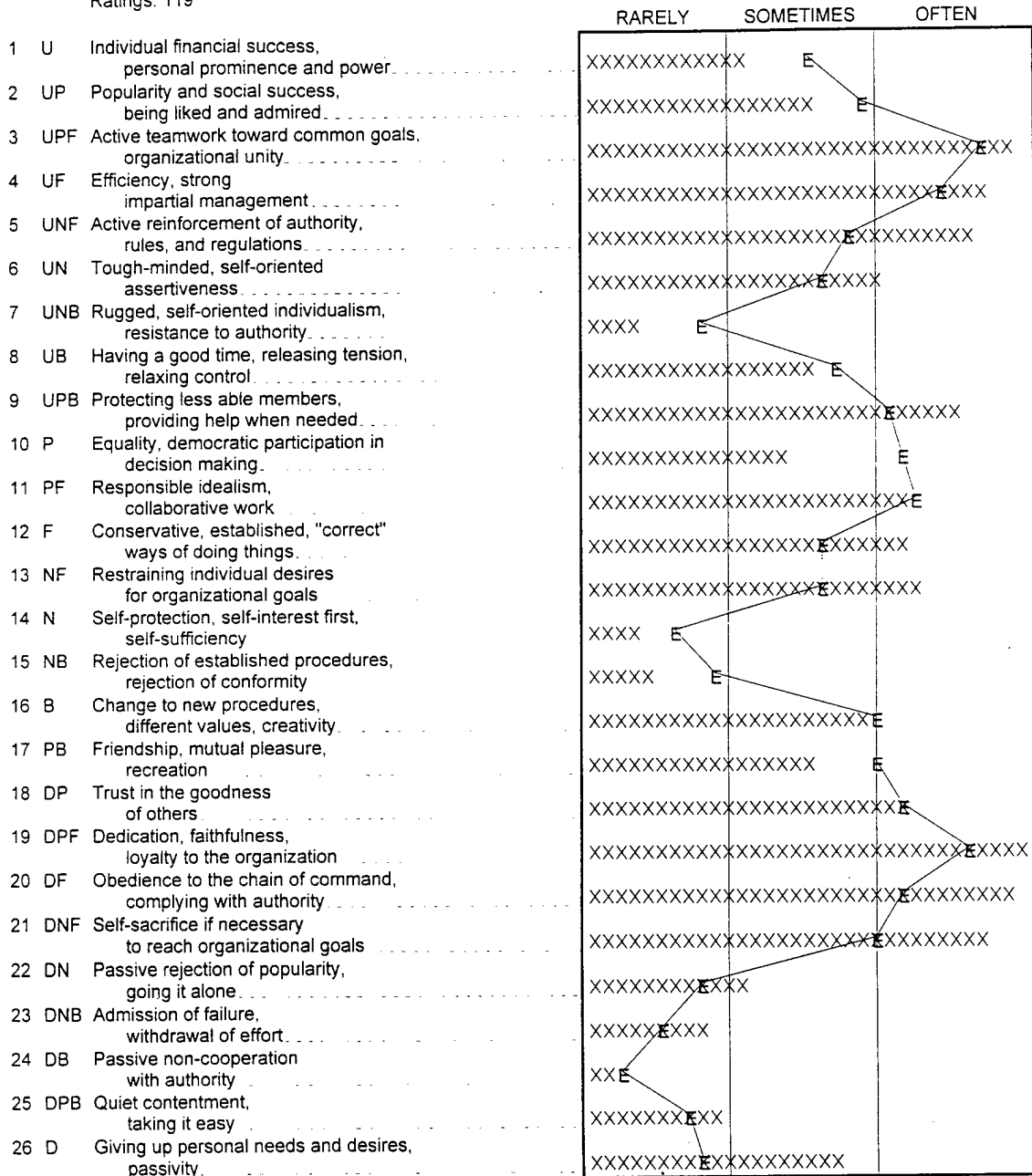


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from ROTC Pre-test

Type: F Final Location: 1.3U 4.4P 10.7F
 Ratings: 119

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

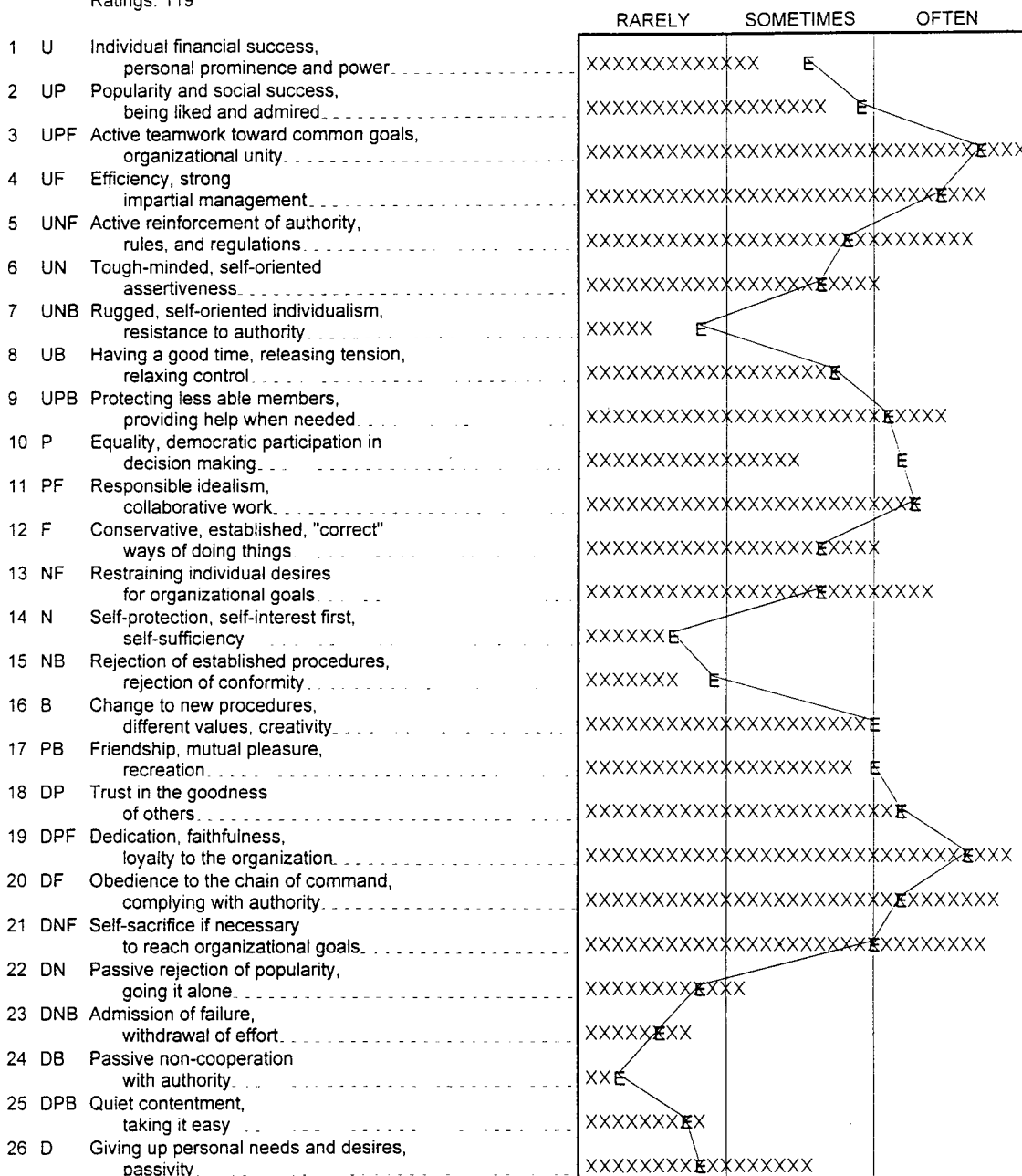


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from ROTC Post-test

Type: F Final Location: 1.9U 4.2P 10.3F
 Ratings: 119

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

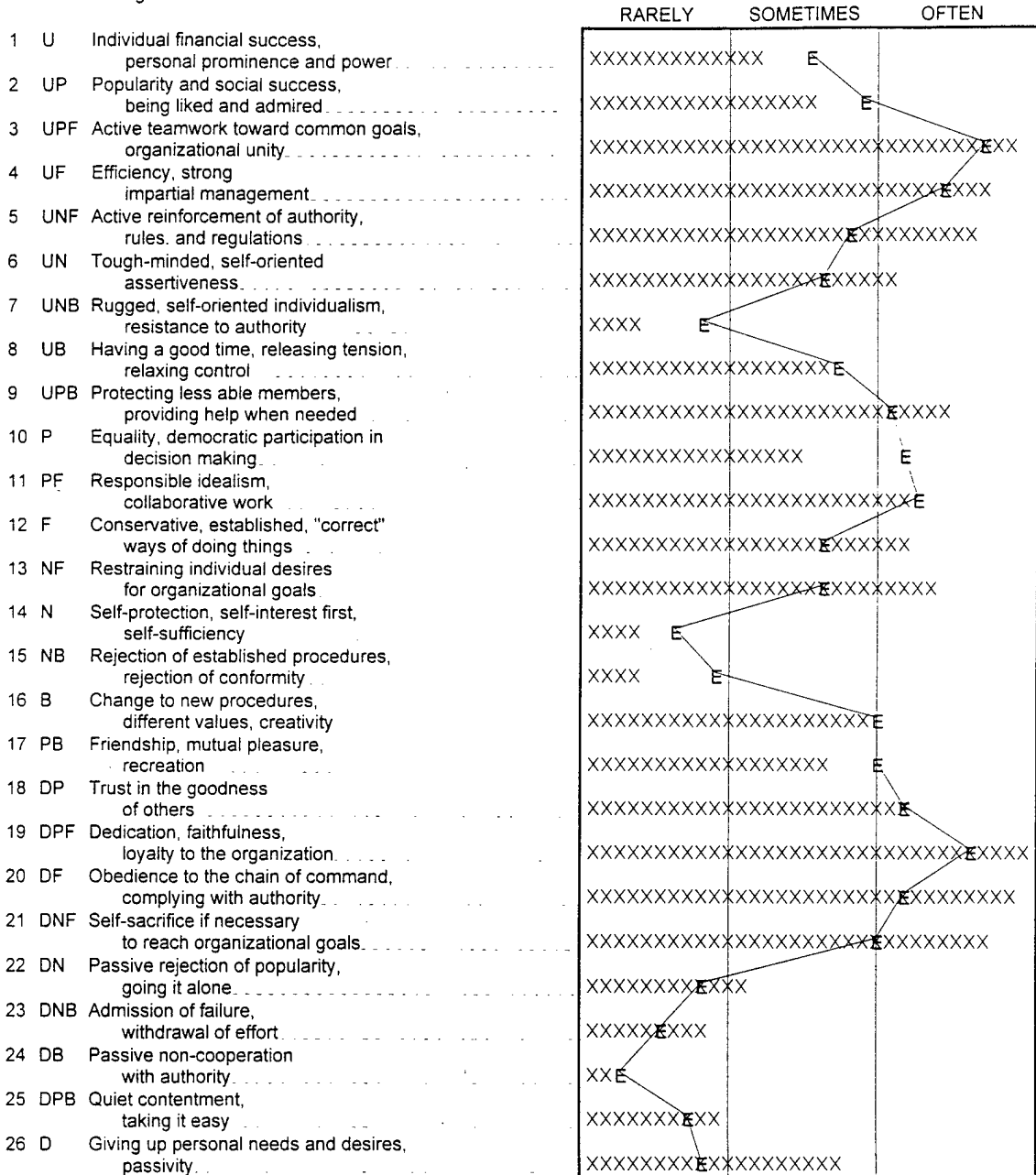


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from EOBC Pre-test

Type: F Final Location: 1.4U 4.4P 10.7F
 Ratings: 201

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

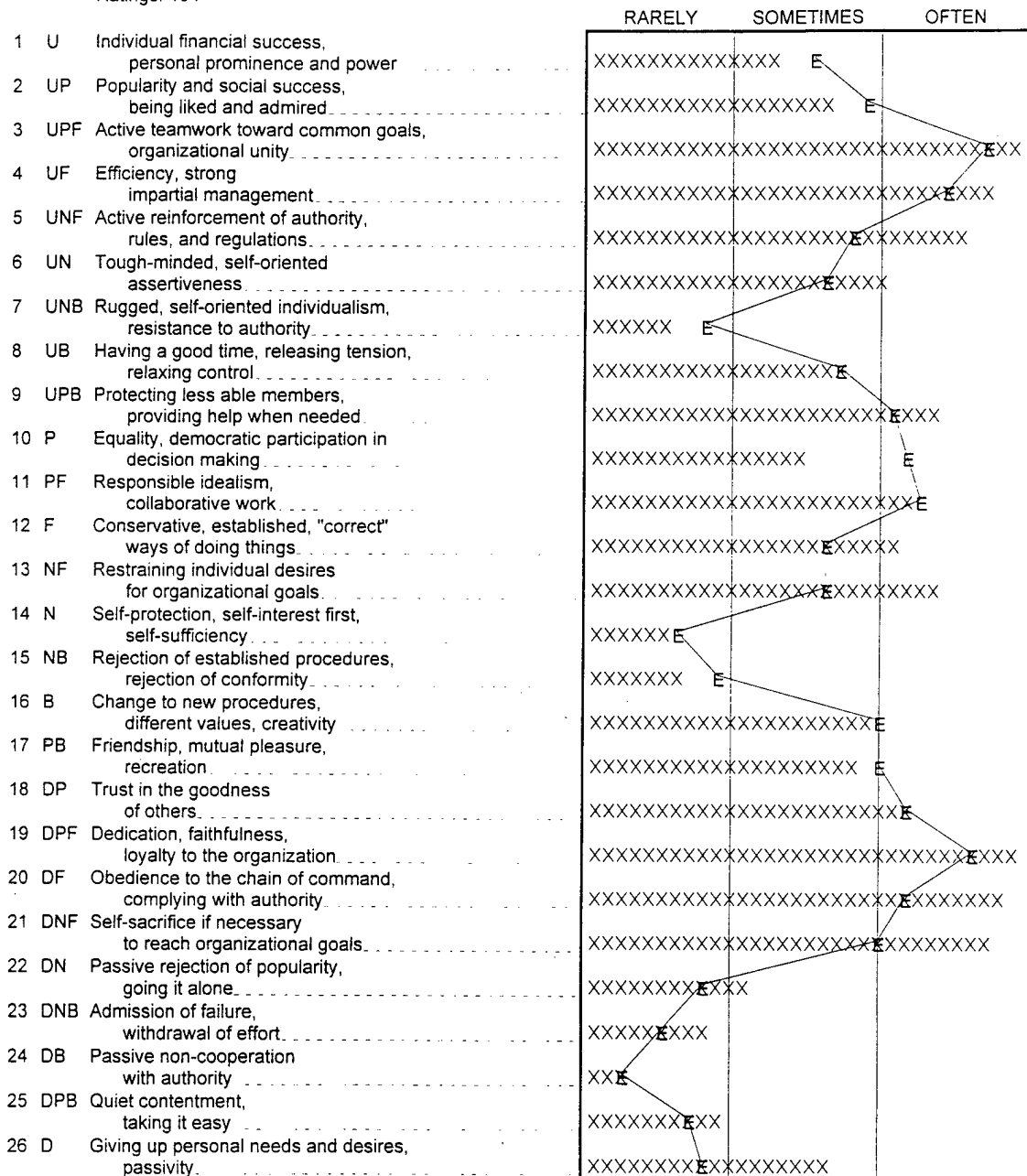


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from EOBC Post-test

Type: F Final Location: 1.7U 4.1P 10.0F
 Ratings: 194

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork



APPENDIX E

THIRD HYPOTHESIS

FIELD DIAGRAMS, SCATTERPLOTS, AND BARGRAPHS

Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from EOAC, EOBC Pre- and Post-test
Research by Ted Thomas
12/16/97

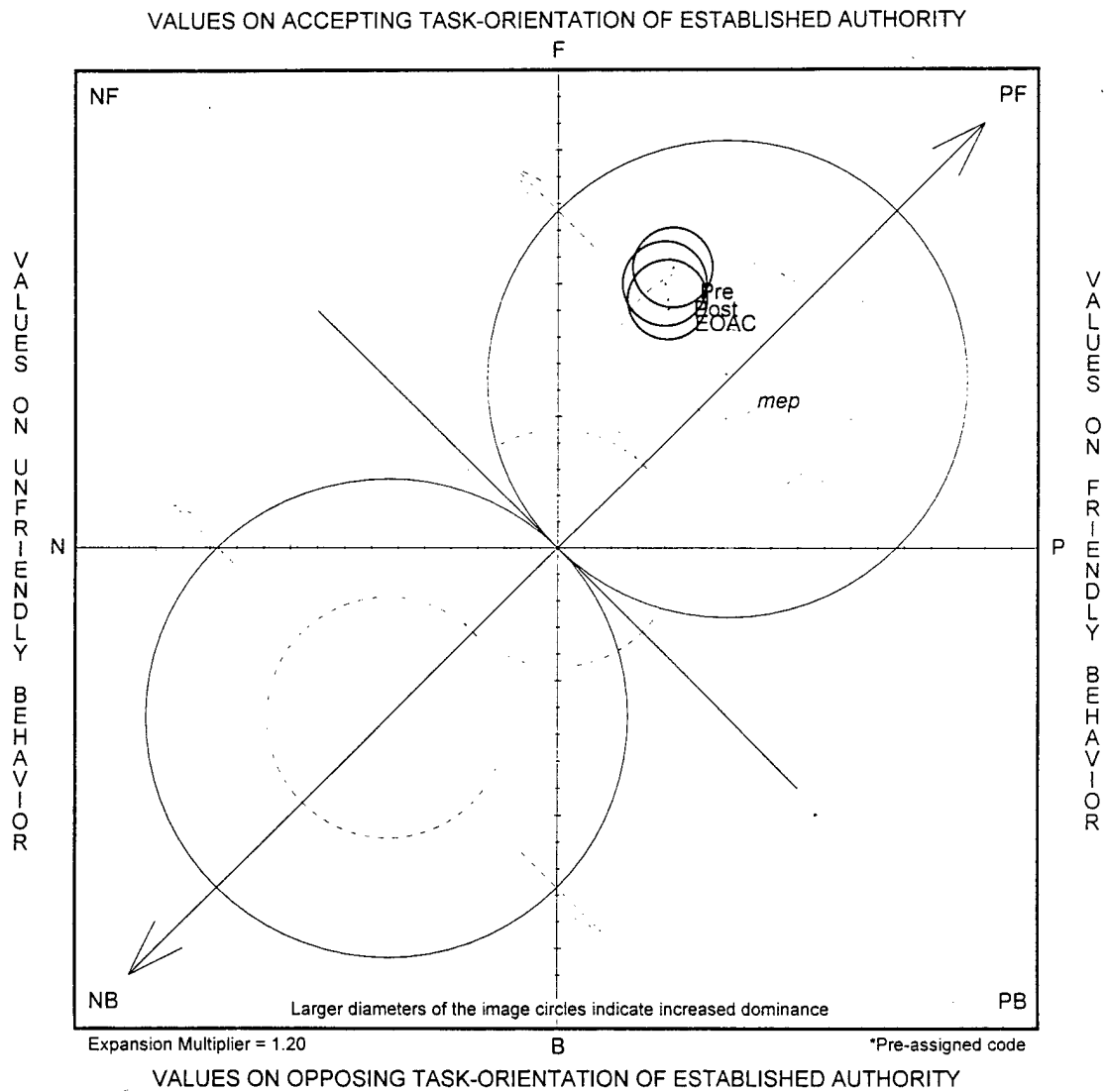
The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

	Code Name	Final Image Location					
Images of Concepts							
Images of Persons	Post	1.7	U	4.1	P	10.0	F
	EOAC	1.5	U	4.2	P	9.4	F
	Pre	1.4	U	4.4	P	10.7	F

*Pre-assigned code

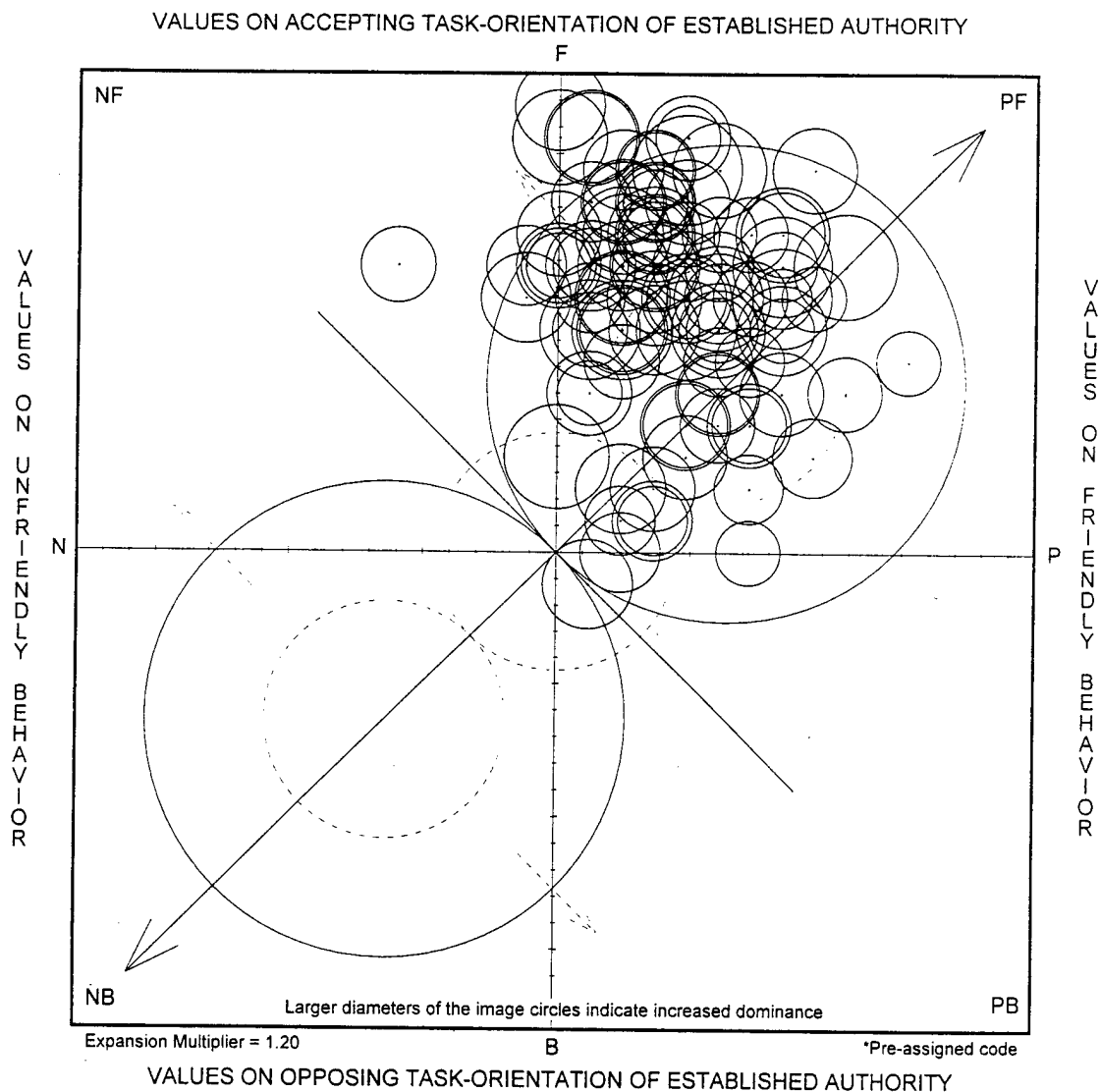
Group Average Field Diagram
Based on ratings made by the Group

Ratings on *EPL from EOAC, EOBC Pre- and Post-test
Research by Ted Thomas
12/16/97



Scatterplot Field Diagram of individual ratings made on: *EPL
Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from EOAC
Research by Ted Thomas
12/16/97

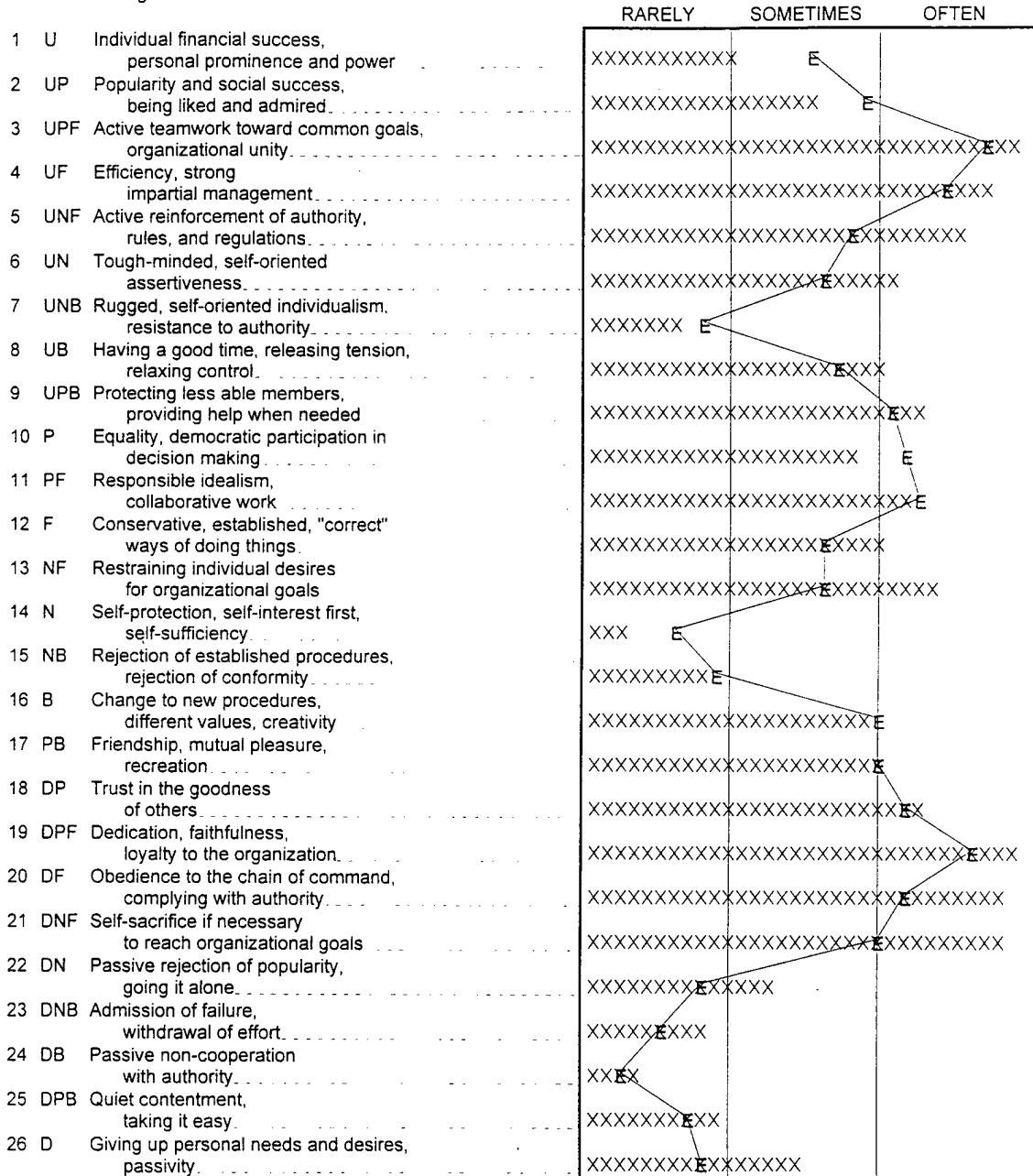


Bargraph of ratings made by the Group on: *EPL
 Rating question: In general, what kinds of values would be ideal for you to show in order to be most effective as a platoon leader?

Ratings from EOAC

Type: PF Final Location: 1.5U 4.2P 9.4F
 Ratings: 108

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork



APPENDIX F

FOURTH HYPOTHESIS

FIELD DIAGRAMS, SCATTERPLOTS, AND BARGRAPHS

Group Average Field Diagram
Based on ratings made by the Group

Ratings on MEL by Business or Military
Research by Ted Thomas
11/13/97

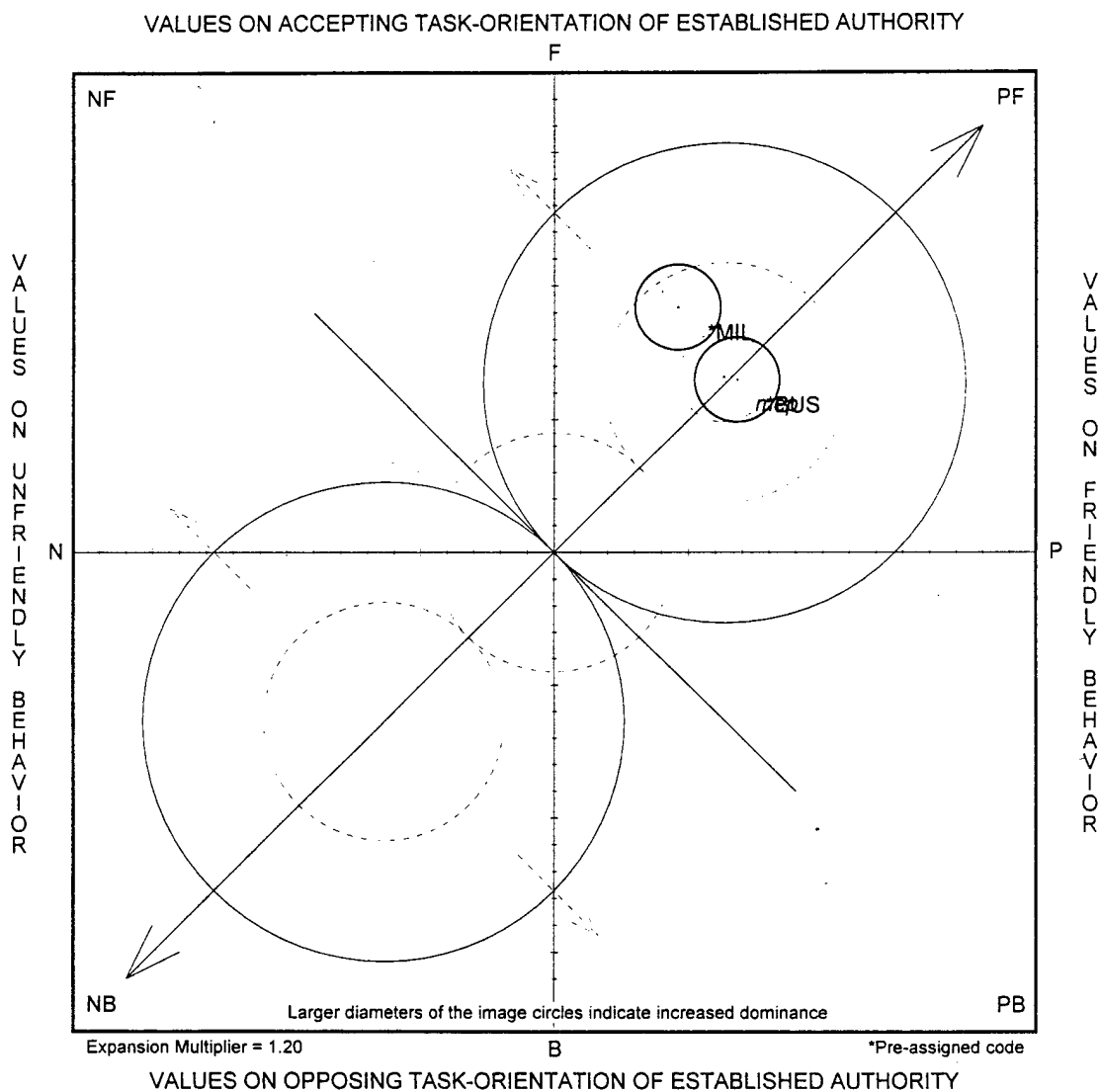
The following field diagram displays the average location for each *concept*, and/or *person*, based on the ratings received.

	Code Name	Final Image Location					
Images of Concepts							
Images of Persons	*BUS	2.5	U	6.8	P	6.5	F
	*MIL	1.6	U	4.7	P	9.2	F

*Pre-assigned code

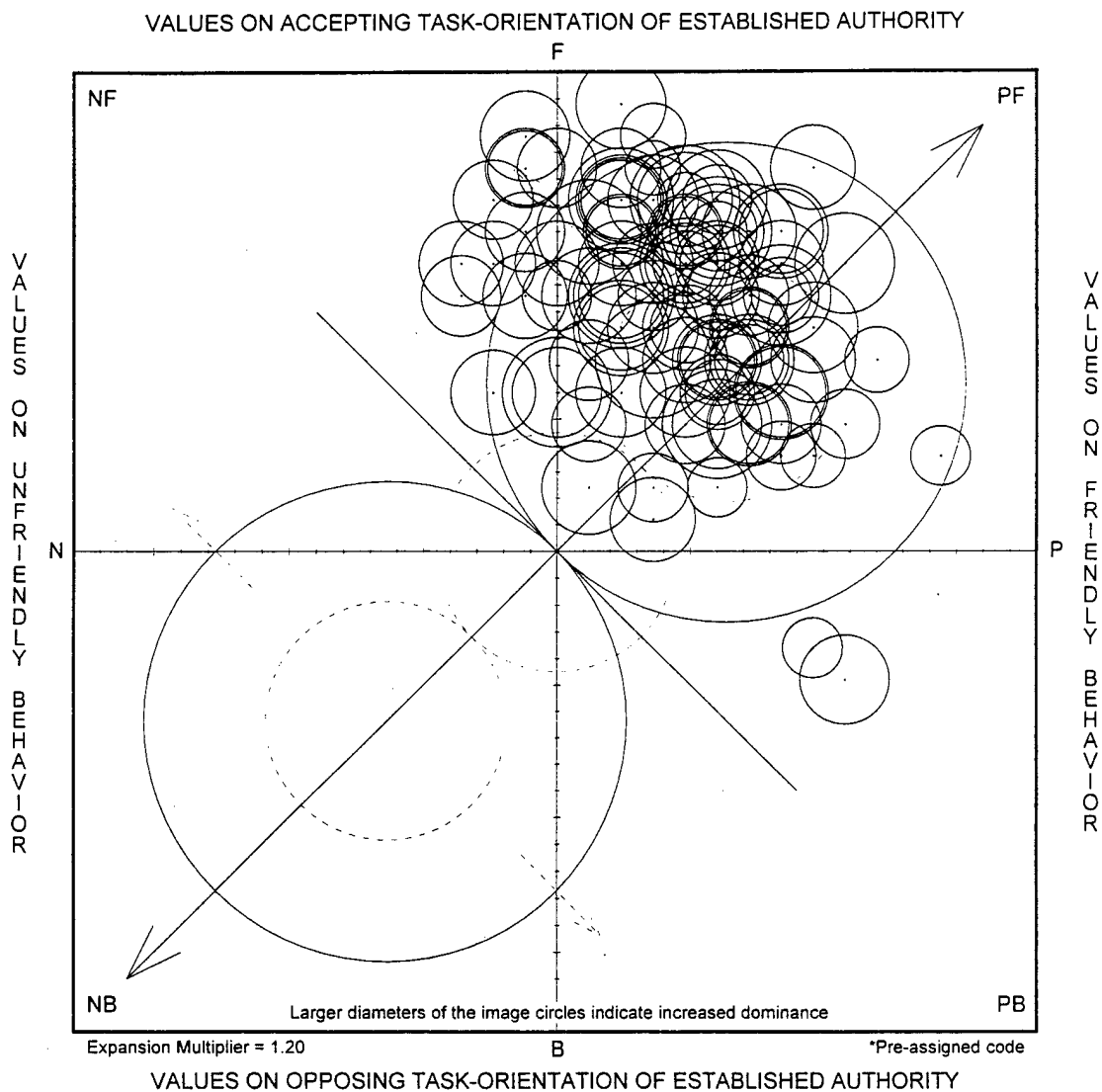
Group Average Field Diagram
Based on ratings made by the Group

Ratings on MEL by Business or Military
Research by Ted Thomas
11/13/97



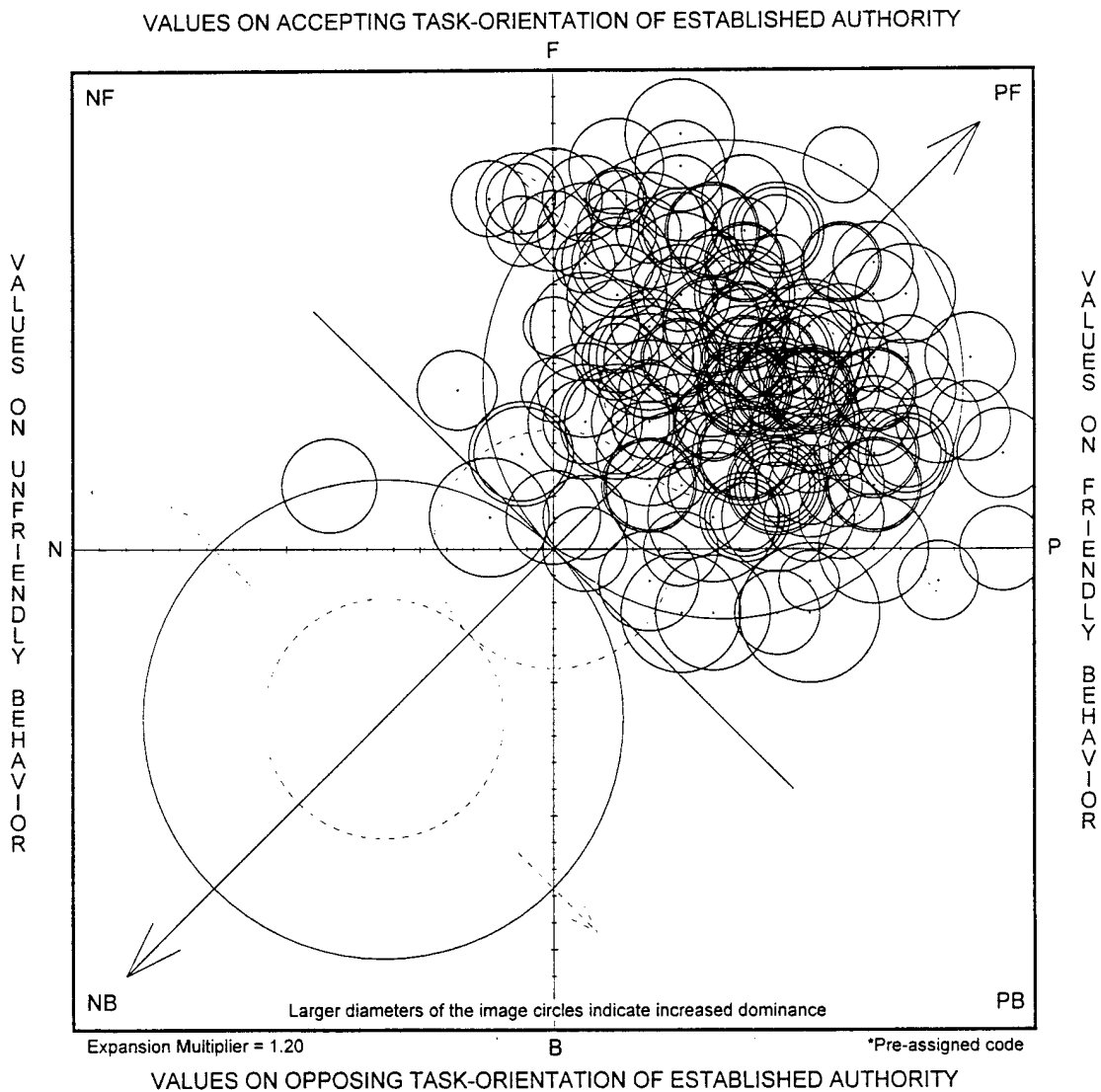
Scatterplot Field Diagram of individual ratings made on: *MIL
 Rating question: In general, what kinds of values does the *most effective leader* of a task-oriented group that you have actually known show in his or her behavior? [Military respondents]

Ratings on MEL by Business or Military
 Research by Ted Thomas
 11/13/97



Scatterplot Field Diagram of individual ratings made on: *BUS
Rating question: In general, what kinds of values does the *most effective leader* of a task-oriented group that you have actually known show in his or her behavior? [Business respondents]

Ratings on MEL by Business or Military
Research by Ted Thomas
11/13/97



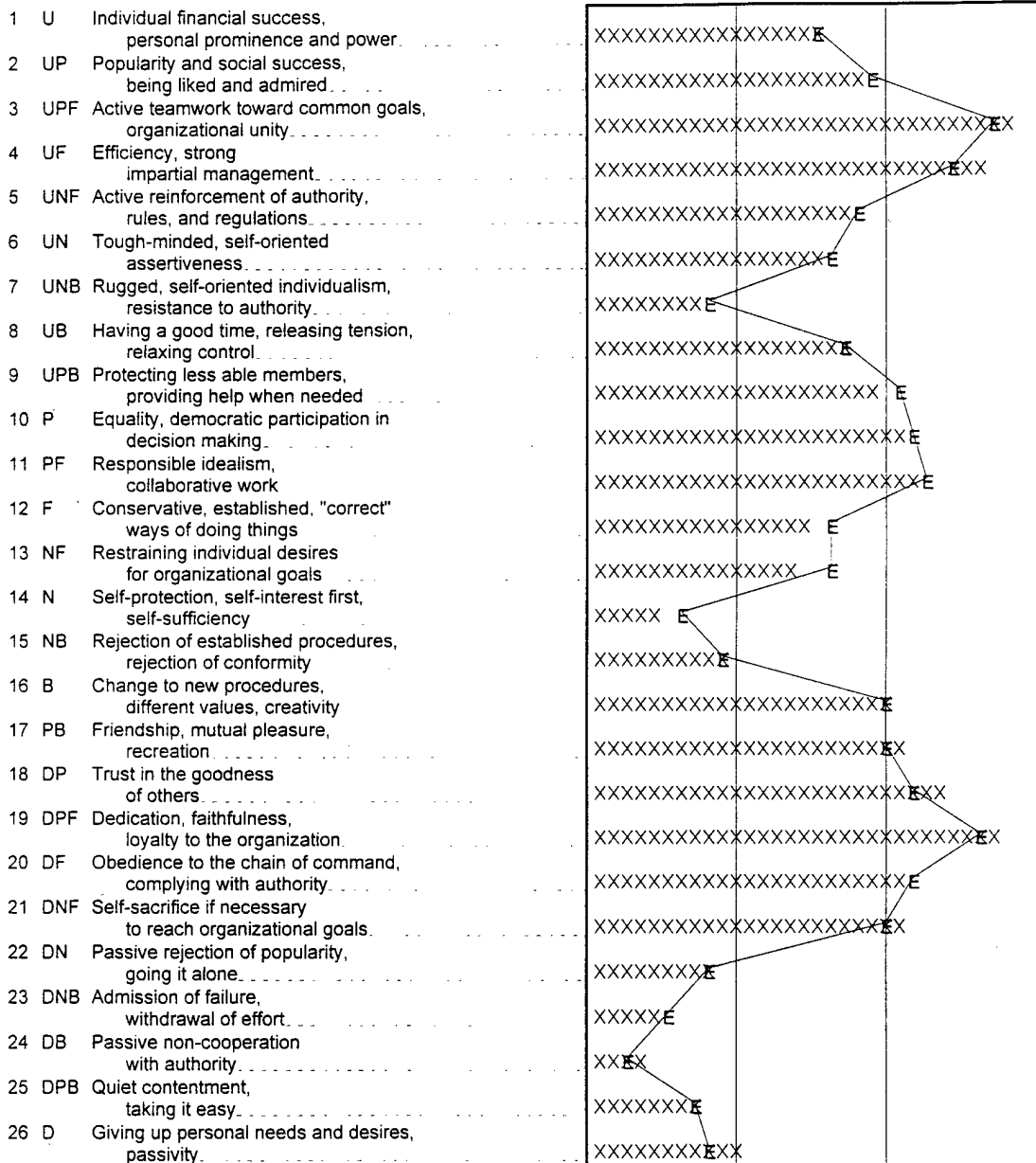
Bargraph of the average of all ratings made on: *BUS
 Rating question: In general, what kinds of values does the most effective leader of a task-oriented group that you have actually known show in his or her behavior? [Business respondents]

Ratings on MEL by Business or Military

Type: PF Final Location: 2.5U 6.8P 6.5F
 Ratings: 200

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

RARELY SOMETIMES OFTEN



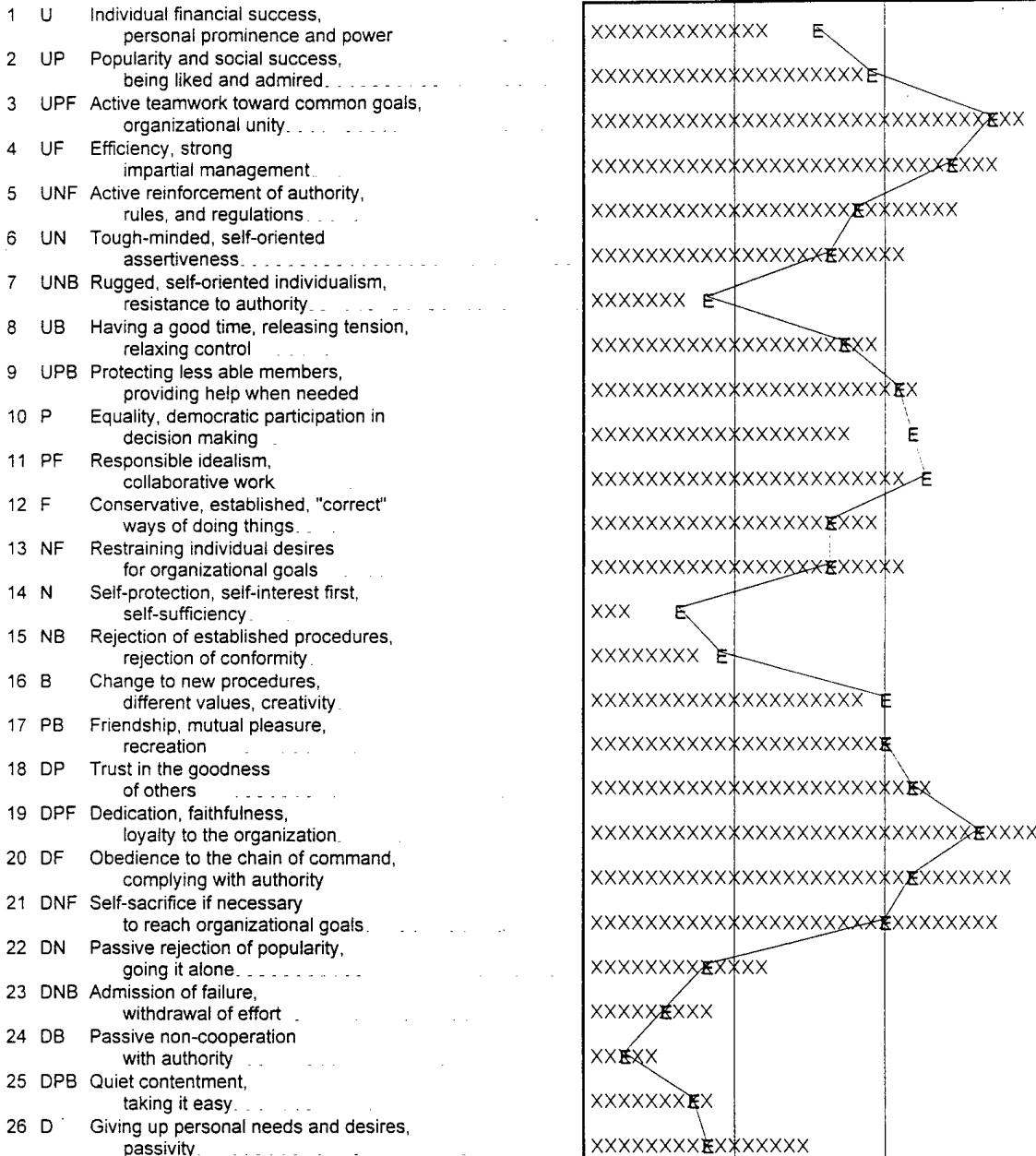
Bargraph of the average of all ratings made on: *MIL
 Rating question: In general, what kinds of values does the most effective leader of a
 task-oriented group that you have actually known show in his or her behavior? [Military
 respondents]

Ratings on MEL by Business or Military

Type: PF Final Location: 1.6U 4.7P 9.2F
 Ratings: 108

the bar of Xs = the average rating on each item
 E = the optimum location for most effective teamwork

RARELY SOMETIMES OFTEN



t-tests for Independent Samples

		Summary	Military vs. Business
1	U	Individual financial success, personal prominence and power .	Military low (.01)
2	UP	Popularity and social success, being liked and admired .	ns
3	UPF	Active teamwork toward common goals, organizational unity .	Military high (.01)
4	UF	Efficiency, strong impartial management .	ns
5	UNF	Active reinforcement of authority, rules, and regulations .	Military high (.01)
6	UN	Tough-minded, self-oriented assertiveness .	Military high (.01)
7	UNB	Rugged, self-oriented individualism, resistance to authority .	ns
8	UB	Having a good time, releasing tension, relaxing control	Military high (.05)
9	UPB	Protecting less able members, providing help when needed .	Military high (.01)
10	P	Equality, democratic participation in decision making	Military low (.01)
11	PF	Responsible idealism, collaborative work .	ns
12	F	Conservative, established, "correct" ways of doing things .	Military high (.01)
13	NF	Restraining individual desires for organizational goals .	Military high (.01)
14	N	Self-protection, self-interest first, self-sufficiency .	Military low (.05)
15	NB	Rejection of established procedures, rejection of conformity .	ns
16	B	Change to new procedures, different values, creativity .	ns
17	PB	Friendship, mutual pleasure, recreation	ns
18	DP	Trust in the goodness of others .	ns
19	DPF	Dedication, faithfulness, loyalty to the organization .	Military high (.01)
20	DF	Obedience to the chain of command, complying with authority .	Military high (.01)
21	DNF	Self-sacrifice if necessary to reach organizational goals	Military high (.01)
22	DN	Passive rejection of popularity, going it alone	Military high (.01)
23	DNB	Admission of failure, withdrawal of effort .	Military high (.01)
24	DB	Passive non-cooperation with authority .	ns
25	DPB	Quiet contentment, taking it easy	ns
26	D	Giving up personal needs and desires, passivity .	Military high (.01)

BIBLIOGRAPHY

- Bachman, W. (1988). Nice guys finish first: A SYMLOG analysis of U. S. Naval commands. In R. B. Polley, A. P. Hare, & P. J. Stone (eds.). *The SYMLOG practitioner*, 133-153. New York: Praeger.
- Bales, R. F. (1941). The concept "situation" as a sociological tool. Unpublished Master of Science dissertation, University of Oregon.
- Bales, R. F. (1970). *Personality and interpersonal behavior*. New York: Holt, Rinehart, and Winston.
- Bales, R. F. (1995). *Overview of the SYMLOG system: Measuring and changing behavior in groups*. San Diego: SYMLOG Consulting Group.
- Bales, R. F. & Cohen, S. P., with the assistance of S. A. Williamson. (1979). *SYMLOG: A system for the multiple level observation of groups*. New York: Free Press.
- Bales, R. F. & Couch, S. A. (1969). The value profile: A factor analytic study of value statements. *Sociological Inquiry*, 39, 1, 3-17.
- Bass, B. M. (1990). *Bass and Stogdill's Handbook of Leadership, 3rd ed.* New York: Free Press.
- Bennis, W. (1989). *On becoming a leader*. Reading: Addison-Wesley.
- Boyd, M. J. & Woodgerd, M. (1994). *Force XXI Operations*. Military Review, Vol. 74, Issue 11.
- Burke, M. J. & Day, R. R. (1986). A cumulative study of training. *Journal of Applied Psychology*, 71, 232-265.
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Clover, W. H. (1990). Transformational leaders: Team performance, leadership ratings, and firsthand impressions. In K.E. Clark & M. B. Clark (Eds.). *Measures of leadership*, (pp. 171-184). West Orange, NJ: Leadership Library of America, Inc.
- Clark, K. E. & Clark, M. B. (1990). *Measures of leadership*. West Orange, NJ: Leadership Library of America, Inc.
- Cribbin, J. J. (1981). *Leadership : Strategies for Organizational Effectiveness*. American Management Associations: NY.

- Department of the Army Pamphlet 350-58. (1994). *Leader development for America's Army*. Headquarters, Department of the Army.
- Engineer 2010. (1995). Pamphlet, U. S. Army Engineer School, Directorate of Combat Developments.
- Evans, M. G. (1970). The effects of supervisory behavior on the path-goal relationships. *Organizational Behavioral Human Performance*, 5, 277-298.
- Fiedler, F. E. (1967). *A theory of leadership effectiveness*. New York: McGraw-Hill.
- Fiedler, F. E. (1996). Research on leadership selection and training: One view of the future. *Administrative Science Quarterly*, 41, 241-250.
- Fiedler, F. E. & House, R. J. (1994). *Leadership theory and research: A report of progress*. In Cary L. Cooper and Ivan T. Robertson (eds.), *Key Reviews in Managerial Psychology*: 97-116. Chichester, U.K.: Wiley.
- FM 22-100. (1990). *Military Leadership*. Headquarters, Department of the Army.
- FM 22-100. (1997). *Military Leadership* (Draft). Headquarters, Department of the Army.
- FM 100-5. (1993). *Operations*. Headquarters, Department of the Army.
- Galton, F. (1869). *Hereditary genius: An inquiry into its laws and consequences*. London: Macmillan. (Paperback edition by Meridian Books, New York, 1962).
- Gill, C. F. (1997). FY98 Annual Training Guidance, Ft. Leonard Wood, MO.
- Goldstein, I. L., & Gessner, J. M. (1988). Training and development in work organization. In Cary L. Cooper and Ivan T. Robertson (Eds.), *International review of industrial and organizational psychology*, (pp. 43-72). New York: Wiley.
- Gordon, J. (1985). Games managers play. *Training*, July, 30-45.
- Hall, D. T. (1986). Dilemmas in linking succession planning to individual executive learning. *Human resource management*, 25(2), 235-265.
- Hare, S. (1997). *How instruments for organizational consulting relate to SYMLOG field theory: Hypothetical and heuristic mapping*. San Diego: SYMLOG Consulting Group.
- Hemphill, J. K. (1949). The leader and his group. *Education Research Bulletin*, 28, 225-229, 245-246.

- Hersey, P. & Blanchard, K. H. (1993). *Management of organizational behavior*, 6th edition. Englewood Cliffs, NJ: Prentice Hall.
- Hogan, D. B. (1983). Personality assessment and managerial performance: A comparison of the behavioral event interview, SYMLOG general behavior description form, and other assessment measures in predicting job outcome. Unpublished Doctoral dissertation, Harvard University.
- Hollander, E. P. (1964). *Leaders, groups, and influence*. New York: Oxford University Press.
- Hollander, E. P. (1978). *Leadership dynamics: A practical guide to effective relationships*. New York: Free Press.
- Hollander, E. P. & Julian, J. W. (1969). A further look at leader legitimacy, influence, and innovation. In L. Berkowitz (Ed.), *Group processes* (pp. 153-165). New York: Academic Press.
- Hollander, E. P. & Offerman, L. R. (1993). Power and leadership in organizations. In W. E. Rosenbach & R. L. Taylor (Eds.), *Contemporary issues in leadership*, 3rd ed., (pp. 62-86). Boulder: Westview Press.
- Homans, G. C. (1961). *Social behavior: Its elementary forms*. New York: Harcourt, Brace & World.
- House, R. J. (1971). A path-goal theory of leader effectiveness. *Administrative Science Quarterly*, 16, 321-338.
- House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge* (pp. 189-207). Carbondale: Southern Illinois University Press.
- Jesuino, J. C. (1988). The use of SYMLOG in the study of organizational socialization. In R. B. Polley, A. P. Hare, & P. J. Stone (eds.). *The SYMLOG practitioner*, 155-172. New York: Praeger.
- Katzenbach, J. R. & Smith, D. K. (1994). *The Wisdom of Teams*. Harper Business : NY.
- Kelleher, D., Finestone, P., & Lowy, A. (1986). Managerial learning: First notes from an unstudied frontier. *Group and organization studies*, 11(3), 169-202.
- Kouzes, J. M. & Posner, B. Z. (1995). *The leadership challenge*. San Francisco: Josey-Bass.
- Larson, C. E. & LaFasto, F. M. J. (1989). *Teamwork*. Sage Publications: Newbury Park.

- Leadership and Change . . . In a Values Based Army.* (1997). Headquarters, Department of the Army.
- Leedy, P. D. (1993). *Practical Research Planning and Design, 5th ed.* New York: MacMillan Publishing Company.
- Lewis, C. T. (1995). The grammar of leadership education. *Journal of Leadership Studies, 2*, 1-12.
- Lindsey, E., Homes, V., & McCall, M. W., Jr. (1987). *Key events in executive lives* (Tech. Rep. No. 32). Greensboro, NC: Center for Creative Leadership.
- Luthans, F. (1995). *Organizational behavior.* New York: McGraw-Hill.
- Malone, D. M. (1983). *Small Unit Leadership.* Presidio Press: Novato, CA.
- Manz, C. C. & Sims, H. P., Jr. (1993). *Business Without Bosses.* John Wiley & Sons, NY.
- McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). The lessons of experience. Lexington, MA: Lexington Books.
- McCauley, C. D. (1986). Developmental experiences in managerial work: A literature review (Tech. Rep. No. 26). Greensboro, NC: Center for Creative Leadership.
- McCoy, T. M. & Clover, W. H. (1988). Value formation at the Air Force Academy. In C. C. Moskos & F. R. Woods (Eds.). *The military: More than just a job?* (pp. 129-149). Washington, D. C.: Pergamon_Bassey's International Defense.
- Owens, J. (1981). *A reappraisal of leadership theory and training.* Personnel Administrator, 26.
- Porter, L. & McKibben, L. M. (1988). *Management and development: Drift or thrust into the 21st century?* New York: McGraw-Hill.
- Rosenbach W. E. & Taylor, R. L. (1993). Understanding leadership. In W. E. Rosenbach & R. L. Taylor (Eds.) *Contemporary issues in leadership, 3rd ed.*, (pp. 1-5). Boulder: Westview Press.
- Ruderman, M. N., Ohlott, P. J., & McCauley, C. D. (1990). Assessing opportunities for leadership development. In K. E. Clark and M. B. Clark (Eds.), *Measures of leadership.* West Orange, NJ: Leadership Library of America, Inc.

- Saari, L., T. R. Johnson, S. D. McLaughlin, and D. M. Zimmerly. (1988). A survey of management education practices in the U. S. companies. *Personnel Psychology*, 41, 731-743.
- Sullivan, G. R. & Harper, M. V. (1996). *Hope is not a method*. New York: Random House.
- TRADOC Pamphlet 525-200-1. (1994). *Battle Command*. Department of the Army. Ft Monroe: Va.
- Velsor, E. V. & Leslie, J. B. (1991). Feedback to managers volume II: A review and comparison of sixteen multi-rater feedback instruments. Greensboro, NC: Center for Creative Leadership, 255-272.
- Vroom, V. H., & Yetten, P. W. (1973). *Leadership and decision-making*. Pittsburgh, PA: University of Pittsburgh Press.
- Weber, M. (1946). The sociology of charismatic authority. In H. H. Gerth & C. W. Mills (Eds. And Trans.), *From Max Weber: Essays in sociology* (pp. 245-252). New York: Oxford University Press. (Original work published 1921)
- West, T. D. Jr. & Sullivan, G. R. (1995). A statement on the posture of the United States Army fiscal year 1996. First Session, 104th Congress.
- Yammarino, F. J. & Bass, B. M. (1990). Long-term forecasting of transformational leadership and its effects among Naval officers: Some preliminary findings. In K. E. Clark & M. B. Clark (Eds.). *Measures of leadership*. West Orange, NJ: Leadership Library of America, Inc.

VITA

Ted Alan Thomas was born on 13 August 1956, in New Orleans, Louisiana. After receiving his High School degree from Jesuit High School of New Orleans, Louisiana, he attended the United States Military Academy at West Point, New York, where he received a Bachelor of Science degree, graduating in the top five percent of his class in June 1978.

Following his graduation, LTC Thomas served in the Army Corps of Engineers as a Platoon Leader and Company Executive Officer in the 15th Engineer Battalion and as the Support Platoon Leader for 2nd of the 75th Ranger Battalion at Fort Lewis, Washington. In his next assignment, he served as a staff officer and company commander in Fort Bragg, North Carolina. During that time, he took his company into combat on the island of Grenada.

Returning to graduate studies at the University of Illinois in Champaign-Urbana, LTC Thomas earned a Master's of Science Degree in Civil Engineering, graduating magna cum laude. After graduation, LTC Thomas taught for three years in the Department of Civil and Mechanical Engineering at the United States Military Academy in West Point, New York. He has also served as Assistant Area Engineer for the United States Army Corps of Engineers in the Cairo, Egypt, office, as a Battalion Operations Officer and Executive Officer in Fort Bragg, North Carolina, and as a Readiness Group Deputy Commander and Commander, assisting Reserve Component units in the states of Missouri and Arkansas.

His military schooling includes the Engineer Officer Basic Course, the Infantry Officer Advance Course, Airborne, Ranger, Jungle, and Jumpmaster Schools, the Junior Officer Maintenance Course, Contracting Fundamentals Course, and the Command and General Staff College.

Currently, LTC Thomas is serving as the Battalion Commander of the 554th Engineer Battalion at Fort Leonard Wood, Missouri. He is responsible for all engineer officers attending the United States Army Engineer Center schools and is directly responsible for the program of instruction for all entry level officers coming into the Army Corps of Engineers.