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Myers-Briggs Type Indicators and Kirton Adaption-Innovation Inventory Correlations

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The focus of this paper is to review the raw MBTI and KAI data of the ICAF Class of 1994 for statistical correlations and discuss the implications of the findings.

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INTRODUCTION

ENTJ...ENTJ... Those letters represent the results of my Myers-Briggs Type Indicator (MBTI) test. My first reaction was "Well, I'm a Libra too." During the first few months at the Industrial College of the Armed Forces (ICAF), students participate in a variety of tests which identify certain traits of personality. The purpose of the testing is for the individual to establish a baseline on how he perceives things and how others perceive him. It was an eye-opener for me.

The results of my MBTI test are below:

PREFERENCE STRENGTHS

	<u>POINTS</u>	<u>POINTS</u>	
Extraversion	13	12	Introversion
Sensing	1	22	iNtuition
Thinking	28	0	Feeling
Judging	20	7	Perception

Was I surprised at my scores? At first, I wasn't sure whether I had passed or failed. These were unlike any other "tests" I had taken. I didn't fully understand the implications until further explanation and study. Upon realizing the significance of the results, I was generally pleased and somewhat perplexed, and concerned. I understood how I could be an EN_J. I would have categorized myself as such. But I didn't understand the zero on feeling.

Zero on feeling! Zero on feeling? I was a caring person. I took feelings into consideration when making decisions, or did I? I brought this matter to my sounding board, my husband. His reaction was immediate. He said, "I've been telling you that for years, you didn't have to take a test." I was shocked. Needless to say, I wanted a second opinion. Unfortunately, my boss gave the same diagnosis. I couldn't believe it. How could I miss this in myself? And further, could I change it?

I compared my MBTI test along with another test we took which measures creativity. This is known as the Kirton Adaption-Innovation (KAI) Inventory. The purpose is to measure a person's preferred style of problem solving. My score was 105, nine points over the midpoint of 96. The indication was that I was a moderate innovator. I was intrigued. Do these tests have a real application and what are their implications? Or, as Otto Kroeger has jokingly suggested, are they just another polite way of name calling?

The focus of this paper is to review the raw MBTI and KAI data of the ICAF Class of 1994 for statistical correlations and discuss the implications of the findings. I must note that I am truly indebted to LTC Dave Thomas, ICAF Class of 1994, for his skill and expertise in deriving the correlations. His diligent effort allowed me to focus on the results and not the time-consuming task of entering and correcting data.

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BACKGROUND

MBTI - AN ODYSSEY INTO THE FAMILIAR UNKNOWN.

I call the MBTI the "familiar unknown" because there are results which we consciously are familiar, but some attributes we are unable or not willing to admit. Contemplating unappealing aspects of our personalities is not something we like to do. However, understanding others' perceptions of us can help to modify behavioral patterns towards success. Robert Burns said it most adeptly in his phrase "O wad some Pow'r the giftie gie us, To see oursels as others see us!"

The MBTI is one of the most widely used psychological tests administered today. Among the non-psychiatric population, no other instrument of personality assessment is more utilized. It enjoys a tremendous amount of success. The MBTI is employed as a tool by major corporations, vocational and marriage counselors, and as a resource for such purposes as educational placement, personal growth retreats, and the matching of college roommates.¹ The Educational Testing Service began to distribute the MBTI in the 1960's and studies and research began in earnest on its use and validity. It has been translated into Japanese, Spanish, French, German, and many other languages. More than two million people took the MBTI in 1990.² How did this all begin? What is its basis?

Carl Jung, a Swiss born psychiatrist set the foundation for "typewatching" or the classification of behavior during the 1920s. He suggested that human behavior was not random, but in fact predictable, and therefore classifiable.³ He referred to this as

the typology of the individual. Jung said, differences in behavior which were so obvious to the naked eye, were the result of preferences.⁴ These preferences are formed early in life and provide the key attributes for our personalities. The behavior patterns which resulted were due to our preferences. Jung wrote extensively on function types: Sensing, Intuition, Thinking, and Feeling.⁵ The Sensing type is hard driving and results oriented.⁶ The Intuitor is a conceptualizer and sees things from a predominant perspective of innovation, creativity, theory, and imagination.⁷ The Thinking type is very analytical, objective, systematic and methodical.⁸ The Feeling type appreciates the values of feeling and human emotions.⁹

Jung also focused on the attitude types of Extraversion and Introversion. These were radical theories for the 1920s, and Jung's theories were not well received by his colleagues. The key reason was because they were not founded on psychological illness, abnormalities, or disproportionate drives, popular diagnoses during his time. Jung believed the preferences became the center of our attractions and aversions to people, tasks, and events throughout our lives.¹⁰

Jung's theories were advanced through the work of a mother-daughter team, Katharine Briggs and Isabel Briggs-Myers. Katharine Briggs began independent study of personalities and behavioral patterns at the turn of the century. She was initially unfamiliar with Jung's work, but eventually adopted and dedicated her research full time to continuation of his concepts. Her daughter Isabel is credited with bringing Jung's typology to life.¹¹ Her development and establishment of a procedure for determining psychological type in individuals opened the theory of types to research.¹²

The Myers-Briggs structured personality by the four preferences listed below:

<u>Preference for</u>	<u>Affects a person's choice</u> ¹³
E-I Extraversion or Introversion	To focus the dominant (favorite) process on the outer world or on the world of ideas
S-I Sensing or Intuition	To use one kind of perception instead of the other when either could be used
T-F Thinking or Feeling	To use one kind of judgment instead of the other when either could be used
J-P Judgment or Perceptive	To use the judging or the perceptive attitude for dealing with the outer world

Isabel Myers further refined these preferences into sixteen different personality types. Her goal was to create an easily administered uncomplicated questionnaire by which ordinary people could quickly determine their psychological personality type.¹⁴ The instrument is known as the Myers-Briggs Type Indicator (MBTI).¹⁵ The sixteen types and corresponding ICAF Class of 1994 data are illustrated in TABLE I. Mrs. Myers was a tireless crusader for this instrument. Since she was not psychologist with the appropriate credentials, it was an uphill battle. Gradually, and through sheer determination, Isabel gained attention and finally the respect of those interested in psychometrics.¹⁶ A breakthrough came in the 1960's when the Educational Testing Service began to distribute the MBTI and serious research began at several universities.¹⁷

The validity of the MBTI continues to be researched and in 1991, the National

Research Council (NRC), a subgroup of the National Academy of Sciences, included the MBTI in an examination of several training techniques alleged to have exceptional impact on human performance.¹⁸ This examination was conducted by fourteen psychologists and evaluated the use of five different instruments in four advanced training programs for the U.S. Army.¹⁹

Four conclusions were made about the MBTI:²⁰

- ☐ The "types" were memorable. Eighty-seven percent of the participants remembered their MBTI style designation and their meaning as opposed to twenty-six percent recalling details from the next best remembered test.
- ☐ MBTI results were considered "true" and valuable. Eighty-four percent of the Army officers said the MBTI confirmed what they already knew about themselves and what their peers/supervisors stated about them.
- ☐ Eighty percent indicated that MBTI had either "very much" or "some" impact on their behavior. Seventy-four percent said the MBTI caused them to change the way they related to others, although the specifics of the type of behavior change was not provided.
- ☐ Finally, respondents felt that the MBTI was the highlight of the training. Sixty-one percent of the Army participants rated the MBTI as the most powerful element. Twenty-six percent also said it was the most uncomfortable. Additionally, sixty-one percent said they would change how they behaved based on their MBTI results, but did not say how.

Although the four findings were positive, the overall report from the NRC was somewhat guarded. There were three concerns regarding the MBTI:²¹

- ☐ Reliability
- ☐ Validity
- ☐ Effectiveness

Reliability of a test instrument is based upon the stability of the results. The NRC cites a review of eleven studies of MBTI test-retest outcomes that showed that type stability ranged from twenty-four percent to sixty-one percent, meaning that as few as twenty-four percent but not more than sixty-one percent, were assigned the same type when taken a second time.²² A change in at least one of the four categories occurred for twenty-seven percent to forty-four percent of test takers. The median of test takers changing on at least one factor was thirty-seven percent.

Validity of a test instrument depends upon whether it measures anything "real".²³ Three touchstones are identified for the MBTI's validity:²⁴

- ☐ Does the instrument give the same readings that skilled Jungian psychologists/therapists give?
- ☐ Does the instrument agree with other instruments that measure similar attributes?
- ☐ Do the instrument's results agree with the "self-typing" of people knowledgeable about MBTI or Jungian personality theory?

How does the MBTI measure against these questions? According to the NRC, "so-so". In general, the Introversion/Extraversion scale of MBTI receives high marks from researchers on all three major tests of validity. However, Sensing-Intuition and Thinking-Feeling scales show generally weak validity.²⁵ This has since been refuted by a book titled Portraits of a Type by Harrison Goth and Avril Thorne. The contents review five decades of research on MBTI types and makes a more positive assessment about their validity than the NRC. However, this book was published after the research for the NRC report was completed.

Effectiveness identifies the usefulness of the MBTI as a tool in communications, team building, and other training requirements. The current feeling is that the information on MBTI applications in training is inconsistent, incomplete, and flawed.²⁶ However, there is a study on-going at North Carolina State between the psychology department and the chemical engineering department looking at type and teaching success.²⁷ The results of this study may cast a different light on MBTI and training.

Although there are conflicting reports on the validity of the MBTI, apparently it still is a valuable tool for those who buy into it. It acts as an important tool for individuals to view perspectives of their behavior, internally and externally.

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KAI-CONTINUED RELEVATIONS

The second psychometric instrument which is this paper discusses is the Kirton Adaption-Innovation (KAI) Inventory. This tool test was developed by Dr. Michael J. Kirton to measure people's characteristic preferred style of creativity and problem solving.²⁸ In short, it attempts to measure the methodology an individual uses to bring about change. The KAI consists of a thirty item inventory, which has a range of scores of thirty two to one hundred sixty (32-160). The observable range is between forty five to one hundred forty five (45-145). The results have a midpoint of ninety-six (96) with a mean of ninety-five (95). Two-thirds of responses range between seventy-eight to one hundred fourteen (78-114). What does this all mean?

The KAI indicates whether one has a preference as an adaptor or innovator. The mid point of the scale is 96. Those with scores higher are considered innovators. Lower scores indicate one is an adaptor.

Kirton's definition of an innovator is a person who is "less tolerant of structure (guidelines, rules) and less respectful of consensus."²⁹ An innovator will break rules and paradigms to produce a new way of doing things.

An adaptor has more respect for rules and structure. He prefers to solve problems in a defined environment, working to do things "better" as opposed to breaking the paradigms.

While the adaptor thrives on structure and has a penchant for order, predictability and repeatability, the innovator seeks newness and experimentation, fails to see structure or credits structural consistency as contributing to the problem.³⁰

Kirton is careful to point out that this scale does not mean adaptors are not creative. They can be equally so with innovators, but the way they solve problems is different.³¹ He also notes that people with KAI scores of more than ten points apart will notice a difference in problem solving methodology. People with KAI scores more than twenty points apart may have difficulty understanding each other's point of view.³²

Innovators and adaptors can create anxiety for each other, and the further the reported preference favors one or the other, the more potential for friction.³³

There is a wide variety of studies on the validity of KAI. These range from testing hypotheses relating consumers' innovative food purchasing habits to examination of entrepreneurs' problem-solving styles. Most have validated the KAI's

accuracy and its assumptions on adaptive-innovation cognitive problem solving.³⁴

*

STATISTICAL DATA

The next few sections will discuss the general statistical and continuous score results of the raw data for both MBTI and KAI tests for the ICAF Class of 1994. First will be the general statistics, to give an overall view of the class and some observations. Secondly, will be a discussion of the continuous scores and the inferences derived from them. Finally, implications of these inferences and a general recommendation.

GENERAL INFORMATION - MBTI AND KAI

The overall MBTI and KAI results for the ICAF Class of 1994 are synopsized into the below tables and figures. Table I provides an MBTI picture of the class. The MBTI sample consists of 227 participants from the ICAF Class of 1994. Table II compares the results to the general population.³⁵

Figures 1 through 6 depict the general statistics for the MBTI results.

The breakouts of the KAI data are in Figures 7 through 9. These diagrams illustrate by service, males and females whose score exceeded 96 on the KAI.

*

TABLE I

INDUSTRIAL COLLEGE OF THE ARMED FORCES 1993-1994

(n = 227)

	n	%	ISTJ	ISFJ	INFJ	INTJ
I	121	51%	58	6	3	19
E	106	49%	26%	3%	1.5%	8%
			ISTP	ISFP	INFP	INTP
S	149	66.5%	19	1	3	12
N	78	33.5%	8%	.5%	1.5%	5%
			ESTP	ESFP	ENFP	ENTP
T	204	88.5%	7	1	3	17
F	23	11.5%	3.5%	.5%	1.5%	7%
			ESTJ	ESFJ	ENFJ	ENTJ
J	164	72.5%	55	2	4	17
P	63	27.5%	24%	1%	2%	7%

TABLE II

	<u>GENERAL POPULATION</u>	<u>ICAF CLASS OF '94</u>
Extraverts	75%	49%
Introverts	25%	51%
Sensing	75%	67%
Intuitive	25%	35%
Thinking	50%	98%
Feeling	50%	12%
Judging	50%	73%
Perception	50%	28%

TOTAL POPULATION MBTI - SERVICES

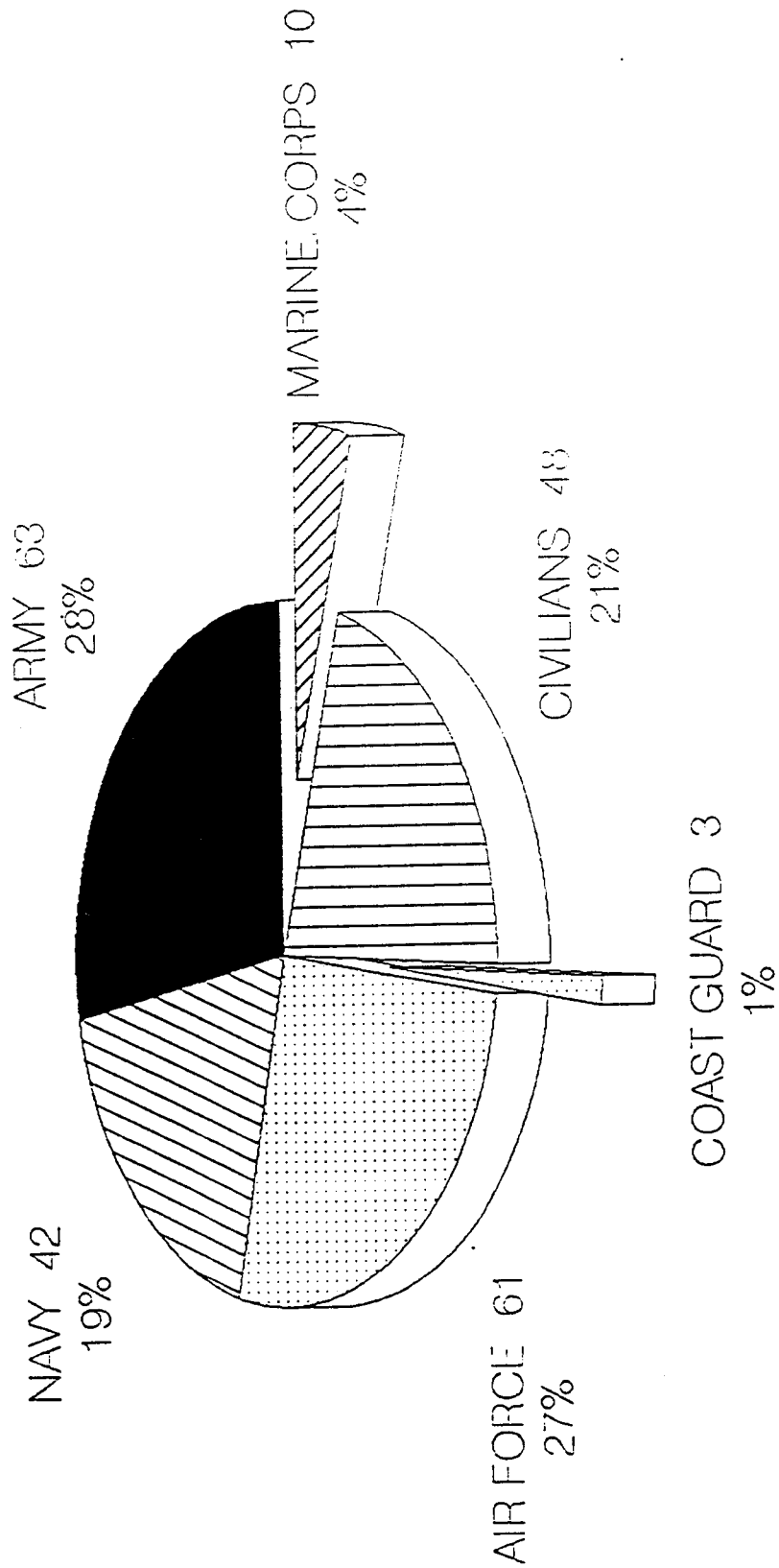
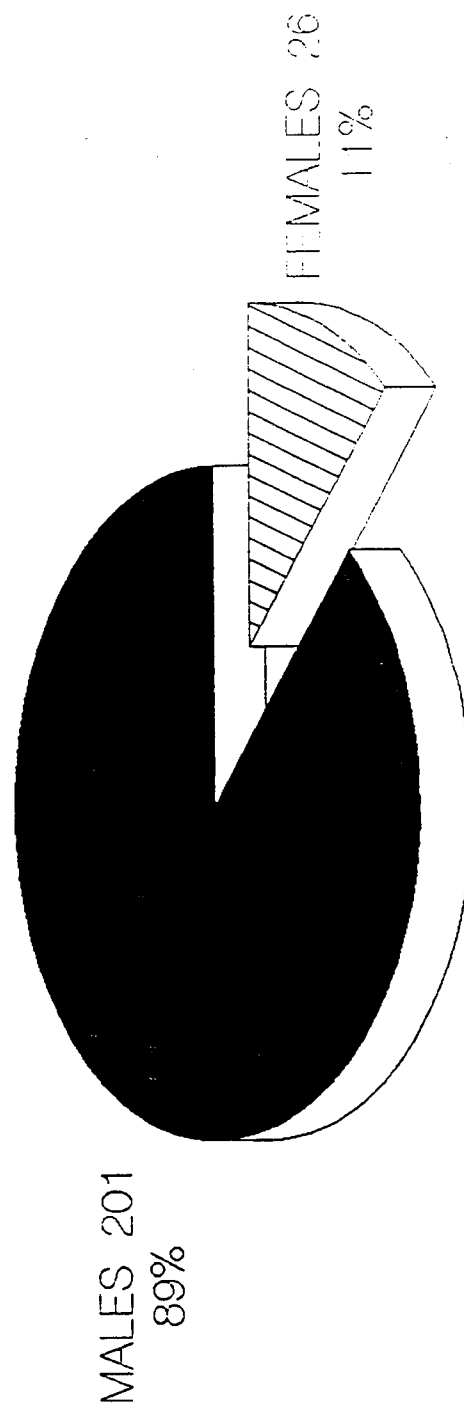


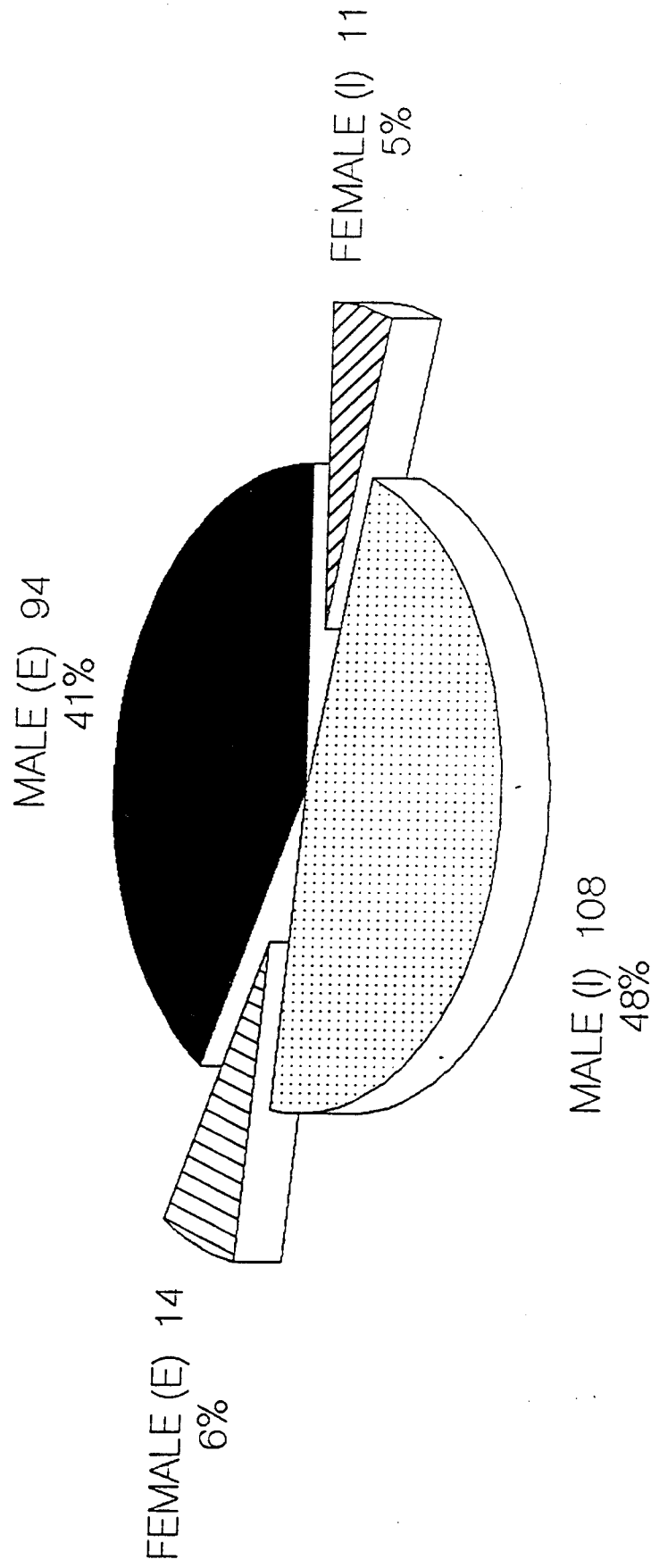
FIGURE 1 (n = 227)

TOTAL POPULATION

MBTI AND KAI ICAF CLASS OF 1994



MBTI EXTRAVERSION/INTROVERSION



15

FIGURE 3 (n=227)

MBTI SENSING/INTUITING

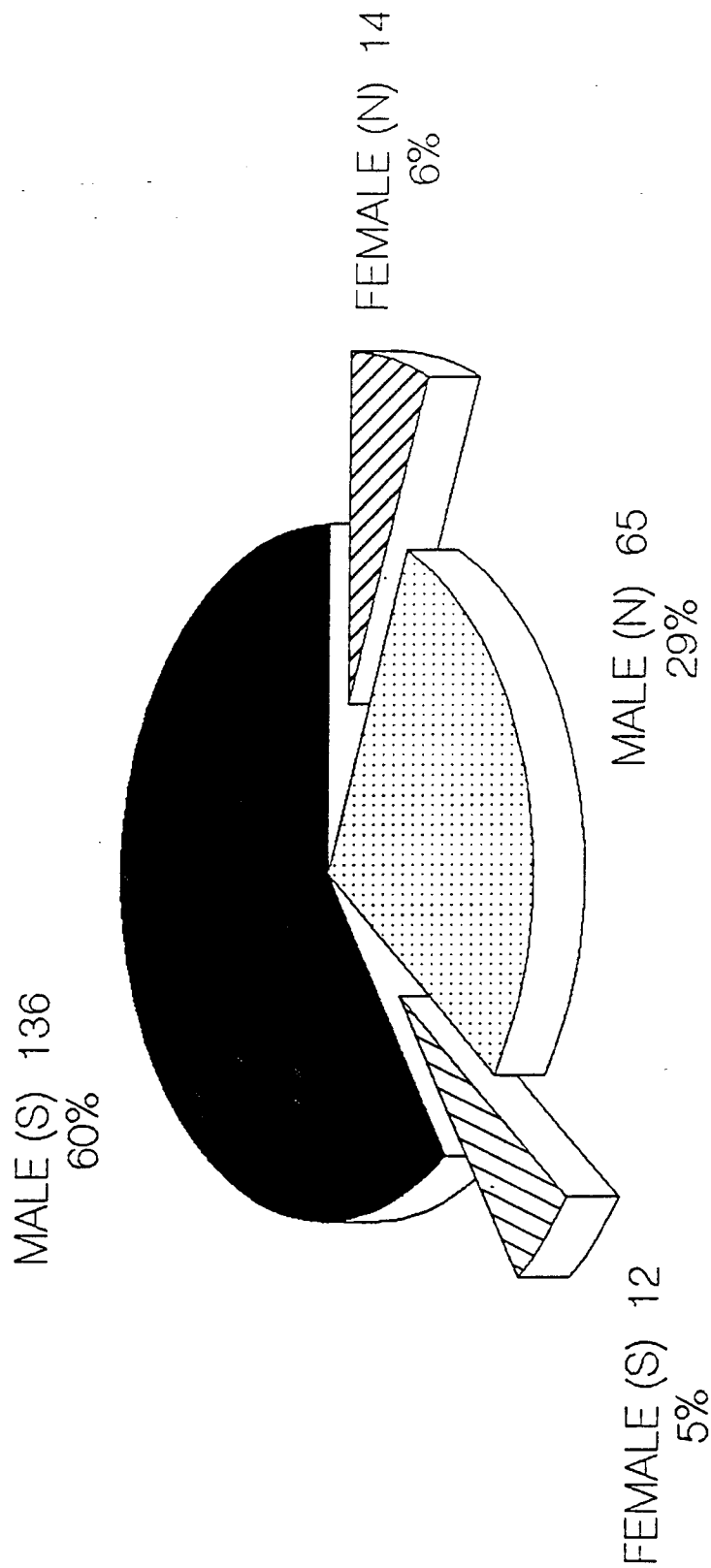
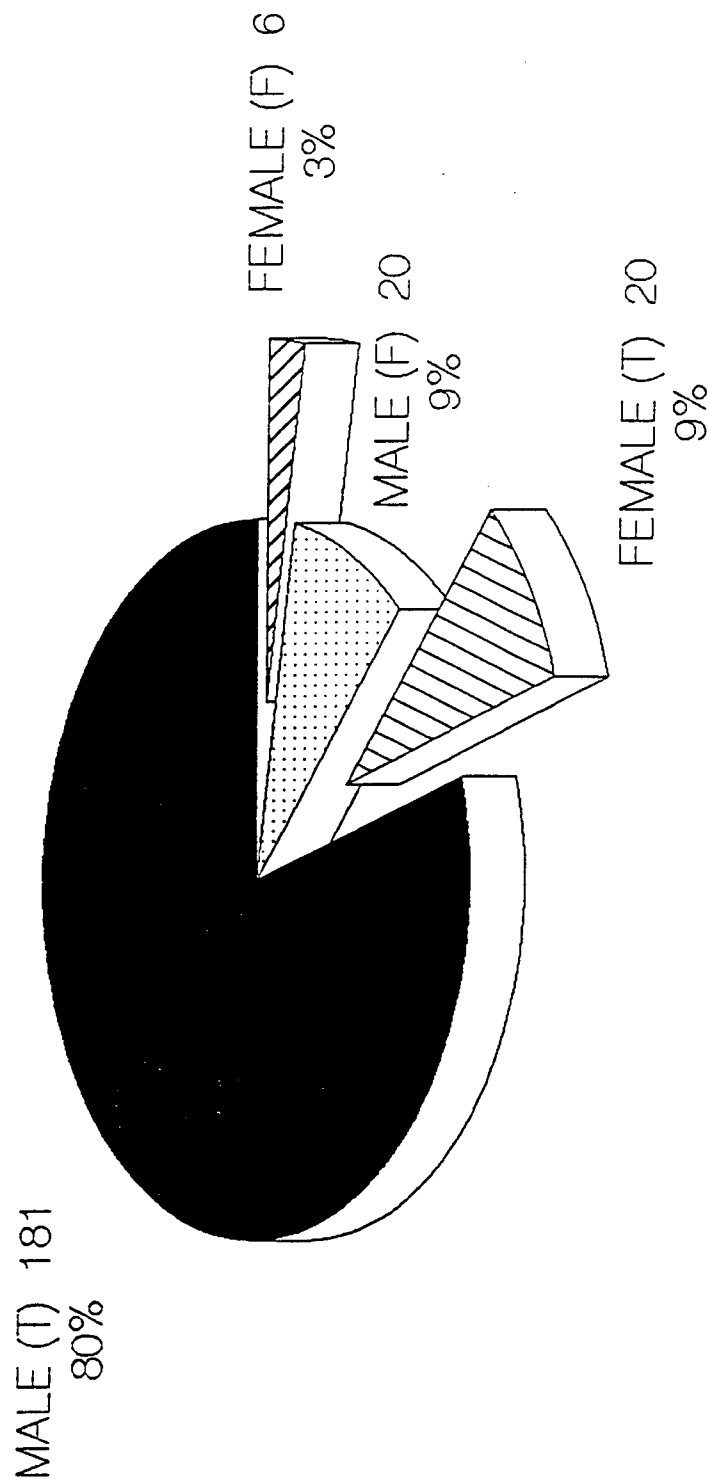


FIGURE 4 (n = 227)

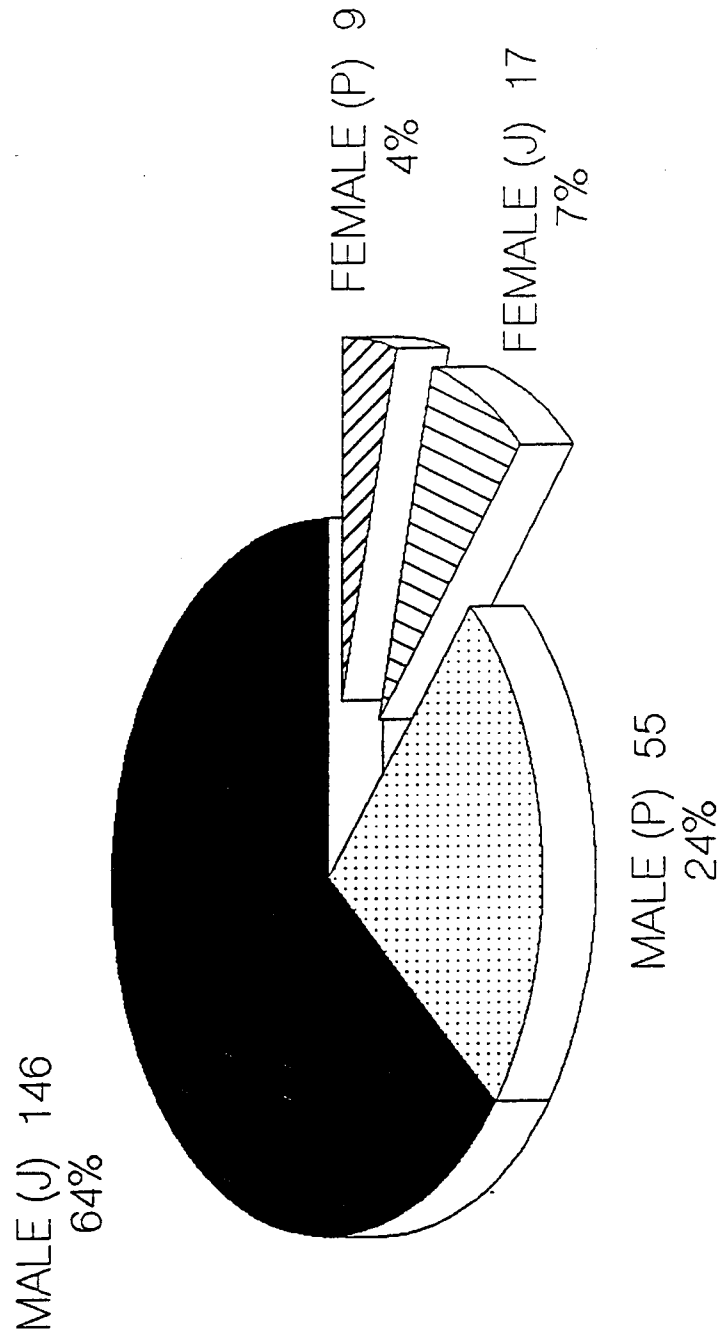
MBTI

THINKING/FEELING



MBTI

JUDGING/PERCEIVING



KAI > OR = 96

TOTAL POPULATION

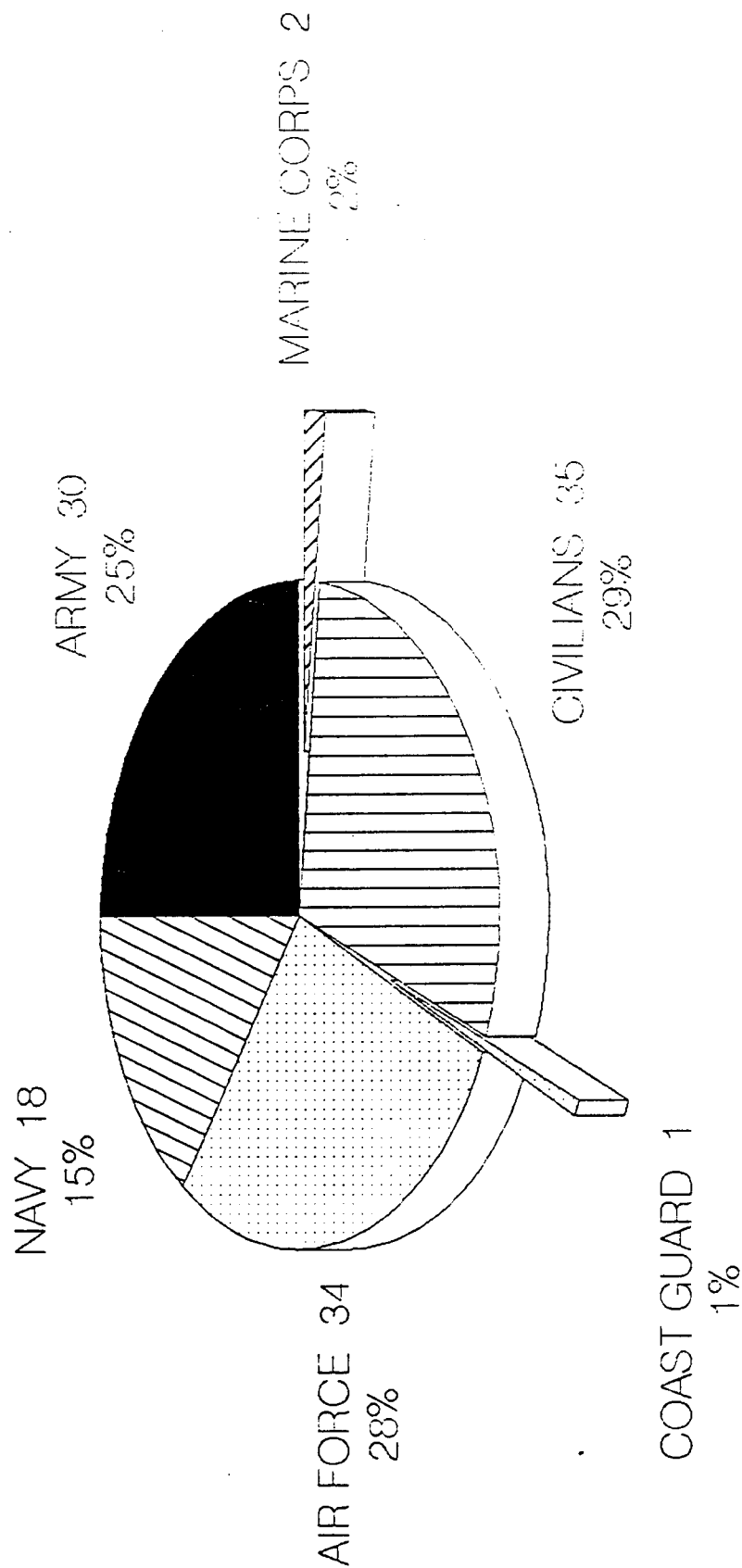


FIGURE 7 (N = 120)

KAI > OR = 96

MALES

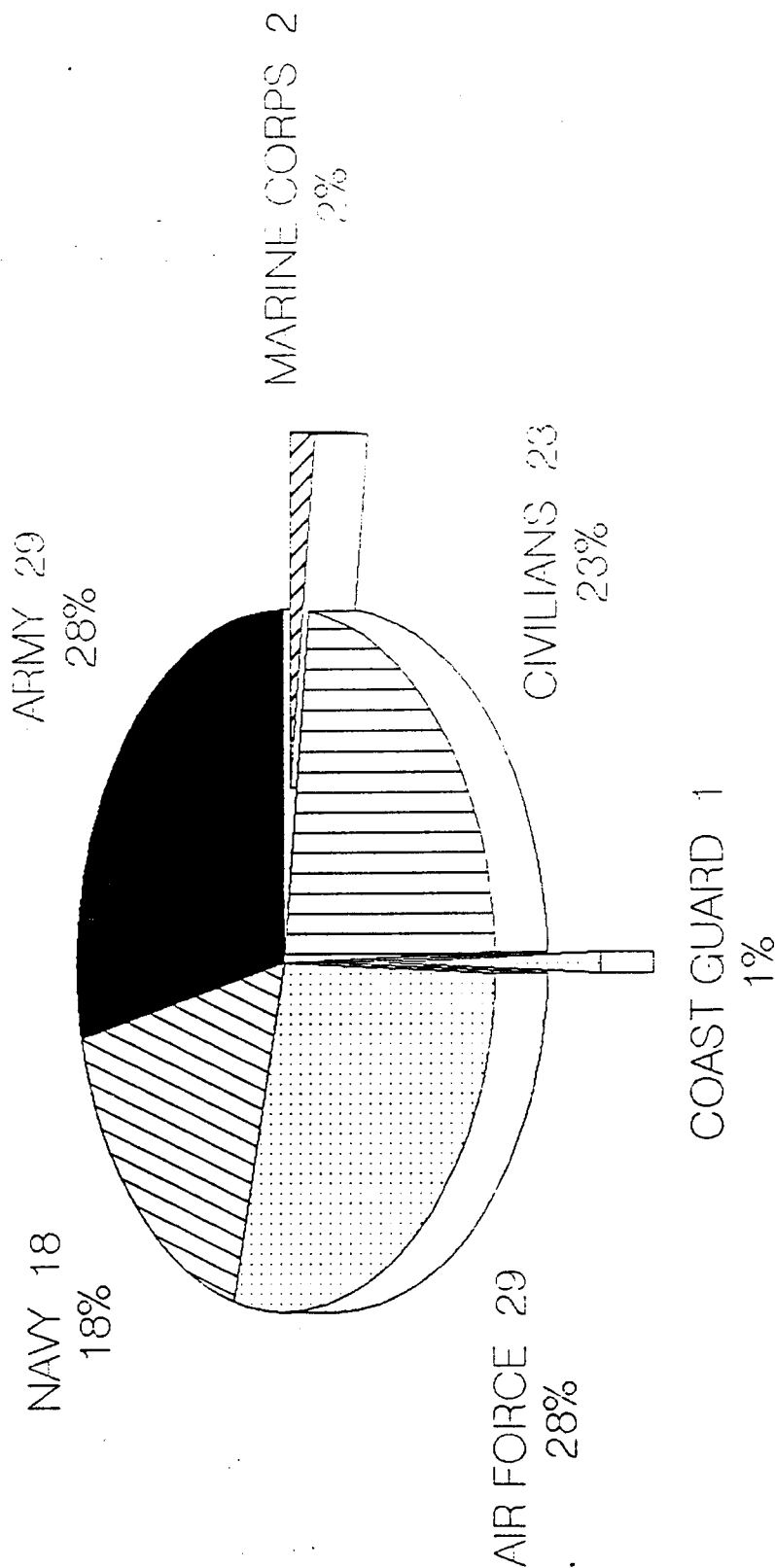
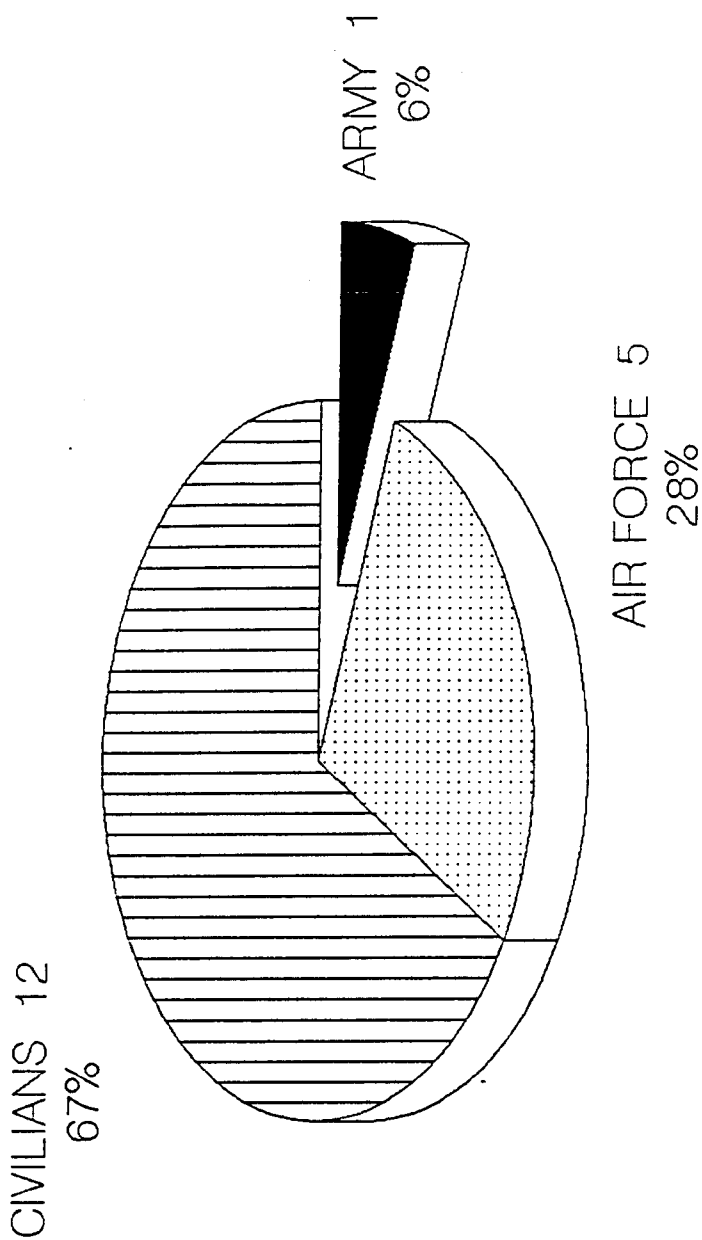


FIGURE 8 MALES 102/201 OR 50% KAI>OR=96

KAI > OR = 96

FEMALES



OBSERVATIONS

Significant differences between ICAF data and the general public are highlighted in bold. In fact, the only areas where there are not major differences are in Sensing and Intuiting, but the deviations are still notable.

An additional finding about the general population is that the Thinking-Feeling dimension is the only pair of preferences that shows a gender bias and is distributed equally.³⁶ More men than women (six out of ten) prefer to make decisions on the basis of principles, that is logically and objectively (T). More women than men (six out of ten) prefer to make decisions on the basis of personal impact (F).³⁷

The opposite is shown in the ICAF data. 20 out of 26 women preferred to make decisions on the basis of principles and objectively. The reasons for this difference could be the working environment, training, or general personality of the women who work for the Department of Defense and other federal agencies.

Also, as mentioned earlier, the validity of the Sensing-Intuiting results are weak and could be misconstrued. This could mean that the ICAF data deviates from all results of the general population.

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CORRELATIONS BETWEEN MBTI AND KAI RESULTS

An MBTI continuous score is a transformation of a preference score for use in correlation analyses.³⁸ Using this methodology to compare MBTI and KAI results, the following data emerged:

TABLE III
KAI / MBTI CONTINUOUS SCORES RESULTS

	E_I	S_N	T_F	J_P
Correlation Coefficient	-.334	.655	.114	.368
Significance	P>.001	P<.001	P<.086	P=.001

How do we interpret this? We are looking for a deviation of $\pm .300$ or greater to distinguish a significant relationship, and significance level of $P<.001$ or better (e.g. $P<.001$). Given the small sample of the data (227), we draw very general inferences in very general terms for the data for the ICAF Class of 1994:

INFERENCES

- (1) Extraverts tend to be more innovative.**
- (2) Intuitors tend to be more innovative.**
- (3) Perceivers tend to be more innovative.**

Innovation and creativity are the life support system for an organization. Innovation is defined as "the creation, acceptance and subsequent implementation of new ideas, concepts, processes, products, or services."³⁹ The need for innovation arises when adaption to a change is outside the scope of existing programs designed to keep the system in balance.⁴⁰ The people planning for and working towards change are the innovators, the idea makers.

Innovators think futuristically, have a strong knowledge base, focus on the "big" picture seeking to understand others needs and requirements. Innovators have fluency, flexibility, and the power of observation.⁴¹ Many are "visual" thinkers. Others are comfortable with the abstract and have the ability to think in terms of integrated systems and global concepts rather than in narrower formats of deductive logic.⁴²

EXTRAVERTS TEND TO BE MORE INNOVATIVE

Extraverts are energizing. Many have been described as speaking first, then thinking. They thrive on externalities and outside thrusts. Otto Kroeger says that extraverts tend to lead with their mouth. They are involved with people, things and 'interaction.

Their preferences in the work place include variety and action. Extraverts are interested in the activities of their work and in how other people do it. They tend to act quickly without thinking, and enjoy diversions. Extraverts develop ideas by discussion, like having people around, but are impatient with slow, long jobs. Since they focus on people and things in the external environment, it is logical that innovation has a correlation with extraversion.

The greatest similarity between extraverts and innovators is in dealing with externalities. Extraverts are energized from without. They like people and are open to their ideas. Extraverts see an agenda as a "starting" point. Innovators are the same, they not only see the possibilities and challenges, but deliberately seek them out.

Innovation is rarely experienced as a smooth and non-conflictual process.

Virtually all innovations can be seen as a challenge to the status quo likely to provoke actions of both support and resistance from other members of the group. Innovation is therefore a political activity and demands political behavior to persuade other key individuals to support proposals.⁴³ To succeed, innovation requires a spokesperson who will get the job done. Extraverts thrive on this type of activity. They are natural leaders and prefer working with people.

Extraverts also are impatient with long term projects. Innovation, in today's explosive environment, requires someone who can move from one project to another with skill and ease. Extraverts are ideally equipped to do this.

The ICAF Class makeup is 49% extraverts. The general population is 75%. What does that mean? It could be that the types of persons attracted to work for the military and federal government tend to be more introverted and therefore more adaptive in nature. It could also mean that those who have entered public service have adapted to the culture and conditions. Given the continuous score correlation, the presumption would be that the class would tend to be more adaptive than innovative.

INTUITORS TEND TO BE MORE INNOVATIVE

"A favorite phrase of the intuitive's is 'window of opportunity' and the sensing type's reply to that is 'I don't do windows'." ⁴⁴

Words to describe the intuitor are sixth sense, hunches, what could be, theoretical, future possibilities, insights, new skills, novelty, and leap around.

The continuous score correlation between intuition and innovation was by far the highest of all at .655. This makes sense. Intuitors like solving new complex problems, enjoy learning a new skill more than using it, follow their inspirations, and like to do things with an innovative bent. Jung (1923) described the intuitor as one who plants a field and then is off to something new before the crop is even beginning to break ground.⁴⁵ Unlike Sensors, Intuitors do not resist change. The person who has a natural preference for sensing probably would use the adjective "practical" in describing himself, while the intuitor would use the word innovative.

Intuitors are the innovators of our culture. There is a strong relationship identified in our group between intuition and innovation; however, this is not unique to our class of students. The Center for Creative Leadership (CCL) and the Society for Human Resource Management have a joint effort to create a model for human resource leadership for the 1990's.⁴⁶ Two of the psychometric tests being administered in this program are the MBTI and KAI. The results show that human resources managers have a high preference for intuition (N=137) and their KAI results show they are decidedly innovative, with a clear preference for innovative problem solving.⁴⁷

Intuitors like global schemes, and want possible future challenges discussed. They rely on insights and imagination to provoke discussion. Innovators have the ability to visualize the "big" picture. Most of the adjectives used to describe intuitors and innovators are interchangeable.

Intuitors only comprise 25% of the general population, but the ICAF Class of

1994 sample shows a slightly higher 34.5% with a preference towards intuition.

Intuitors and innovators provide future oriented insights to an organization and initiate change. The major concern raised with the data from the class is that we may not have enough people at the high levels with the visionary capabilities of the intuitors. Without this skill and expertise, innovative conceptualizing, planning, organizing and implementing necessary changes either will not take place or will not be executed properly.

PERCEIVERS TEND TO BE MORE INNOVATIVE

Words to describe Perceivers or P's are flow, adaptive, tentative, and spontaneous. P's let life happen, gather information, and like to leave things open for last minute changes. Keirsey states that P's seem to have a "play" ethic.⁴⁸ They are much more process-oriented. The work does not have to be completed prior to play beginning. P's leave things open for last minute changes and may postpone decisions while searching for options. They adapt well to changing situations and feel restricted without change. P's have been known to make lists to remind them to something, someday, and then lose the list. They are able to develop and communicate options and opportunities with a focus on flexibility.

What are the comparisons between P's and innovators? Gathering information open to options and adapting to change are similarities between P's and innovators. Change is inevitable. Managing change is based on our best assumptions for the future and strategic planning to address those assumptions. As we grow forward into

the 21st Century, our ability to exceed our expectations, as opposed to meeting them will be the difference between success and failure. To achieve this, we must be able to execute strategic planning in a holistic manner under very dynamic circumstances. The most powerful tool an organization has is its employees' ability to work in a synergistic environment.⁴⁹ P's and innovators are ideally suited for this work.

The general population is split evenly between Judgers and Perceivers. The ICAF sample has only 27.5% as Ps. What is the significance of this finding?

If Ps are more innovative and only 27.5% of our population is represented as perceptive, we need to ensure we create a work environment in which these people can exist without feeling threatened. This is not easy, given the type of work DOD does. Tight schedules, immediate decisions, short term focus... But diversity is something we must not allow to vanish from our culture.

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RECOMMENDATIONS AND CONCLUSION

"We are increasing the rate at which we must form and forget our images of reality....Change is the process by which the future invades our lives."

ALVIN TOFFLER

In a KAI study on entrepreneurs, it was hypothesized and found that entrepreneurs' problem-solving styles affect the likelihood of initiating multiple ventures and influence their choices about how they allocate their time among business activities.⁵⁰ The results show that entrepreneurs are more innovative than managers

of large organizations.⁵¹ Highly innovative entrepreneurs start more ventures, while adaptive entrepreneurs operate one business over the long run.⁵² Additionally, more adaptive entrepreneurs tend to allocate a greater percent of their time to administrative activities.⁵³ This study provides additional insight into the adaptive preference. If the tendency of the adaptor is to work on administrative details and within the confines of the "paradigm" and creativity and innovation are essential to effective executive behavior, the trend we see in the ICAF Class of 1994 is troublesome. If preference changes do not take place, the future senior leadership of the federal government can be described as:

- Focused on now instead of future
- Reluctant to change
- Structured

This is during an extremely dynamic time within the federal government. We are "reinventing" the way we do business. To do this, we must be able to get out of the "box" and strategically plan for our future. If we don't, we may not survive.

Training will be focused on the current or short term and not provide the flexibility which is desperately needed in this brave new world. The possibilities which innovators could envision and devise plans for will not come about. We will remain a reactive force.

The innovators we have may leave because of dissatisfaction with the job or from sheer frustration. We may be unable to retain the necessary capabilities to accomplish our missions. Communication and interpersonal relationships will become

more difficult and the interjection of new talent may become impossible, if we allow diversity to disappear.

A recent article in Money magazine entitled "The Money Job Rankings" identified the ranking of one hundred widely held jobs. These jobs were evaluated on factors such as salary, prestige, and security. The career of an Army officer was ranked seventy-third, down from seventeenth in 1992. This is a fall of fifty-six places in less than two years. The eleven year growth was a negative twenty percent with the short term outlook identified as "poor".⁵⁴

With this type of advertising, what kind of person will be looking towards the military or government as a career? Certainly, not the "best and brightest." We have to combat this external perception with careful strategic planning.

DOD must capitalize on the diversity offered by its employees. The future DOD organization will not look as it does today. We need to train and retain the very highest quality individual to respond to the dynamic environment. Within an organization, innovators are tolerated during times of prosperity and needed during times of turmoil and change. The problem is that many leave because they cannot thrive in a static environment. This is true of the DOD. When this happens, we may be also losing EN_P's, people whose natural preferences may be best suited for strategic thinking and leading. We must create an environment where all personalities are supported and can thrive and prosper. It is our future.

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