



TTI SUCCESS INSIGHTS®
DISCOVER • ENGAGE • ADVANCE • PERFORM

TTI Technical Reports

COMPENDIUM



***“An investment in knowledge
pays the best interest.”***

- Benjamin Franklin



TTI Technical Reports

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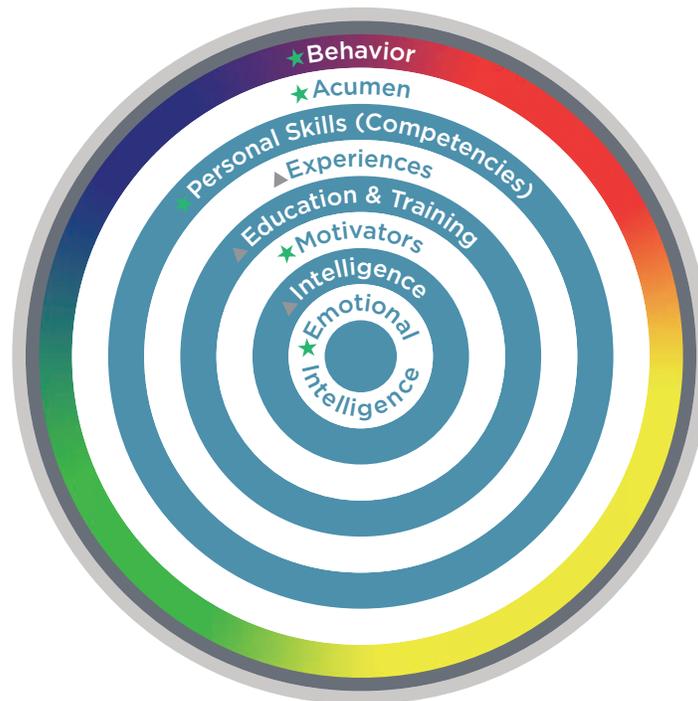
Behaviors TECHNICAL REPORT

Introduction

Target Training International, Ltd. was founded in 1984 by Bill J. Bonnstetter and his son, Dave Bonnstetter. TTI is the worldwide leader in the assessment industry. With extensive research, the Bonnstetters continue to enhance, develop and validate assessment-based solutions that drive results.

Bill has been doing research on what makes normal people unique since 1979. His brother, Dr. Ron Bonnstetter, professor emeritus University of Nebraska Lincoln, has recently joined TTI to expand its research endeavors. TTI's research has discovered the importance of identifying the HOW and WHY of people as they relate to performance.

To better understand what people bring to the workplace, take a look at TTI's Dimensions of Superior Performance™.



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★ **TTI MEASURES:**

- Behavior
- World View
- Personal Skills (Competencies)
- Motivators
- Emotional Intelligence

▲ **TTI ACKNOWLEDGES:**

- Experiences
- Education & Training
- Intelligence



Executive Summary

The following pages will provide detailed information on TTI’s Style Insights® assessment, its validity and how TTI is free of adverse impact. Below is an executive summary of these findings.

Validity

Revised scale reliability

Scale reliabilities were calculated using Cronbach’s alpha (α). Cronbach’s α is considered the most appropriate statistical test for calculating reliability. The statistic models internal consistency, based on the average inter-item correlation. These evaluations are a more rigorous approach than a traditional split-half statistic. Cronbach’s α is a statistic bounded by 0 to 1. In general an α equal to or greater than .6 is considered a minimum acceptable level, although some authorities argue for a stronger standard of at least .7.

The following table compares reliabilities using Cronbach’s α . These findings document the Style Insights 2011.i as an instrument with solid scale construction and reliability. This revalidation is based on the new method of responding to the questionnaire by ranking 1, 2, 3, 4 rather than choosing “most” or “least”.

Cronbach’s Alpha (α) – Scale Reliabilities: N=16,950								
	Adaptive D	Natural D	Adaptive I	Natural I	Adaptive S	Natural S	Adaptive C	Natural C
SI.2011.i	.885	.884	.850	.845	.856	.834	.826	.826



Adverse Impact

Overall, TTI assessments are not pass/fail assessments. While on the surface some of the assessments appear to have ten as the best “score”, this is not the case. Each factor of measurement can be a strength on either end of the scale (a zero all the way to a ten). This is because of our job-related process. TTI does not recommend using assessments in hiring unless you have completed our job benchmarking process.

The job benchmarking process is designed to provide clarity as to each position as requirements: key accountabilities, skills, behaviors and motivators. While TTI has over 10,000 job benchmarks available, it is recommended to complete the process within each organization for each position.

Because the TTI assessments are not pass/fail, the “80 percent” rule has to be applied differently. In order to illustrate TTI’s compliance with this standard, we look at the mean of the measured factors for the general population as well as male/female, veteran status, disability status and ethnicity. The Adverse Impact section of this report will demonstrate that the TTI assessments do not have more than a 20 percent difference in how protected groups score versus the general population.



History

The DISC language is based on observable behavior. **The objective of this section is to show that long, long ago people were watching people and noting observable behavioral differences.**

Throughout history, scientists and researchers have observed basic behavioral similarities, and now these have been validated by companies such as Target Training International, Ltd. Instruments have been developed to assist people in maximizing their personal potential and the potential of their human resources. The lineage of the DISC language, although not then called DISC, takes us all the way back to Empedocles in 444 B.C.

Researchers

EMPEDOCLES 444 B.C. Empedocles was the founder of the school of medicine in Sicily. He stated that everything was made up of four “roots” or elements. These were: earth, air, fire and water. These four elements, he stated, can be combined in an infinite number of ways, just as painters can create a great many pigments with only four different colors.

HIPPOCRATES 400 B.C. Hippocrates was an observer of people. He noticed the effect of the climate and the terrain on the individual. Defining four types of climates, he categorized behavior and appearance for each climate, even suggesting which people would conquer others in battle, based on the environmental conditions in which they were raised. Hippocrates believed the climate and terrain affected behavior and appearance.

1. **CLIMATE & TERRAIN:** Mountainous country. Rugged. Elevated and well watered. Changes of season are very great.
PEOPLE: Savage and ferocious in nature. Many shapes. Warlike disposition.
2. **CLIMATE & TERRAIN:** Low-lying places. Meadows. Uses warm waters. More hot winds than cold, ill-ventilated. Seasons are fine.
PEOPLE: Not of large stature. Not well proportioned. Broad and fleshy. Black-haired. Not courageous. Less phlegmatic and more bilious. Emotional. Not given to much labor. Short fused.
3. **CLIMATE & TERRAIN:** High country. Level. Well watered. Windy.
PEOPLE: Of large stature. Like one another. Gentle and unmanly.
4. **CLIMATE & TERRAIN:** Thin, bare soils, ill-watered. Great changes of seasons. Not fenced. Blasted by the winter and scorched by the sun.



PEOPLE: Hard. Well-braced. Blonde. Haughty and self-willed.

According to Hippocrates, a seldom-changing climate brings forth indolence whereas a climate with great changes causes the mind to labor, causing for courage. Frequent excitement of the mind induces “wildness, extinguishing sociableness and mildness of disposition.” Current research validates Hippocrates’ thinking, in the sense that environment can cause change in behavior.

- SANGUINE
- MELANCHOLIC
- CHOLERIC
- PHLEGMATIC

Hippocrates pursued his thinking further. After identifying four types of climate and terrain and their effect on behavior, he identified four temperaments (sanguine, melancholic, choleric, phlegmatic) and associated them with four bodily fluids (blood, black bile, bile, mucous). He then made this statement, “I think the inhabitants of Europe to be more courageous than those of Asia.” In the history of conflict throughout the world, does history prove him to be correct?

GALEN 130 A.D. - 200 A.D. Galen, of Rome, spoke of four body fluids and their effect on behavior and temperament. They were: blood, yellow bile, black bile and phlegm. He also stated that our bodies act upon and are acted upon by warm, cold, dry and moist.

Carl G. JUNG 1921. In 1921, Jung published *Psychological Types* in Germany. He identified and described four “types”. These four types are primarily oriented by the four psychological functions: thinking, feeling, sensation and intuition. These four are further divided into two divisions that Jung called “libido” or “energy.” These two divisions are “extroverted” and “introverted.” Jung believed the extroverted and introverted types were categories over and above the other four functions.

WILLIAM MOULTON MARSTON 1893-1947. The major developer of the DISC language is Dr. William Moulton Marston. Born in Clifftondale, Massachusetts, in 1893, Dr. Marston was educated at Harvard University. He received three degrees from that institution, an A.B. in 1915, and LL.B in 1918 and a Ph.D. in 1921.

Most of Dr. Marston’s adult life was spent as a teaching and consulting psychologist. Some of his assignments included lecturing at The American University, Tufts, Columbia and New York University. A prolific writer, Dr. Marston was a contributor to the *American Journal of Psychology*, the *Encyclopedia Britannica*, and the *Encyclopedia of Psychology* all while authoring and/or co-authoring five books.



Marston's most well-known contribution was his success in lie detection. His work was done at Harvard University, and in 1938 his book, *The Lie Detector*, was published. Lie detectors, including Dr. Marston's, have been used by law enforcement and crime detection officials in various countries for many years. **Here are some facts that you will find interesting:**

- Marston is acknowledged by most as the inventor of the lie detector.
- He invented (1915) the systolic blood pressure test for deception (first published in 1917).
- He interviewed 4200 criminals in Texas penitentiaries and found only three of them who believed themselves to be dishonest.
- A committee of prominent psychologists gave Marston's deception test a 97 percent reliability rating.
- Marston stated that when the lie detector has convinced a criminal (consciously or subconsciously) that he can no longer lie, it becomes easy to break down that criminal's habits of lying and build up, instead, mental habits of telling the truth.
- Marston stated the ultimate use of the lie detector was not for crime detection but for crime elimination by changing criminals into honest individuals.
- Marston worked on the Carl Jung Reaction Time Test and proved it was not reliable for determining deception. This proves that Marston was well aware of Carl Jung's work that is the foundation of the Myers-Briggs test. So the question remains, why Marston never mentioned Carl Jung's work in his book *Emotions of Normal People*?
- Marston said, "Only the truth can bring about a real emotional adjustment."
- The lie detector test offers a new tool to consulting psychologists in making personality adjustments.
- Marston wrote articles on how to apply the lie detector test to marital, social and personality adjustments.

Marston was ahead of the times and his book *Emotions of Normal People* must have been written for professional psychologists, as his other writings are easy to read and understand. Perhaps he had so much knowledge that his profession was not ready for his ideas.



Every day TTI Value Added Associates are touching the lives of people in a way that was only a dream for Marston in 1915.

Marston continued his career as a consulting psychologist; but using the pen name of Charles Moulton, he spent most of his time during the last five years of his life as the originator, writer and producer of Wonder Woman. First published in book form, this endeavor turned out to be a most successful and enduring comic strip. After having been stricken with polio in 1944, Dr. Marston was partially paralyzed until his death at age 53 in 1947.

In 1928 he published *Emotions of Normal People* in which he described the theory we use today. **He viewed people as behaving along two axes with their actions tending to be active or passive depending upon the individual's perception of the environment as either antagonistic or favorable.**

Dr. Marston believed that people tend to learn a self-concept, which is basically in accord with one of the four factors. It is possible, therefore, using Marston's theory, to apply the powers of scientific observation to behavior and to be objective and descriptive rather than subjective and judgmental.

Marston did not invent the DISC behavioral measurement system, nor did he foresee the potential applications of his work. In the last 100 years since Marston published his research findings and observations, behavioral research has modified his ideas considerably. To the modern scientist, much of Marston's work may seem stilted and antiquated. Yet, the importance of his contribution in dividing human behavior into four distinct categories and using measurements of the strength of these responses as a means to predict human behavior remains undiminished.

By placing these axes at right angles, four quadrants were formed with each circumscribing a behavioral pattern.

- 1. Dominance (D)** – Produces activity in an antagonistic environment.
- 2. Influence (I)** – Produces activity in a favorable environment.
- 3. Steadiness (S)** – Produces passivity in a favorable environment.
- 4. Compliance (C)** – Produces passivity in an antagonistic environment.



Despite the contributions made to the field of behavioral research since Marston, the modern categories of DISC (Dominance, Influence, Steadiness and Compliance) owe much to his research. Thus it is helpful in understanding the working of the DISC system to keep Marston's categories and their original meaning in mind. The premise of the modern day DISC system is that all people demonstrate some behavior in each dimension. **The four dimensions used as the basis for the Style Insights instrument (and its various forms and applications) fall into the following categories:**

DOMINANCE – CHALLENGE

How you approach and respond to problems and challenges and exercise power.

INFLUENCE – CONTACTS

How you interact with and attempt to influence others to your point of view.

STEADINESS – CONSISTENCY

How you respond to change, variation and pace of your environment.

COMPLIANCE – CONSTRAINTS

How you respond to rules and procedures set by others and to authority.

The DISC measurement system analyzes all of these factors and reveals one's strengths and weaknesses, one's actual behavior, and tendencies toward certain behavior. Behavioral research suggests that the most effective people are those who understand themselves and others. The more one understands his or her personal strengths and weaknesses coupled with the ability to identify and understand the strengths and weaknesses of others, the better one will be able to develop strategies to meet the demands of the environment. The result will be success on the job, at home or in society at large.

WALTER CLARKE 1950s. Walter Clarke was the first person to build a psychological device based on the Marston theory. His instrument is called the "Activity Vector Analysis." Some of Clarke's original associates subsequently left his company, further refining the format as they created their own "adjective check-list forms."



The following individuals and companies have contributed to the DISC model:

1960s

- J.P. Cleaver
- Leo McManus

1970s

- Bill J. Bonnstetter
- John Geier

1980s

- Michael O'Conner
- Judy Suiter
- Target Training International, Ltd.

1990s

- Dr. David Warburton



Why Study Behaviors?

GAINING COMMITMENT AND COOPERATION. People tend to trust and work well with those people who seem like themselves. **The most effective way to gain the commitment and cooperation of others is to “get into their world” and “blend” with their behavioral style.**

Observe a person’s body language, “how” they act and interact with others. Notice clues in their work or living area. By applying the DISC language, you will immediately be able to adapt to their style.

BUILDING EFFECTIVE TEAMS. People tend to be too hard on each other, continually judging behavior; therefore, team development tends to be slowed or halted due to people problems. An awareness of behavioral differences has an immediate impact on communication, conflict resolution and motivation for the team. Investment always precedes return. Investment in training the team on the DISC language gets an immediate return in team development. **According to specialists in team development, most teams never make it to high performance without training in a behavioral model and commitment to using it from the top management down.**

RESOLVING AND PREVENTING CONFLICT. Understanding style similarities and differences will be the first step in resolving and preventing conflict. By meeting the person’s behavioral needs, you will be able to diffuse many problems before they even happen. People prefer to be managed a certain way. Some like structure and some don’t. Some like to work with people and some prefer to work alone. “Shot in the dark” management does not work in the 21st century. **The DISC language, combined with TTI Success Insights® Reports, will teach you more about a person in 10 minutes than you can learn in a year without DISC.**

GAINING ENDORSEMENT. Other words for endorsement are “credibility” or “influence”. Every interaction you have with a person either increases or decreases your endorsement. Have you ever met a person who won’t stop talking and relates his whole life story to you? When you see that person coming, do you dread the interaction? If so, it is because their behavior has caused them to lose endorsement with you and therefore, that person does not get the benefit of your time. Conversely, a person who you can’t wait to see daily has gained your endorsement and therefore, is deserving of your time. **The DISC language allows you to “stack the deck” in your favor.** By knowing a person’s behavioral style, you can immediately adapt to their style and gain endorsement.



THE IMPORTANCE OF ENDORSEMENT. Through emails, texting, Internet surfing, reading and other media, our brains are being bombarded with increasing quantities of information. Overwhelmed by this scale, scope, and complexity of information, the masses depend on others for advice and support. As a result, more and more personal decisions are being made based on the perception and credibility of individuals, organizations, and countries. **In other words, most individuals rely on the words and actions of other people, organizations, and countries for help in making their decisions.** To stand above all others, leaders must have endorsement. To gain endorsement, you must understand the DISC language.

WHAT IS ENDORSEMENT? Endorsement is “the approval, backing, or support of a person or thing by means of the pledging of one’s own assets.” Assets individuals can pledge can include their contacts, money, reputation, time and energy.

- If an individual has endorsement, they will always be provided the resources necessary to maintain or improve their own lifestyle.
- If an organization has endorsement, it will always be provided the resources necessary to maintain or improve its own growth.
- If a nation has endorsement, it will always be provided the resources necessary to maintain or improve its standard of living.

Gaining endorsement takes time. It starts with understanding the DISC language. **DISC is a prerequisite for learning who you are and, more importantly, how others see you.** Being seen as credible starts with using the DISC language. It is essential for your success.



Validity

STYLE INSIGHTS® DISC Instrument Validation

Since 1984, TTI has always used outside, independent statisticians to validate all their questionnaires. Revalidation takes place every few years and the following study was completed in 2011. The intent is to provide a verifiable pattern of evidence that establishes the Style Insights instrument as a sound, reliable, valid, and usable instrument for a variety of purposes in personal and organizational development and for organizational and corporate use in a number of venues.

The research and statistics have been written and conducted to the specifications published in Standards for Educational and Psychological Testing (1999) cooperatively by the American Educational Research Association, American Psychological Association and the National Council on Measurement in Education. The guidelines provide the standards against which many US-based and international assessments are designed and validated. It is the purpose to respect those specifications and to encourage the reader to explore the standards in more detail. The reader is also encouraged to ask active questions about other assessments in the marketplace and to discover the extent to which those assessments followed similar guidelines to the Style Insights instrument and reports.

Measurement of One's "Style" — A brief history

The Style Insights instrument is generically loaded into a category of assessments sometimes called "personality tests." TTI prefers the use of the term "style" instead of "personality" for a variety of reasons. First, the term "personality" is a very complex and global term indicating a wide bandwidth of behavior and applications of the entire individual. Second, the term "style" as originally suggested by Fritz Perls, relates more to the specifics of how someone does something, and is therefore more applicable to the purposes and goals of the Style Insights instrument and reports.

Historically, there are a variety of ways by which one's "personality" and "style" have been measured. Early work by Kraepelin (1892) with the free association test involved the subject being given a list of stimulus words to which the subject was asked to provide the first word that came to mind. The free association methodology has been used for a variety of assessment purposes and it remains in use today.

Some criticism of the method remains with issues of scoring, inter-rater reliability, and malingering by the subject.



In answer to the critical issues of scoring and inter-rater reliability came the self-report inventory. A very early form of this assessment technique was developed by Woodworth during World War I (DuBois, 1970; Goldberg, 1971; Symonds, 1931). The original purpose was that of a screening test for identifying those unfit for military service. The war ended before the model was deployed; however, civilian forms were developed for both adults and children. The Woodworth Personal Data Sheet served as a prototype and early model for many inventories to follow. Some designs explored specific areas such as vocational adjustment, school adjustment, home, etc. Other assessments explored interpersonal responses in social settings, and later came assessments focused on interests and attitudes. It is in the self-report genre that the Style Insights® instrument and reports are based.

The “performance” or situational test is another commonly used assessment method. With this model, the subject is asked to perform a task and is measured based on their performance. The specific purpose for some of these tests is concealed from the subject. An early application of this model was developed by Hartshorne and May, et al., (1928, 1929, 1930) and standardized on schoolchildren. Situational tests for adults were developed during World War II by the Assessment Program of the Office of Strategic Services. These tests were high in complexity for the time, and needed some detailed staging and skilled administration. Even so, issues of inter-rater reliability and interpretation of responses were rather subjective.

Another methodology is that of the projective test design. In this method, the subject is presented with an ambiguous or open-ended task or description to provide of a stimulus card or process. Again, the purposes of these tests are somewhat disguised from the subject to reduce the potential of the subject creating a preferred response, or malingering. As with free association and some situational tests, there is room for inter-rater reliability errors and variability in scoring due to the subjective nature of the instrumentation.

The Style Insights instrument and reports use the self-report methodology that eliminates inter-rater reliability issues because of the objective scoring method of the instrument. Using the self-report method, the instrument captures one’s own self-perception and records responses. While inter-rater reliability is eliminated, an inherent issue with all self-report instruments is the accuracy of one’s responses and the focus of their self-perception. Therefore, the respondent is always encouraged to be honest in their response and clear in their situational focus when they respond.

This methodology has been widely used and adopted in many academic and commercial applications.



Connection of DISC to Target Training International's published instruments

In 1983-84 TTI acquired a DISC-based instrument under a license agreement. Since that time TTI has invested substantial amounts of attention, energy, and resources into the continued statistical validation of the instrument and the reports. Changes have been made to the newer versions of the instrument to keep pace with current terms and descriptors in use, and to up-date those terms and descriptors that were useful decades ago, but are less valid in the 21st century. TTI is rare among DISC providers in that their statistical validation work features current scores from the 21st century that are based in the language/cultural groups using an instrument. This allows for increased reliability and validity of the report printouts by comparing one's scores against a large, well-defined, contemporary, culturally relevant database.

Validity & Reliability

Reliability based on response processes and internal structure

The issue of instrument reliability is the initial question asked when exploring how “good” an instrument is, or if it is actually useful. The word “reliability” always means “consistency” when applied to instruments and tests. There are several procedures that are commonly used for this routine statistical treatment. Test-retest reliability is the consistency of scores obtained by the same person when re-tested with the identical instrument. Alternate-form reliability provides the subject with two similar forms of the instrument. Both test-retest and alternate-form reliability documentation should express both the reliability coefficient and the length of time passed between the first and second testing events. Both of these procedures focus on the consistency of measurement. Such consistency and the “learning the test” advantage is a major concern with ability and knowledge measurements. The Style Insights is not subject to an advantage from repeated administration because it asks for self-reports. The instrument's scales are as stable as the individual's perception of situational demands and self-concept is constant.

Split-half reliability involves a single administration of the instrument and uses the technique of “splitting” the instrument in half, e.g., odd and even question items, and determining a correlation between the two sets of scores. This technique reduces some of the concerns of test-retest and alternate-form reliability by eliminating the passage of time between testing events. Kuder-Richardson reliability is also based on a single form and single administration of the instrument and measures the consistency of responses to all items on the test. The Kuder-Richardson formula is actually the mean of all split-half coefficients based on different splittings of the test.



The Spearman-Brown reliability formula is another statistical treatment that provides a reliability coefficient and is frequently used with the split-half procedures.

Spearman-Brown differs by including a method for doubling the number of items on an instrument as a part of its formula. By doubling the number of items on the instrument, reliability usually increases. Some critics of the Spearman-Brown formula say that it may artificially raise the reliability coefficient of a test. Each of the reliability coefficients discussed so far are ones that can be calculated by hand or using a simple calculator.

The alpha coefficient is the expression of an instrument's reliability and ranges from 0 through +1.00. An instrument with a perfect reliability would have an alpha coefficient of +1.00, and no instrument has yielded that score to date. Additionally, there is no standard, agreed-upon "levels" of what makes a good or bad correlation for testing purposes. However, there is general agreement on a minimum standard for alpha equal to .6 or greater, with some experts advocating use of a .7 or higher standard. Obviously, the higher the alpha coefficient the stronger is the coherence of items. Cronbach's alpha (α) (Cronbach, 1951) is considered by many to be the most robust reliability alpha to date (Anastazi, 1976; Reynolds, 1994). "Coefficient α is the maximum likelihood estimate of the reliability coefficient if the parallel model is assumed to be true" (SPSS, p.873). For dichotomous data, "Cronbach's alpha is equivalent to the Kuder-Richardson formula 20 (KR20) coefficient" (SPSS, p.873). Cronbach's alpha is used to determine all of the reliability coefficients used to assess the Style Insights instrument. The reader is encouraged to compare the reliability coefficients presented in this manual to the reliabilities of other instruments, and also to ask how other vendors compute their alpha numbers.

Validity based on context and relationships to other variables

Validity helps answer the question, "Does the instrument measure what it is supposed to measure?" It also asks a deeper quality-related question: "How well does the instrument make these measures?" These questions are obviously more difficult to answer and may leave room for subjectivity. With regard to any questions of validity, the critical issue is the relationship between performance on the instrument and other observable facts about the behavior being studied. When someone says, "The test wasn't fair," the comment is usually directed to the test's validity, not reliability. A more accurate way to state the same expression is, "The test wasn't valid." There are three primary forms of validity: Content, criterion-related, and construct validity.

Content validity examines the instrument's content to determine if it covers the behavioral topic being measured. Simple examination of items in a biology or chemistry test should indicate questions related to the topic or subject being studied.



When used in the development of the DISC themes, it is important that all four descriptor categories are represented in rather equal proportion for selection of D, I, S, or C descriptors. Additionally, it is important to explore social desirability as an element of content validity. If there is an imbalance between words that are socially desirable versus descriptors that are less desirable, then content validity is affected. The Style Insights instrument is screened for content validity and since its initial printing some descriptors have been replaced to boost both the content validity and the reliability of the instrument.

Criterion-related validity refers to the ability of an instrument to predict a participant's behavior in certain future situations. One's scores on an instrument are compared with any variety of external "criteria." In the use of the Style Insights instrument and reports, there are a variety of studies available from TTI Performance Systems that have clearly linked specific scores and patterns of scores to job success in specific, well-defined areas. Criterion-related validity has two forms: concurrent validity and predictive validity. Concurrent validity examines one's scores and compares them to external criterion at the same time as taking the instrument. Predictive validity explores one's instrument scores against criterion after a specified time interval. Both methods provide robust support for the Style Insights instrument and reports.

Construct validity examines the ability of an instrument to measure a theoretical construct or trait. Construct validity is built from a pattern of evidence and multiple measures across a variety of sources. Some constructs explored in behavioral trait analysis include developmental changes of participants responding to the instrument at different ages and stages of their lives or under different response focus points. Correlation with other tests is a form of construct validation.

One very important technique within construct validity activity is a factor analysis. This is a technique that "refines" an instrument by comparing and analyzing the inter-relationships of data. In this process the interrelationships are examined and "distilled" from all initial combinations, to a smaller number of factors or common traits. Through factor analytic work using other instruments, it has been discovered that instruments from some other vendors have specific descriptors that actually factor-load into different categories than the ones in which they are scored on the instrument (Golden, Sawicki, & Franzen, 1990). The Style Insights instrument has been refined through the factor analysis process and has made subtle scoring changes that increase both the overall validity and reliability of the instrument and reports.



Revised scale reliability

Scale reliabilities were calculated using Cronbach's alpha (α). Cronbach's α is considered the most appropriate statistical test for calculating reliability. The statistic models internal consistency, based on the average inter-item correlation. These evaluations are a more rigorous approach than a traditional split-half statistic. Cronbach's α is a statistic bounded by 0 to 1. In general an α equal to or greater than .6 is considered a minimum acceptable level, although some authorities argue for a stronger standard of at least .7.

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Adverse Impact:

BEHAVIORS/DISC Findings as of February 2012

Random Sample N=17,801

Measurement	Mean	Standard Deviation
Dominance	45.56	16.39
Influence	60.92	15.37
Steadiness	54.74	17.03
Compliance	46.81	15.08

Males N= 10,667

Measurement	Mean	Standard Deviation	Difference from Random Sample
Dominance	48.05	16.60	2.49
Influence	60.08	15.40	-0.84
Steadiness	51.98	17.31	-2.75
Compliance	46.79	15.02	0.61

Females N=7,134

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	41.84	15.34	-3.72	-6.20
Influence	62.16	15.25	1.24	2.08
Steadiness	58.86	15.70	4.12	6.87
Compliance	45.28	15.14	-0.90	-1.51

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



Behavioral/DISC Findings as of February 2012

Caucasians N=11,988

Measurement	Mean	Standard Deviation	Difference from Random Sample
Dominance	46.51	17.01	0.94
Influence	62.13	15.90	1.21
Steadiness	54.06	17.49	-0.68
Compliance	44.77	15.55	-1.41

African Americans N=1,849

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	43.38	13.46	-2.18	-3.13
Influence	57.74	11.92	-3.18	-4.39
Steadiness	56.57	15.28	1.84	2.52
Compliance	49.29	11.95	3.10	4.51

American Indian or Alaskan Native N=175

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Dominance	42.86	15.19	-2.70	-3.65
Influence	58.35	13.87	-2.57	-3.78
Steadiness	57.98	16.96	3.25	3.93
Compliance	48.30	13.96	2.12	3.53

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



Behavioral/DISC Findings as of February 2012

Asian N=1,079

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	41.76	14.07	-3.80	-4.75
Influence	55.94	14.15	-4.98	-6.19
Steadiness	57.72	15.13	2.99	3.67
Compliance	52.19	13.28	6.01	7.41

Hispanic or Latino N=1,078

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	44.08	15.05	-1.48	-2.42
Influence	60.15	14.36	-0.76	-1.97
Steadiness	55.23	16.34	0.49	1.18
Compliance	47.74	13.96	1.56	2.96

Two or More Races N=608

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Dominance	45.53	15.87	-0.03	-0.98
Influence	61.66	14.38	0.74	-0.47
Steadiness	53.23	16.70	-1.51	-0.83
Compliance	46.47	14.27	0.28	1.69

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



Behavioral/DISC Findings as of February 2012

Non-Disabled N=16,575

Measurement	Mean	Standard Deviation	Difference from Random Sample
Dominance	45.62	16.36	0.06
Influence	61.06	15.36	0.14
Steadiness	54.68	17.05	-0.06
Compliance	46.03	15.06	-0.15

Disabled N=228

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	44.25	16.98	-1.31	-1.37
Influence	58.58	13.78	-2.33	-2.48
Steadiness	56.40	17.30	1.67	1.72
Compliance	48.52	14.10	2.34	2.49

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



Behavioral/DISC Findings as of February 2012

Non-Veteran N=15,517

Measurement	Mean	Standard Deviation	Difference from Random Sample
Dominance	45.37	16.35	-0.19
Influence	61.20	15.38	0.28
Steadiness	54.92	17.04	0.18
Compliance	45.96	15.11	-0.22

Disabled Veteran N=122

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	49.70	16.87	4.14	4.33
Influence	59.82	14.20	-1.10	-1.38
Steadiness	50.67	17.64	-4.07	-4.24
Compliance	46.62	13.10	0.44	0.66

Other Veteran N=895

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	48.80	16.77	3.24	3.43
Influence	59.08	15.24	-1.84	-2.12
Steadiness	51.65	17.30	-3.09	-3.27
Compliance	47.22	14.73	1.04	1.26

Vietnam Veteran N=216

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Dominance	48.79	15.76	3.23	3.42
Influence	58.55	14.36	-2.37	-2.65
Steadiness	51.18	15.30	-3.56	-3.74
Compliance	48.17	14.24	1.99	2.21

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



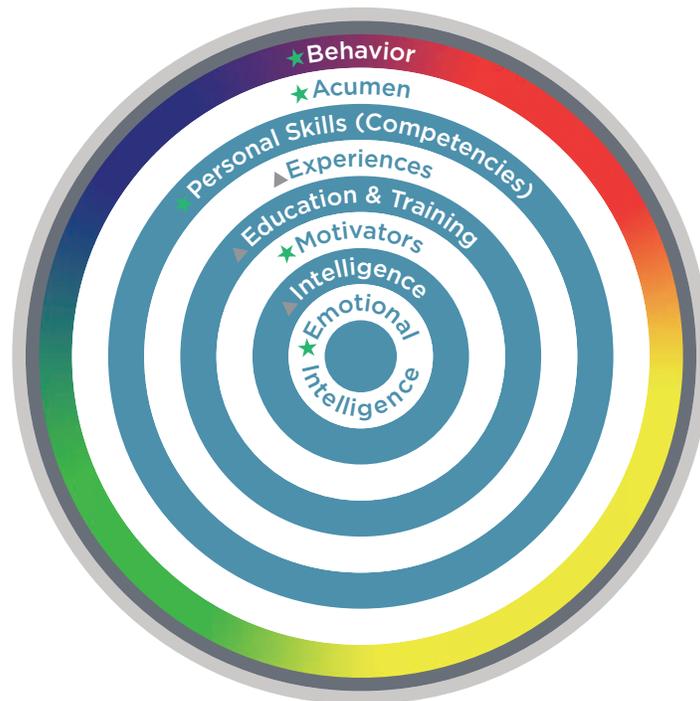
Motivators TECHNICAL REPORT

Introduction

Target Training International, Ltd. was founded in 1984 by Bill J. Bonnstetter and his son, Dave Bonnstetter. TTI is the worldwide leader in the assessment industry. With extensive research, the Bonnstetters continue to enhance, develop and validate assessment-based solutions that drive results.

Bill has been doing research on what makes normal people unique since 1979. His brother, Dr. Ron Bonnstetter, professor emeritus University of Nebraska Lincoln, has recently joined TTI to expand its research endeavors. TTI's research has discovered the importance of identifying the HOW and WHY of people as they relate to performance.

To better understand what people bring to the workplace, take a look at TTI's Dimensions of Superior Performance™.



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★ **TTI MEASURES:**

- Behavior
- World View
- Personal Skills (Competencies)
- Motivators
- Emotional Intelligence

▲ **TTI ACKNOWLEDGES:**

- Experiences
- Education & Training
- Intelligence



Executive Summary

The following pages will provide detailed information on TTI's Motivation Insights® assessment, its validity and how TTI is free of adverse impact. Below is an executive summary of these findings.

Validity

These assessments of the Motivational Insights® instrument utilize 38,314 responses. These responses were collected during 2010, 2011. These data contained responses from 57.8% males and 42.2% female.

Results from these assessments indicate trustworthy reliability for all six scales with Cronbach's α ranging from .7 to .8.

Correlations among the six scales indicate that they are substantially independent as measurements. Scores on the scales are distributed across the scales leading to meaningful comparisons and interpretation.

The Motivation Insights® instrument is a strong, reliable instrument applicable across a variety of populations. The continual quality improvement efforts anchors this instrument in the motivations, attitudes and values of the 21st century.

Cronbach's alpha (α) for the six Motivation Insights® Scales	
N=38,314, F=42.2%, M=57.8%	
Theoretical	0.755
Utilitarian	0.820
Aesthetic	0.822
Social	0.829
Individualistic	0.679
Traditional	0.705



Adverse Impact

Overall TTI assessments are not pass/fail assessments. While on the surface some of the assessments appear to have ten as the best “score” this is not the case. Each factor of measurement can be a strength on either end of the scale (a zero all the way to a ten). This is because of our job-related process. TTI does not recommend using assessments in hiring unless you have completed our job benchmarking process.

The job benchmarking process is designed to provide clarity as to the position requirements, key accountabilities, skills, behaviors and motivators for each position within an organization. While TTI has over 10,000 job benchmarks available, it is recommended to complete the process within each organization for each position.

Because the TTI assessments are not pass/fail, the “80 percent” rule has to be applied differently. In order to illustrate TTI’s compliance with this standard, we look at the mean of the measured factors for the general population as well as male/female, veteran status, disability status and ethnicity. The Adverse Impact section of this report will demonstrate that the TTI assessments do not have more than a 20 percent difference in how protected groups score versus the general population.



History

Since the beginning of time, every human has developed motivators. The earliest human motivators were probably focused on surviving or providing primary needs as described by Maslow.

Your brain tells you when you are hungry. However, it takes action or motivation to satisfy this hunger. The motivation may be based on survival rather than on eating to become an Olympic weight lifting champion.

There is not much literature supporting motivators during ancient times. The philosophers of that era laid the background for the whole field of psychology, which is less than 200 years old. So much of the study of motivation is fairly recent, and we really didn't start talking about motivators until Eduard Spranger wrote the book, "Types of Men" in 1928.

Prior to Spranger's work, motivators had not been clearly defined, researched or studied. TTI's motivators are based on Spranger's model. Spranger was an influential writer who defined motivators (values) as a compilation of likes, dislikes, viewpoints, shoulds, inner inclinations, rational and irrational judgments, prejudices and patterns that determine a person's view of the world. Once all these things are merged, they become consciously or subconsciously a standard or criterion for guiding one's actions.

Additional Researchers

In addition to Spranger, there were a number of authors in the early 20th century (primarily from Europe) writing about people. Some of these authors are Robert Hartman, Carl Jung, Sigmund Freud and Gordon Allport.

Target Training International (TTI), under the direction of Bill J. Bonnstetter, has continued to research, validate and improve the use of motivational assessments, reports and training materials. Bill and his son, Dave, founded Target Training International in 1984. Their initial idea was to develop the world's leading computerized behavioral, motivators and personal skills assessments to enhance, develop and validate assessment-based hiring and personnel development.

Relentlessly driven to set the industry standard, Bonnstetter and his team have worked over the last 25 years to continue to research and develop assessments to provide unique solutions for his clients. TTI's groundbreaking work and thought leadership have given way to three U.S. patents.



The Work of Spranger

Spranger identified six values or motivators that could be found in the workplace. Today we find these six motivators also influencing personal lives as well. “Types of Men” was originally published in German and remains in use at several universities in Germany as a textbook.

Spranger’s original names for the six motivators are:

- THEORETICAL
- ECONOMIC
- AESTHETIC
- SOCIAL
- POLITICAL
- RELIGIOUS

Based on Spranger’s model, Gordon Allport developed “Study of Values”, the first paper instrument.

Each motivator was compared to another motivator twice. The instrument had 30 plus questions. Bill J. Bonnstetter used this instrument as a part of his consulting business in the early ‘80s. Soon after Allport’s death, it was deemed sexist and obsolete. **Bonnstetter established Target Training International (TTI) and then developed an assessment based on Spranger’s model, changing the descriptions to:**

- THEORETICAL
- UTILITARIAN
- AESTHETIC
- SOCIAL
- INDIVIDUALISTIC
- TRADITIONAL

The TTI assessment forces a comparison of each of these motivators to the others 12 times. This new approach made the assessment more solid, based on our research.

Under the direction of Bill and Dave Bonnstetter, TTI was the first in the world to computerize the Spranger model and named it Personal Interests, Attitudes and Values (PIAV). In 2003, the questionnaire was updated to Motivations Insight®.

The title Motivation Insights® was chosen because values are sometimes called the hidden motivators, not to be confused with hidden agendas. Our motivators are visible only through their



manifestation in our behavior. Without observable behavior or the ability to ask why someone chose to do something, our values may remain hidden. One's behavioral style, as expressed through the DISC model, describes how someone does what he or she does. One's values explore why someone does what they do. **By understanding both the how and the why of one's behavior and internal motivators, we are able to explore the constellation of an individual's activity, or that of a team of people, with far greater insight than looking at only one of these facets alone.**

Since 1984, TTI, using the Spranger model, has done research on people, which led to the recommendation that the motivators assessment be included during the selection process. Hiring managers should not make selection decisions based solely on the results from a behavioral assessment (DISC).

TTI has partnered with their Value Added Associates to develop case studies using the motivators assessment. Sometimes this research is written for public knowledge but often companies prefer to keep the information private, as it can represent their competitive edge in the marketplace.

Why Study Motivators?

More and more research verifies that our motivators are part of our mindset, our way of valuing, our filters, our biases and a major influence of our decisions. Understanding “why” we do what we do is one of the major reasons we need to look closely at our motivators. **Only when you see yourself by clearly looking at both sides of the equation—things you like and things you dislike—will you understand your feelings toward other people and situations that expose you to your likes and dislikes.**

Our mindset is influenced by our filters, which affect what we hear and what we understand when we read things that differ with our mindset. For example, if you believe that you are one of the best managers in the world, how would you be impacted with feedback about your abilities as a manager? Would you welcome a need to change? Computerized assessments that provide feedback so people can see the real self is one of the best tools to help people change.

In society, we have value-based issues. Today with all the talk shows in the media, we are put into three possible positions: In favor of, against or indifferent. Once a person takes a position on these value-based issues, they are open to being challenged by others with the opposite view. Now we are into a discussion of right or wrong. But it's not about right or wrong, it's about beliefs, perceptions, experiences or knowledge points that are stored in those parts of our brain that influences our opinion.



All people are biased because our opinions come from hearing, seeing, or experiencing life.

Hearing, seeing or experiencing can lead to forming a belief or perception. These help us develop our motivators.

Validity

The Motivation Insights® model remains consistent with Spranger's original work that contains six values themes. Some models use seven values, others eight values, and still others up to eighteen values. If values are agreed to connect with drives and needs, then a clear range of needs / drives is recorded in the literature. At the low end, Freud (1922) has proposed two, Maslow (1954) suggests five, and Murray (1938) at the higher end, offers twenty-eight. The question emerges: Who is correct? The answer presents: There are no right and wrong theories, simply different theories. Science works by the process of 'negativity'. That doesn't mean that science is negative; it simply means that any theory is held up as a potentially true explanation, until it is disproven through the process of scientific investigation. Therefore, since Freud, Maslow, Murray, and Spranger's theories have not been disproven, each stands as a potential explanation of various facets of human behavior. All science works in this manner, whether social science or physical science.

In reviewing these theories and works, it becomes difficult to merge various theories because of specific constructs within each theory. **After careful review, the decision to remain consistent with Spranger's original model presented several advantages.**

- First, it remains historically accurate, except for some contemporary re-labeling of the names for certain values themes.
- Second, it supports one of the definitive and most widely-used theories presented in the values arena.
- Third, in exploring the broad scope of application of this model, the six values presented herein are ones that are supported in the work environment across a variety of businesses and industries. These environments include: Commercial/industrial, non-profit, religious, education, and governmental organizations.

Therefore, the decision to maintain the integrity of Spranger's theory provided the strongest and most flexible base on which to build this instrument.



The text files for the reports were additionally informed by the work of Allport, Vernon, and Lindzey in *A Study of Values* (1960), and Allport's work in *Pattern and Growth in Personality* (1961), as well as the work of Milton Rokeach in *The Nature of Human Values* (1973). Bill Bonnstetter wrote text files based on the Spranger model since 1984. Dr. Russ Watson worked for over ten years with large and small focus groups from a variety of industries and locations around the country to support individual and group face validity to the text files written for the *Workplace Motivators*® reports. These focus groups helped to refine and direct the statements in the reports to be as specific to each score-segment as possible. In addition, they helped to fortify the strength of the text files as the instrument was finalized.

Initial development – Theoretical validity

The process of developing an instrument begins with ideas, concept, existing theory and knowledge. Developers begin by targeting one or more areas of interest. These may come from identification of niches, unmet challenges, or new conceptual thinking. This targeting may result in one or related targets of interest. These initial ideas are then further developed. It is this developmental process that is the foundation of THEORETICAL VALIDITY. As design and implementation continues, developers consult existing research and experts to clarify and refine definition of these target concepts.

The next step is to operationalize these target concepts into measurable scales. Two agendas influence this process. One agenda takes the target concepts and brainstorms what indicators might cluster with the target concept. Parallel to this process is another agenda that examines various psychometric structures for measurement of the target concept.

Development at this stage involves drafting items that might be used in an instrument. Many possibilities are considered, and frequently many more items may be drafted than will be needed in the final instrument. At this stage items may be assessed for their conceptual fit with the target and theoretical concepts. However, final evaluation of “fit” and coherence are questions for statistical analysis of data, not developmental design.



Consideration of Measurement Structure

The process of establishing a measurement structure starts with consideration of the characteristics of the target concept. Some targets may involve knowledge, where there are correct answers and realms of knowledge. Some targets may involve abilities such as capacity to learn, or problem solve. The Motivation Insights® instrument, as the title implies, focuses on differences in the driving forces held by various individuals. In this application no specific motivation is considered inherently better than another. However, within a specific setting (work/employment role) some motivations may be a more effective or consistent drive than another.

Items to be used in an instrument can be designed to have individual items valued or items ranked relative to each other. The first pattern might involve a Likert scale such as Strongly Agree, Agree, Disagree, Strongly Disagree. This pattern of valuing provides independence among the items, but may result in ties when items end-up equally valued.

An alternative might ask the respondent to value an item of a scale from 1 to 10. This pattern of scaling allows for some inference about relative values, and relative strengths of values since 1 and 10 can be assumed to be a greater value spread than 1 and 3.

Another alternative might ask the respondent to rank based on preferences or on attraction. This is a pattern of forced choice. The scaling focuses on order on a scale, not a quantity.

Once a draft of an instrument is designed it can move on to testing and revision.

Construct Validation

Validation begins with field testing. Validation of an instrument may involve the entire text or sections. Sometimes the first field-tests have a small number of respondents read over and answer the items, followed with a debriefing. Eventually the draft needs to be administered to a large enough sample of respondents to allow for statistical testing. These respondents should be as representative as possible of the total population for whom the instrument is intended.

Evaluation of an instrument proceeds at two levels. Basically, responses on single items from a respondent are aggregated into scales that are hypothesized to measure the target concepts. Thus, one level is the assessment of individual items and the second level is the assessment of how well the scales function at measurement. These two levels are simultaneously active.



Analysis without conceptual constraints – Factor analysis

An initial statistical procedure examines responses on all of the items without structural assumptions. In other words, none of the designed scale assignments are imposed. Output from the procedure of Factor Analysis shows patterns of common cohesion and variation among the items. That is, it tends to show patterns in which respondents who answer strongly positive also answer strongly positive (or negative) on other items. This procedure is a first test of whether the developers' ideas about what indicators cluster together around their target concept are supported in the real world application.

Factor analysis is far from a magic bullet, although it is a very mystical statistical procedure. Factors may show that there are patterns of coherence unanticipated by the developers. A single factor may show complimentary patterns of items, which are opposite. As assessment proceeds through subsequent steps, evaluation references back to these non-constrained patterns as a way to identify possible issues with specific items.

Analysis confirming proposed structure – Scale reliability

The process of confirming coherence among a scale's items is that of assessing or confirming an aspect of reliability. Assessment of scale reliabilities has historically taken several forms. Since Cronbach's alpha (α) provides feedback as to how the overall reliability of a scale changes when the item is eliminated from the scale, it is possible to identify items that may require editing. Utilizing this process allows a developer to maximize the reliability of each scale.

Analysis of the relationship among scales – Correlations among scales

Examination of correlations among scales allows a developer to judge if scales are relatively independent or strongly interconnected. Ideally, scales should be mutually exclusive and thus independent. However, that is not the case for many concepts in our real world. Examining correlations can also show if scales are opposing. This is a much more common situation. This broad relationship in a reference population provides insights into conceptual and theoretical interpretations, which may be helpful when debriefing respondents.



Development of scaling values & reference norms

The preceding three processes of evaluation provide the developers with indications as to the overall quality of the instrument as well as identification of items that do not work. Developing an instrument frequently involves recycling through the preceding steps until the developers' standards are met. These findings guide developers in revising and editing items, or deciding that the instrument is ready for the next step.

Once items in an instrument are functioning the way the developers want, the scale structures can be finalized. With the scales established, the final step is to provide information on how to interpret the scale values. Frequently this means translating raw scale values into a standardized or normalized refined scale. These normalized scales imply reference to a population, not a sample.

Release and follow-up – Confirmatory use

With release of an instrument, the developers' work is not finished. The process of using an instrument provides both quantitative and qualitative feedback. This feedback provides anecdotal documentation as to an instrument's effectiveness. Regular review of data from respondents allows for continual assessment of item coherence, scale reliability, and reference norms based on a much larger population (versus the field-test sample).

Reliability & Validity

One frequently hears questions and comments about the validity and reliability of instruments. Fundamentally, validity refers to the question of whether an instrument or item measures what it purports to measure. There are many methods used to test and claim validity. Reliability refers to the question of whether an instrument or item measures in a consistent way. Some people get caught up in an argument as to whether an instrument can be valid if it is not reliable. We will not take on this discussion. We will present evidence indicating both validity and reliability as autonomous ideas.



Reliability based on response processes & internal structure

The issue of instrument reliability is the initial question asked when exploring how good an instrument is, or if it is actually useful. The word reliability always means consistency when applied to instruments and tests. Validity based on context and relationships to other variables.

There are several procedures that are commonly used for this routine statistical treatment.

Test-retest reliability is the consistency of scores obtained by the same persons when re-tested with the identical instrument. Alternate-form reliability provides the subject with two similar forms of the instrument. Both test-retest and alternate-form reliability documentation should express both the reliability coefficient and the length of time passed between the first and second testing events. Both of these procedures focus on the consistency of measurement. Such consistency and the learning the test advantage is a major concern with ability and knowledge measurements. Motivation Insights® is not subject to an advantage from repeated administration because it asks for self-reports. The instrument's scales are as stable as the individual's perception of situational demands and self-concept is relatively constant. We find that test-retest comparisons show some variation, but the observed variations are so slight as to not cause a major change in one's overall score pattern.

Split-half reliability involves a single administration of the instrument, and uses the technique of splitting the instrument in half, e.g., odd and even question items, and determining a correlation between the two sets of scores. This technique reduces some of the concerns of test-retest and alternate-form reliability by eliminating the passage of time between testing events. Kuder-Richardson reliability is also based on a single form and single administration of the instrument, and measures the consistency of responses to all items on the test. The Kuder-Richardson formula is actually the mean of all split-half coefficients based on different splitting of the test. The Spearman-Brown reliability formula is another statistical treatment that provides a reliability coefficient, and is frequently used with the split-half procedures. Spearman-Brown differs by including a method for doubling the number of items on an instrument as a part of its formula. By doubling the number of items on the instrument, reliability usually increases. Some critics of the Spearman-Brown formula say that it may artificially raise the reliability coefficient of a test. Each of the reliability coefficients discussed so far are ones that can be calculated by hand, or using a simple calculator.



Cronbach's alpha (α) (Cronbach, 1951) is considered by many to be the most robust reliability alpha to date (Anastazi, 1976; Reynolds, 1994). Coefficient α is the maximum likelihood estimate of the reliability coefficient if the parallel model is assumed to be true (SPSS, p.873). For dichotomous data, Cronbach's alpha is equivalent to the Kuder-Richardson formula 20 (KR20) (SPSS, p.873). The alpha coefficient is the expression of an instrument's reliability and ranges from zero to +1.00. An instrument with a perfect reliability would have an alpha coefficient of +1.00, and no instrument has yielded that score to date. Additionally, there is no standard, agreed-upon levels of what makes a good or bad correlation for testing purposes. However, there is general agreement on a minimum standard for alpha equal to .6 or greater, with some experts advocating use of a .7 or higher standard. Obviously, the higher the alpha coefficient the stronger is the coherence of items.

Cronbach's alpha is used to determine all of the reliability coefficients for the Motivation Insights® instruments. The reader is encouraged to compare the reliability coefficients presented in this manual to the reliabilities of other instruments, and to ask how other vendors compute their reliability numbers.

Validity based on context & relationships to other variables

Validity helps answer the question, "Does the instrument measure what it is supposed to measure?" It also asks a deeper quality-related question—How well does the instrument make these measures? These questions are obviously more difficult to answer and may leave room for subjectivity. With regard to any questions of validity, the critical issue is the relationship between performance on the instrument and other observable facts about the behavior being studied. When someone says, "The test wasn't fair," the comment is usually directed to the test's validity, not reliability. A more accurate way to state the same expression is, "The test wasn't valid." **There are three primary forms of validity: Content, criterion-related, and construct validity.**

Content validity examines the instrument's content to determine if it covers the behavioral topic being measured. Simple examination of items in a biology or chemistry test should indicate questions related to the topic or subject being studied. When used in the development of the Motivation Insights® themes, it is important that all six trait-categories are represented in equal proportion. Additionally, it is important to explore social desirability as an element of content validity. If there is an imbalance between words that are socially desirable versus descriptors that are less desirable, then content validity is affected. **The Motivation Insights® instrument is screened for content validity and since the initial PIAV release, some descriptors have been replaced to boost both the content validity and the reliability of the instrument.**



Criterion-related validity refers to the ability of an instrument to predict a participant's behavior in certain future situations. One's scores on an instrument are compared with any variety of external criteria. In the use of the Motivation Insights® instrument and reports, there are a variety of studies available from Success Insights and TTI Performance Systems that have clearly linked specific scores and patterns of scores to job success in specific, well-defined areas (Bonnstetter, et al., 1993). Criterion-related validity has two forms: concurrent validity and predictive validity. Concurrent validity examines one's scores and compares them to external criterion at the same time as taking the instrument. Predictive validity explores one's instrument scores against criterion after a specified time interval.

Construct validity examines the ability of an instrument to measure a theoretical construct or trait. Construct validity is built from a pattern of evidence and multiple measures across a variety of sources. Some constructs explored in behavioral trait analysis include: Developmental changes of participants responding to the instrument at different ages and stages of their lives, or under different response focus points. Correlation with other tests is a form of construct validation.

One very important technique within construct validity activity is the factor analysis. This is a technique that refines an instrument by comparing and analyzing the interrelationships of data. In this process the interrelationships are examined and distilled from all initial combinations, to a smaller number of factors or common traits. The Motivation Insights® instrument has been refined through the factor analysis process and has made subtle scoring changes that increase both the overall validity and reliability of the instrument and reports.

Convergent & discriminate evidence

Two additional issues are part of examining validity. These issues basically ask the question of whether classification using an instrument appropriately identifies common individuals (convergent) and differentiates among individuals belonging to a different classifications (discriminate). Once again most of the evidence to these powers lies with the successful application experiences of consultants using the instrument.



Cultural impacts

Although there may be many cultures and sub-cultures present in a population, the effects of language groups are the level of differentiation implemented in the Motivation Insights® instrument's versions. Cultures differ in how specific behaviors are defined and judged. Anyone visiting another culture may notice such differences immediately. Loud simultaneous talking may be the norm of a good friendship in one culture, and signs of a fight about to erupt in another. A description of a preference utilizing similar words in two different languages may have very different connotations. For example solidarity and compassion may carry different connotations with reference to the role of equality and sympathy in different cultures. It is important to consider these differences when using an instrument in different cultures. In response to these differences, specific versions of Motivation Insights® are developed, evaluated and tested for different language groups. The descriptions used as items in the instrument are tested for reliability and coherence with the scale concepts for each language version. If usage of the instrument is sufficient and clients conclude that it is important, specific distributions and norms can be calculated for any specific sub-population that can be defined.

Item weights & scale construction

First, the process of summing up the frequency of responses produces a score that is a comparative measure, not a quantity measure. A score is a count of descriptions selected by the respondent. The count is compared with other people's counts among a reference population. These raw counts across several scales cannot be compared directly. That is, selecting 10 x items and 5 y items does not mean one is more x. However, if in the reference population the average is selecting 5 x items and 7 y items, then an individual selecting 10 x items can be reasonably evaluated as seeing themselves as being more motivated by x than generally expected in the population. As long as interpretation is limited to this type of comparison on order, the observation that one x may have stronger connection with a trait than another x is not an issue.

In this instrument the comparison is made by reporting individual raw scores and a reference population mean (average). Remember, it is important to note that the scales are not quantities of the characteristics.

These comparisons are based on grounding the reference population as representative of people like those who look to an instrument for feedback. In this instrument the norms for comparison are representative of current instrument users. Wherever possible, specific norms are developed for unique language/cultural groups. Each norm-distribution used as reference for a version of the instrument is clearly identified.



Review & Revision

Target Training International (TTI), TTI Performance Systems (TTIPS), and Success Insights International (SI) initiated a review of their Personal Interests, Attitudes and Values™ (PIAV) instruments during the spring of 2002. The Motivation Insights® instrument is available in two report formats: Workplace Motivators® and PIAV™. The core issue addressed with this review was scale and item reliability for the twelve frames of six phrases each, resulting in 72 indicators used when constructing the six scales.

Scale reliabilities and item cohesion with its assigned scales were examined for samples. **The following description of the review and revision process outlines the steps taken to examine the reliability of items, and scale constructions.**

All of the cases reviewed and examined were from respondents completing the Motivation Insights® during the year prior to assessment. In most assessments the number of available cases far exceeded the appropriate number needed for statistical testing and evaluation. One or more test samples were drawn from this larger data set. Thus, test-retest processes confirmed and affirmed conclusions and parameters.

Most statistical procedures do not require use of the large numbers of cases available for examination. Therefore, for most statistical evaluations random samples were drawn from the sub-populations. The use of samples allowed for development of hypotheses that could then be tested against another sample that was independent of the first. This testing process was frequently applied to confirm recommendations for editing and revision. Such comparisons confirmed general patterns of psychological traits with significant differences in how specific indicators (words, ideas) are connected in different language and cultural groups.

Two approaches were taken in examining the coherence of the Motivation Insights® scales. One examination took a naive approach of looking for patterns of common variance (factor analysis). This addressed the question of whether responses presented a pattern of coherence that justified the theoretical construction of the scales.

A second examination applied the matrix of scale construction looking at the coherence of each item to its assigned scale, and the overall reliability of that scale construction. These examinations utilized Cronbach's alpha (α).



Examination of theoretical coherence

Construction of a scale starts with implementation of theoretical constructs into operational measurement. In order to confirm the coherence of the descriptions assigned to each scale a sample of responses was examined using a Principle Component Factor Analysis. In this statistical procedure the seventy-two (72) items were examined to find patterns of similar variation. Each factor is a latent construct, an unmeasured characteristic. The procedure results in a listing of factors with a measure of covariance for each of the variables. These coefficients may be positive or negative or neutral. By selecting the items with substantial positive or negative coefficients to a factor, one identifies a constellation of items that describe a latent factor. Frequently a factor will reflect two contrasting sets of items. One characteristic can be found among the items sharing positive coefficients, and a second among the items sharing negative coefficients. If the listing of items agrees with the listing of items theoretically assigned to a scale, then one may conclude that the implementation of the theory as a scale is well founded. When an item has a strong positive coefficient with other items assigned to a scale to which it is not assigned, then the theory and/or item needs to be questioned. Most items aligned with their assigned scales. However, the most common anomaly is that an item does not have a strong positive coefficient with any scale. In this case the item is not a usable indicator of a characteristic for measurement, even if it may be a good description.

Norms and population parameters

The pedigree of the current versions of Motivation Insights® is based on the culmination of multiple evaluations involving a diversity of data sources and samples. Examination of prior versions which began in 2002 involved over one-hundred thousand respondents. Current item and scale reliability is the culmination of these repeated evaluations using different samples. The instrument's pedigree is strengthened by these repeated independent evaluations. Samples have come from current users of the instrument. These users represent a full range of individuals utilizing the instrument. This process changed the reference point for comparison of style from its historic point of development up to the 21st century with recognition of changing behaviors and social expectations.



Gender

One concern for any instrument designed to serve business and individual users in the 21st century is the effect of gender on response patterns. One issue examined in instrument review has been differences in response patterns between males and females. As one might expect, there are some differences in the average scale scores for males and females. However, these differences indicate relatively minor shifts of dominance of specific expression of behaviors. Whether these differences arise from biology, socialization, or both is not important to the effectiveness of the instrument. What is important is that the instrument measurements reflect measurement and feedback that does not induce a gender bias. In response to this challenge the samples used to establish distribution norms are evaluated. When a sample contains a representative proportional sampling of females and males, no adjustment is required. However, when the proportion of males and females is disproportional, an adjustment is applied to these data to equalize the effects of patterns of males and females.

Language versions

Motivation Insights is available in several language versions. With the release of the current revisions many of those versions were separately evaluated and developed as independent instruments. When such development takes place the item descriptions that are initial translations from the English version are analyzed for their coherence with their assigned scale, and those scales' reliabilities appraised. This process results in further editing of items, and when necessary, revision of scales in order to develop an instrument that is reliable and appropriate to the targeted language/cultural group.

Distribution norms specific to a language version are calculated based on responses to that language version in order to provide clients with clear feedback that is relevant to the language/cultural group that uses the instrument. Technical information sheets are then released for each specific version.

Results

The following are excerpted summaries drawn from cycles of assessments of various TTI, TTTIPS and SI values instruments. These reports are organized by language and then from most recent to oldest. It is important to note that the more recent assessment utilize data collected after revisions of prior versions. It is also worth noting the small differences in reliability and other coefficients may best be considered as minor differences in sampling and not substantial changes in coefficient values.



Motivation Insights® US 2011.i Assessments

Summary

These assessments of the Motivational Insights® instrument utilize 38,314 responses. These responses were collected during 2010, 2011. These data contained responses from 57.8% males and 42.2% female.

Results from these assessments indicate trustworthy reliability for all six scales with Cronbach's α ranging from .7 to .8.

Correlations among the six scales indicate that they are substantially independent as measurements. Scores on the scales are distributed across the scales leading to meaningful comparisons and interpretation.

The Motivation Insights® is a strong, reliable instrument applicable across a variety of populations. The continual quality improvement efforts anchor this instrument in the motivations, attitudes and values of the 21st century.

Background

The Motivation Insights® instrument contains twelve frames of six phrases each. Each phrase is an indicator of one the six latent motivations. Respondents rank order the six items from 1 to 6, with number 1 being their highest ranking of the statement, down through number 6 being their lowest ranked statement. Scales are constructed by reversing the rankings, summing up related items' ranks, and adjusting the score upward to avoid possible 0's. The scales are labeled as THEORETICAL, UTILITARIAN, AESTHETIC, SOCIAL, INDIVIDUALISTIC, and TRADITIONAL.

Reliability & Item Coherence

Scale reliabilities were calculated using Cronbach's Alpha (α). Cronbach's α is considered the most appropriate statistical test for reliability given the ranking of responses used to construct the scales. This statistic models internal consistency, based on the average inter-item correlation. It is a more rigorous test than a traditional split-half statistic. Cronbach's α is bounded from 0 to 1. In general an α equal to or greater than .6 is considered a minimum acceptable level, although some authorities argue for a stronger standard of at least .7.



Cronbach's alphas (α) for the six scales based on the US 2011.i data range from .68 to .83. Based on these findings one may conclude that the Motivation Insights® instrument is confirmed as a consistent and reliable measure of the scale constructs.

Cronbach's alpha (α) for the six Motivation Insights® Scales	
N=38,314, F=42.2%, M=57.8%	
Theoretical	0.755
Utilitarian	0.820
Aesthetic	0.822
Social	0.829
Individualistic	0.679
Traditional	0.705

Reference Norms

Interpretation of Motivation Insights® is based on how an individual's responses compare with the reference sample used to set criterion. Setting these reference norms is impacted by two judgments.

First, statistical criterion (norms) are based on a stratified sampling, which uses gender weighted cases. This adjustment applies a weighting to each case such that the net results is a 50:50 ratio of men to women. This adjustment removes the bias introduced in the original sample of 58:42 ratio of men to women. Thus, the instrument is sex neutral, and the norms are equal in reflecting males and females. This is not to say that males and females rank the six traits in the same order.

Comparison of rank order indicate that men rank Theoretical, Utilitarian, and Individualistic scales higher than women. And women rank Aesthetic, Social, and Traditional scales higher than men. This is in line with predictions based on our sex-role understanding of American values. By equalizing the ratio of males to females in the norming sample the instrument does not reflect a male dominated rank order.

When assigning cut-points for the reports, the median and percentiles from the sex adjusted statistics are used. Once again this minimizes the bias arising from unequal participation rates for men and women in the original sample. Using the median and percentiles is also a more accurate reflection of the structural characteristics of the measurement scales. Scores on these scales are integers, not continuous.



Correlations

The following table lists the correlations among the scales. Given the large sample size, all of these correlations are statistically significant; however, many are not substantial enough to be considered consequential. For our purposes a coefficient of .3 or greater indicates a relationship worth noting. Correlations with negative coefficients indicate that as values on one scale increase the values of the second scale decrease. The largest positive coefficient is between Social and Traditional at .145 or about 2% shared variance. This coefficient does not exceed $\pm.3$ and is therefore judged as not consequential.

	Theoretical	Utilitarian	Aesthetic	Social	Individualistic	Traditional
Theoretical	1					
Utilitarian	-0.027	1				
Aesthetic	-0.057	-0.337	1			
Social	-0.401	-0.547	-0.056	1		
Individualistic	-0.082	0.191	-0.553	-0.298	1	
Traditional	-0.386	-0.334	-0.222	0.145	-0.127	1

Negative coefficients indicate that the scales are opposed. In this case, a higher value on one tends to be associated with a lower value on the other. The largest negative correlation is between Aesthetic and Individualistic (.553). This level of opposition indicates that around 31% of the variance on one scale can be attributed to variance on the other scale. This level of inverse relationship agrees with a generally understood relationship between these two motivations. There is still more than enough unshared variance to allow us to judge that the scales are independent and not measuring the same latent concept. The correlation between Utilitarian and Social is a close tie at -.547. Once again this inverse relationship is supported by an accepted theoretical generalization.



Conclusions

This assessment is an important follow up and confirmation of earlier implementations of Target Training International's Motivation Insights®. Utilizing over thirty-eight thousand respondents from 2010 and 2011 it provides a solid basis for confirming the reliability of the instrument and continuing minor adjustments to the reference norms. Updating the reference norms using data adjusted for the differences in participation of males and females in this large sample makes these criterion representative of a larger population and anchors them in the 21st century.

Submitted by:

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Professor Emeritus, College of DuPage
12 May 2011



Adverse Impact:

Motivators Findings as of February 2012

Random Sample N=17,801

Measurement	Mean	Standard Deviation
Theoretical	46.93	9.37
Utilitarian	47.44	10.49
Aesthetic	32.19	9.88
Social	46.81	9.91
Individualistic	39.96	8.63
Traditional	38.66	8.39

Males N= 10,667

Measurement	Mean	Standard Deviation	Difference from Random Sample
Theoretical	47.67	9.44	0.74
Utilitarian	48.93	10.35	1.49
Aesthetic	30.70	9.58	-1.49
Social	44.55	9.58	-2.27
Individualistic	41.81	8.37	1.85
Traditional	38.34	8.38	-0.32

Females N=7,134

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	45.82	9.13	-1.11	-1.85
Utilitarian	45.21	10.31	-2.23	-3.72
Aesthetic	34.42	9.90	2.23	3.72
Social	50.21	9.41	3.40	5.66
Individualistic	37.20	8.26	-2.76	-4.61
Traditional	39.14	8.37	0.48	0.80



Motivators Findings as of February 2012

Caucasians N=11,988

Measurement	Mean	Standard Deviation	Difference from Random Sample
Theoretical	46.52	9.45	-0.41
Utilitarian	47.92	10.54	0.48
Aesthetic	32.18	10.14	-0.01
Social	46.27	10.00	-0.55
Individualistic	40.53	8.72	0.56
Traditional	38.58	8.47	-0.08

African Americans N=1,849

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	45.59	8.03	-1.34	-0.93
Utilitarian	46.91	9.97	-0.54	-1.02
Aesthetic	29.97	8.31	-2.22	-2.21
Social	50.12	8.94	3.31	3.86
Individualistic	39.78	7.53	-0.18	-0.75
Traditional	39.62	7.92	0.97	1.04

American Indian or Alaskan Native N=175

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Theoretical	46.30	8.53	-0.63	-0.22
Utilitarian	44.32	10.79	-3.12	-3.60
Aesthetic	33.11	9.40	0.92	0.93
Social	47.87	9.29	1.05	1.60
Individualistic	38.94	8.31	-1.02	-1.59
Traditional	41.46	8.27	2.80	2.88



Motivators Findings as of February 2012

Asian N=1,079

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	52.19	8.94	5.26	5.67
Utilitarian	45.51	10.69	-1.94	-2.42
Aesthetic	33.86	8.93	1.67	1.68
Social	47.03	9.45	0.21	0.76
Individualistic	36.01	8.30	-3.96	-4.52
Traditional	37.41	7.94	-1.25	-1.17

Hispanic or Latino N=1,078

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	47.16	8.96	0.22	0.63
Utilitarian	46.36	10.20	-1.08	-1.56
Aesthetic	32.49	9.56	0.30	0.30
Social	47.65	9.99	0.83	1.38
Individualistic	39.15	8.55	-0.82	-1.38
Traditional	39.20	8.16	0.54	0.62

Two or More Races N=608

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Theoretical	47.67	9.32	0.74	1.15
Utilitarian	46.78	10.48	-0.66	-1.14
Aesthetic	33.24	9.85	1.05	1.06
Social	46.65	9.85	-0.17	0.38
Individualistic	39.52	8.25	-0.45	-1.01
Traditional	38.14	8.57	-0.52	-0.44



Motivators Findings as of February 2012

Non-Disabled N=16,575

Measurement	Mean	Standard Deviation	Difference from Random Sample
Theoretical	46.86	9.35	-0.07
Utilitarian	47.46	10.49	0.02
Aesthetic	32.10	9.83	-0.09
Social	46.87	9.91	0.06
Individualistic	40.03	8.60	0.07
Traditional	38.67	8.38	0.02

Disabled N=228

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	47.92	8.90	0.99	1.05
Utilitarian	46.14	10.54	-1.30	-1.32
Aesthetic	32.74	9.67	0.55	0.64
Social	47.50	9.86	0.69	0.63
Individualistic	38.90	9.09	-1.06	-1.13
Traditional	38.80	8.68	0.14	0.12



Motivators Findings as of February 2012

Non-Veteran N=15,517

Measurement	Mean	Standard Deviation	Difference from Random Sample
Theoretical	46.82	9.38	-0.11
Utilitarian	47.48	10.52	0.03
Aesthetic	32.25	9.86	0.06
Social	47.03	9.91	0.21
Individualistic	39.78	8.55	-0.18
Traditional	38.64	8.40	-0.02

Disabled Veteran N=122

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	46.98	8.92	0.05	0.16
Utilitarian	46.57	9.87	-0.88	-0.91
Aesthetic	30.17	9.73	-2.02	-2.08
Social	46.41	8.65	-0.40	-0.62
Individualistic	43.56	8.50	3.59	3.77
Traditional	38.31	8.66	-0.34	-0.33



Motivators Findings as of February 2012

Other Veteran N=895

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	47.48	9.02	0.54	0.65
Utilitarian	47.13	10.27	-0.31	-0.35
Aesthetic	29.96	9.27	-2.23	-2.29
Social	45.22	10.04	-1.59	-1.80
Individualistic	43.16	8.99	3.19	3.37
Traditional	39.05	8.06	0.39	0.41

Vietnam Veteran N=216

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Theoretical	47.41	8.30	0.48	0.58
Utilitarian	48.28	9.92	0.83	0.80
Aesthetic	30.90	9.69	-1.29	-1.35
Social	43.47	9.36	-3.34	-3.55
Individualistic	42.43	8.29	2.46	2.64
Traditional	39.52	8.51	0.86	0.88



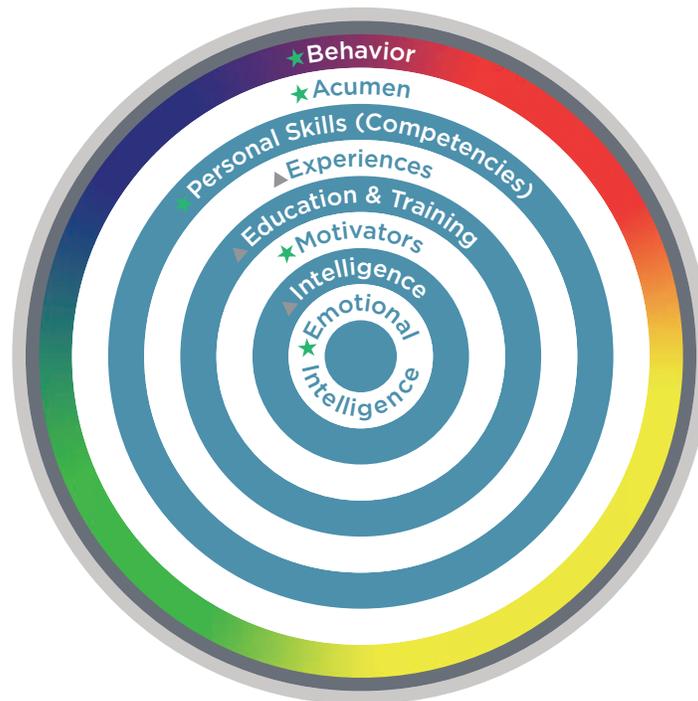
Competencies TECHNICAL REPORT

Introduction

Target Training International, Ltd. was founded in 1984 by Bill J. Bonnstetter and his son, Dave Bonnstetter. **TTI is the worldwide leader in the assessment industry.** With extensive research, the Bonnstetters continue to enhance, develop and validate assessment-based solutions that drive results.

Bill has been doing research on what makes normal people unique since 1979. His brother, Dr. Ron Bonnstetter, professor emeritus University of Nebraska Lincoln, has recently joined TTI to expand its research endeavors. TTI's research has discovered the importance of identifying the HOW and WHY of people as they relate to performance.

To better understand what people bring to the workplace, take a look at TTI's Dimensions of Superior Performance™.



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★ **TTI MEASURES:**

- Behavior
- World View
- Personal Skills (Competencies)
- Motivators
- Emotional Intelligence

▲ **TTI ACKNOWLEDGES:**

- Experiences
- Education & Training
- Intelligence



Executive Summary

The following pages will provide detailed information on TTI's Competencies, assessed from both the DNA Personal Soft Skills Indicator and the Hartman Value Profile, the validity of the competencies and how TTI is free of adverse impact. **Below is an executive summary of these findings.**

Validity

The competencies TTI measures come from two instruments, the Personal Soft Skills Indicator and the Hartman Value Profile. The Personal Soft Skills Indicator is a 360-degree feedback type instrument. For validity purposes we evaluate each of the questions on a variance scale. The 2012 data indicates complete variance for this questionnaire. The Hartman Value Profile has an internal reliability measurement. The 2012 date indicates a part one reliability of .897 and a part two reliability of .825.



Adverse Impact

Overall, TTI assessments are not pass/fail assessments. While on the surface some of the assessments appear to have ten as the “best” score, this is not the case. Each factor of measurement can be a strength on either end of the scale (zero all the way to ten). This is because of our job-related process. TTI does not recommend using assessments in hiring unless you have completed our job benchmarking process.

The job benchmarking process is designed to provide clarity to each position’s requirements: key accountabilities, skills, behaviors and motivators. While TTI has over 10,000 job benchmarks available, it is recommended to complete the process within each organization for each position.

Because the TTI assessments are not pass/fail, the “80 percent” rule has to be applied differently. In order to illustrate TTI’s compliance with this standard, we look at the mean of the measured factors for the general population as well as male/female, veteran status, disability status and ethnicity. The Adverse Impact section of this report will demonstrate that the TTI assessments do not have more than 20 percent difference in how protected groups score versus the general population.



History

Progressive organizations are preparing for unprecedented change brought about by globalization, competition and technology in the new millennium. Competition for top talent has never been greater. **The organizations that will endure have learned that managing performance is the equivalent of managing the bottom line.**

The performance bar, however, must continually be raised. Compounding this issue is a dramatic shift from quantitative to qualitative performance measures. There once was a time when the performance of a large portion of the workforce could easily be seen and measured. Now it's difficult to know what has been accomplished at the end of any given day. **The shift from mass production to communications and service has changed work substantially from being tangible and task-oriented to intangible and knowledge-oriented.**

The irony is that the more technology impacts how work is performed, the more important competencies become. Competencies are, in fact, the new career currency. They are a golden thread that must be woven through an organization to produce results. **They are like the DNA of performance.**

Performance is profoundly affected by the relationship between performers and their managers, coaches and mentors. Performance is deeply affected by the relationship between people and the values represented in their work. And, performance is subtly affected by the relationship between people and organizational culture. The TTI competency-based tools and processes are designed to improve organizational performance by strengthening these relationships.

How are competencies developed?

This is the right question, however, the answer is not clear. Based on research, we have proven that the TTI competencies are not curriculum-based; that is, for the most part they cannot be taught in the classroom. Can you imagine reading a book or hearing a lecture on team building and mastering being a team player? Competencies are practice-based; most competencies are developed over time by doing, participating in team activities, presenting, persuading, etc.



Let the job talk... The job questionnaire

This extensive questionnaire analyzes the input of one Subject Matter Expert to identify the importance of 25 competency requirements of the job. Respondents should be given careful instructions for completing the questionnaire. They should also be advised to be as objective as possible and to think of the position, not the person doing the job.

Upon completion of the questionnaire, the job report will be generated, which includes detailed descriptions and behavioral interview questions for each of the top seven competencies. If data on the job is desired from more than one subject matter expert, each individual must complete a job questionnaire. The next step is to generate a comparison report to identify areas of agreement and disagreement.

Different perspectives and biases on competencies' requirements of jobs are fairly common. **Significant differences must be explored to obtain a more thorough understanding of the position.** In this case, subject matter experts should meet to build consensus and respond as a group to another job questionnaire.



Researchers

DNA Personal Soft Skills Indicator — Bill J. Bonnstetter

A true thought leader impassioned by human behavior and an improved understanding of how individuals think, behave and work, Bill J. Bonnstetter is the co-founder and Chairman of the Board of Target Training International, Ltd. (TTI) and TTI Performance Systems, Ltd. Established in 1984, TTI develops and markets research-based, validated assessments and products available in more than 90 countries and 40 languages.

Bonnstetter is one of the pioneers in the assessment industry because of his significant contributions to the research and study of human behavior. The first to computerize the DISC (Dominance, Influence, Steadiness, Compliance) assessment, he also made reports available via his patented Internet Delivery Service® (IDS). He was also the first to produce a computerized values assessment based on Eduard Spranger's personality model. **Bonnstetter holds patents for TTI's job benchmarking process, which matches the right person with the right job, and for developing personalized reports integrating values and behaviors.**

An international speaker and author, Bonnstetter's most recent research has focused on normal behavior of sales people, managers and leaders, college freshmen, superior performers and entrepreneurs. Two of his most fervent research pursuits are education and serial entrepreneurship.

The DNA Personal Soft Skills Indicator was the foundational piece behind the 2012 Edison Award nomination for innovation. The nomination recognized Bonnstetter's invention of the assessment and also the application of the assessment to the educational realm by Dr. Ron Bonnstetter, who first proved the value of using TTI instruments for soft skill knowledge and additionally developed the KEEN protocol as part of his research as a professor at the University of Nebraska at Lincoln.



The Hartman Value Profile — Robert S. Hartman

Robert S. Hartman, Research Professor of Philosophy at the University of Tennessee and the National University of Mexico, died on September 20, 1973 and was buried near his home in Cuernavaca, Mexico.

He was born in Berlin on January 27, 1910. He attended the German College of Political Science, the University of Paris, the London School of Economics, and Berlin University, where he received the LL.B. in 1932. For a brief period, he taught at Berlin University and served as an assistant district court judge.

From 1934 to 1941, still under surveillance by the Nazis, he was Walt Disney's representative, first in Scandinavia, later in Mexico and Central America. In 1938, using a Swedish alien's passport, he and his wife, the former Rita Emanuel, and son, Jan, left Europe for Mexico, where they lived until their immigration in 1941 to the United States, where they later became citizens.

Dr. Hartman's first teaching position in the United States was at Lake Forest Academy in Illinois. While there, he enrolled at Northwestern University (Ph.D., 1946). He later taught at the College of Wooster in Ohio (1945-48), and at the Ohio State University (1948-56). He was a visiting professor at Massachusetts Institute of Technology (1955-56), and at Yale (1966). He was Smith Mundt State Department Research Fellow and Exchange Professor at the National University of Mexico (1956-57). He held more than fifty lectureships in the United States, Canada, Latin America, and Europe. He was a research professor of philosophy at the National University of Mexico from 1957 until his death in 1973, and at the University of Tennessee from 1968 until his death in 1973.

His life-long quest was to answer the question, “What is good?”—And to answer the question in such a way that good could be organized to help preserve and enhance the value of human life. He believed that he had found this answer in the axiom upon which he based his science of Axiology, “A thing is good when it fulfills its concept.” His formal axiology, as the ordering logic for the value sciences, receives its most complete expression in his major work, *The Structure of Value: Foundations of Scientific Axiology* (1967).



Validity

Evidence-Based Competencies

Reliability and validity are related concepts; however, they are also distinct concepts that differ in important ways. Reliability refers to consistency; in other words, consistency of test scores over time by observers and incumbents. Validity, according to the American Education Research Association, is defined as “the degree to which evidence and theory support the interpretation of the scores”.

In a variance study conducted in May of 2012 with over 7,000 respondents, the Personal Soft Skills Indicator had total variance. Meaning each question had a response range from minimum to maximum choice. Conducting a 360-degree feedback survey to assess perception of others on an individual’s evidence-based competencies is recommended. 360-degree feedback surveys utilize the variance method to determine validity of individual questions. If at any time a specific question does not have total variance, the question is deemed “bad”. Due to the 360-degree feedback nature of the Personal Soft Skills Indicator, TTI utilizes the same method for validating the questions contained in this questionnaire.

The Hartman Value Profile has a RHO score for both part one and part two to indicate reliability. TTI has a history of being closer in this score to the original Hartman Value Profile than even Hartman’s own research version. The reliability for part one of TTI’s parallel form for the Hartman Value Profile is .897 and for part two it is .825.

Means and standard deviations for the competencies are available upon request.



Predictability

New research demonstrates the value of using multiple assessments to predict and identify entrepreneurs. TTI's statistician uses multivariate analysis, which involves observations and analysis of more than one statistical variable at a time. Using this approach, TTI analyzed its database of serial entrepreneurs showing the following results:

1. If we only used DISC to identify serial entrepreneurs, we would be correct 60% of the time.
2. If we only used motivators, we could correctly identify serial entrepreneurs 59% of the time.
3. If we used both DISC and motivators, our accuracy goes up to over 80%.
4. However, if we add soft skills into the equation, our success rate of picking serial entrepreneurs goes up to 92%.

Serial entrepreneurs have five unique soft skills in common: leadership, personal effectiveness, goal orientation, persuasion, and interpersonal skills.

This research proves that TTI's approach to using multiple assessments to benchmark a job is much more effective than using just one assessment.



Adverse Impact:

Competencies Findings as of February 2012

Random Sample N=17,801

Measurement	Mean	Standard Deviation
Conceptual Thinking	69.47	14.61
Conflict Management	52.83	21.97
Continuous Learning	66.89	20.77
Creativity	49.65	25.44
Customer Focus	72.90	19.35
Decision Making	72.44	10.92
Diplomacy and Tact	60.47	21.47
Empathy	41.13	24.64
Employee Development and Coaching	66.30	20.52
Flexibility	73.19	16.52
Futuristic Thinking	23.24	22.34
Goal Orientation	71.80	19.87
Interpersonal Skills	73.08	27.21
Leadership	60.45	26.39
Negotiation	44.28	29.09
Personal Accountability	70.25	10.79
Persuasion	52.18	29.37
Planning and Organizing	55.16	20.25
Presenting	52.63	31.66
Problem Solving Ability	72.11	18.06
Resiliency	71.76	11.48
Self-Management	71.96	11.97
Teamwork	67.79	20.32
Understanding and Evaluating Others	78.60	15.43
Written Communication	57.98	25.62



Competencies Findings as of February 2012

Males N=10,667

Measurement	Mean	Standard Deviation	Difference from Random Sample
Conceptual Thinking	70.07	14.16	0.60
Conflict Management	56.26	21.64	3.43
Continuous Learning	68.19	19.56	1.30
Creativity	50.83	24.67	1.18
Customer Focus	72.73	18.06	-0.17
Decision Making	72.84	10.73	0.40
Diplomacy and Tact	59.58	22.59	-0.89
Empathy	36.97	24.25	-4.16
Employee Development and Coaching	68.15	19.71	1.85
Flexibility	73.77	15.81	0.58
Futuristic Thinking	24.89	22.66	1.65
Goal Orientation	72.95	20.04	1.15
Interpersonal Skills	72.16	27.02	-0.91
Leadership	65.10	25.03	4.64
Negotiation	51.44	28.41	7.16
Personal Accountability	70.28	10.77	0.03
Persuasion	58.61	28.37	6.43
Planning and Organizing	51.99	19.56	-3.17
Presenting	58.73	30.48	6.09
Problem Solving Ability	72.43	17.31	0.31
Resiliency	71.59	11.54	-0.17
Self-Management	72.11	11.95	0.15
Teamwork	69.18	19.44	1.39
Understanding and Evaluating Others	79.15	14.74	0.55
Written Communication	57.24	25.39	-0.74



Competencies Findings as of February 2012

Females N=7,134

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	68.56	15.23	-0.92	-1.51
Conflict Management	49.95	21.84	-2.88	-6.32
Continuous Learning	65.81	21.70	-1.08	-2.38
Creativity	48.69	26.04	-0.96	-2.14
Customer Focus	73.03	20.39	0.14	0.30
Decision Making	71.83	11.15	-0.61	-1.01
Diplomacy and Tact	61.26	20.44	0.79	1.68
Empathy	44.59	24.46	3.46	7.62
Employee Development and Coaching	64.79	21.05	-1.51	-3.36
Flexibility	72.30	17.52	-0.89	-1.47
Futuristic Thinking	21.87	22.00	-1.37	-3.02
Goal Orientation	70.81	19.69	-0.99	-2.14
Interpersonal Skills	73.82	27.36	0.74	1.66
Leadership	56.59	26.89	-3.86	-8.51
Negotiation	38.33	28.33	-5.95	-13.11
Personal Accountability	70.23	10.77	-0.02	-0.05
Persuasion	46.79	29.12	-5.39	-11.82
Planning and Organizing	57.80	20.46	2.64	5.81
Presenting	47.56	31.77	-5.08	-11.17
Problem Solving Ability	71.65	19.12	-0.47	-0.78
Resiliency	72.05	11.34	0.29	0.46
Self-Management	71.74	11.97	-0.22	-0.37
Teamwork	66.62	20.97	-1.17	-2.57
Understanding and Evaluating Others	77.75	16.39	-0.85	-1.40
Written Communication	58.59	25.83	0.61	1.35



Competencies Findings as of February 2012

Caucasians N=11,988

Measurement	Mean	Standard Deviation	Difference from Random Sample
Conceptual Thinking	70.91	13.59	1.43
Conflict Management	53.12	21.83	0.29
Continuous Learning	66.07	21.04	-0.82
Creativity	50.78	25.50	1.13
Customer Focus	72.43	19.03	-0.46
Decision Making	73.40	10.25	0.96
Diplomacy and Tact	60.08	21.81	-0.39
Empathy	40.67	24.36	-0.46
Employee Development and Coaching	65.92	20.25	-0.38
Flexibility	74.93	15.03	1.73
Futuristic Thinking	23.44	22.38	0.20
Goal Orientation	71.88	19.73	0.09
Interpersonal Skills	71.85	27.75	-1.22
Leadership	60.50	26.23	0.05
Negotiation	44.35	29.34	0.06
Personal Accountability	70.85	10.29	0.60
Persuasion	52.02	29.30	0.02
Planning and Organizing	54.70	20.28	-0.46
Presenting	51.44	31.93	-1.22
Problem Solving Ability	73.86	16.34	1.75
Resiliency	72.07	11.10	0.31
Self-Management	72.62	11.39	0.67
Teamwork	68.00	20.16	0.21
Understanding and Evaluating Others	80.33	13.67	1.73
Written Communication	57.96	25.44	-0.02



Competencies Findings as of February 2012

African Americans N=1,849

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	64.16	17.33	-5.32	-6.75
Conflict Management	51.27	22.81	-1.56	-1.86
Continuous Learning	70.70	17.28	3.81	4.63
Creativity	40.21	21.91	-9.45	-10.57
Customer Focus	74.94	21.17	2.04	2.51
Decision Making	69.48	12.39	-2.96	-3.93
Diplomacy and Tact	60.56	17.44	0.09	0.48
Empathy	48.04	23.79	6.91	7.36
Employee Development and Coaching	67.24	21.33	0.94	1.32
Flexibility	66.65	20.47	-6.55	-8.28
Futuristic Thinking	18.78	19.79	-4.46	-4.66
Goal Orientation	67.12	18.19	-4.68	-4.76
Interpersonal Skills	71.48	29.98	-1.60	-0.38
Leadership	60.55	27.63	0.09	0.05
Negotiation	39.30	28.30	-4.98	-5.04
Personal Accountability	68.62	11.79	-1.63	-2.23
Persuasion	50.45	29.81	-1.73	-1.75
Planning and Organizing	54.15	20.57	-1.01	-0.55
Presenting	57.84	27.39	5.21	6.43
Problem Solving Ability	66.05	22.65	-6.06	-7.81
Resiliency	71.66	12.06	-0.10	-0.41
Self-Management	69.89	13.23	-2.07	-2.73
Teamwork	68.40	22.18	0.61	0.40
Understanding and Evaluating Others	72.95	19.39	-5.64	-7.38
Written Communication	57.04	25.98	-0.95	-0.93



Competencies Findings as of February 2012

American Indian or Alaskan Native N=175

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	67.32	16.21	-2.15	-3.59
Conflict Management	44.50	19.00	-8.33	-8.62
Continuous Learning	59.25	21.14	-7.64	-6.82
Creativity	55.75	28.49	6.10	4.97
Customer Focus	75.92	17.22	3.02	3.48
Decision Making	71.05	11.95	-1.39	-2.35
Diplomacy and Tact	52.58	18.20	-7.89	-7.50
Empathy	28.42	17.61	-12.71	-12.26
Employee Development and Coaching	68.00	23.05	1.70	2.08
Flexibility	69.86	19.28	-3.33	-5.07
Futuristic Thinking	16.92	23.88	-6.32	-6.53
Goal Orientation	68.83	22.06	-2.96	-3.05
Interpersonal Skills	81.42	13.88	8.34	9.56
Leadership	60.75	34.66	0.30	0.25
Negotiation	31.67	22.64	-12.62	-12.68
Personal Accountability	69.66	11.51	-0.59	-1.18
Persuasion	46.17	25.65	-6.01	-6.04
Planning and Organizing	58.92	10.83	3.76	4.22
Presenting	51.92	34.38	-0.72	0.50
Problem Solving Ability	69.35	20.99	-2.76	-4.51
Resiliency	71.81	11.70	0.05	-0.26
Self-Management	71.09	12.82	-0.86	-1.53
Teamwork	57.08	20.04	-10.71	-10.92
Understanding and Evaluating Others	75.72	18.78	-2.88	-4.61
Written Communication	51.42	20.40	-6.57	-6.55



Competencies Findings as of February 2012

Asian N=1,079

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	66.12	15.78	-3.35	-4.78
Conflict Management	50.94	20.95	-1.89	-2.18
Continuous Learning	71.46	18.14	4.57	5.39
Creativity	46.53	24.74	-3.13	-4.25
Customer Focus	75.87	19.08	2.97	3.44
Decision Making	69.67	11.61	-2.78	-3.74
Diplomacy and Tact	63.79	20.80	3.31	3.71
Empathy	39.73	27.77	-1.40	-0.94
Employee Development and Coaching	69.60	19.57	3.30	3.68
Flexibility	69.68	17.63	-3.52	-5.25
Futuristic Thinking	24.98	20.76	1.75	1.54
Goal Orientation	77.43	17.22	5.63	5.55
Interpersonal Skills	80.71	21.75	7.64	8.86
Leadership	66.09	24.31	5.63	5.58
Negotiation	48.83	29.88	4.54	4.48
Personal Accountability	68.44	11.47	-1.81	-2.40
Persuasion	57.40	28.90	5.22	5.20
Planning and Organizing	60.99	18.19	5.83	6.29
Presenting	64.71	30.86	12.08	13.30
Problem Solving Ability	67.57	20.03	-4.54	-6.30
Resiliency	70.18	12.09	-1.58	-1.89
Self-Management	70.77	12.85	-1.19	-1.85
Teamwork	72.94	20.38	5.15	4.94
Understanding and Evaluating Others	73.03	17.43	-5.56	-7.30
Written Communication	60.61	23.14	2.63	2.65



Competencies Findings as of February 2012

Hispanic or Latino N=1,078

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	67.33	15.99	-2.14	-3.58
Conflict Management	53.90	23.05	1.07	0.78
Continuous Learning	68.82	21.01	1.93	2.75
Creativity	45.23	25.05	-4.13	-5.26
Customer Focus	76.10	19.69	3.20	3.67
Decision Making	71.17	12.18	-1.27	-2.23
Diplomacy and Tact	61.40	20.90	0.93	1.32
Empathy	41.45	23.82	0.32	0.78
Employee Development and Coaching	67.67	20.45	1.36	1.75
Flexibility	70.57	18.33	-2.63	-4.36
Futuristic Thinking	23.59	23.21	0.35	0.14
Goal Orientation	74.30	21.01	2.50	2.42
Interpersonal Skills	79.07	24.18	5.99	7.22
Leadership	63.54	24.98	3.08	3.03
Negotiation	46.86	28.27	2.57	2.51
Personal Accountability	69.15	12.17	-1.10	-1.70
Persuasion	53.19	31.96	1.01	0.99
Planning and Organizing	57.91	21.36	2.75	3.21
Presenting	51.49	32.51	-1.14	0.08
Problem Solving Ability	69.61	20.26	-2.50	-4.25
Resiliency	71.03	12.50	-0.74	-1.05
Self-Management	70.92	13.27	-1.04	-1.71
Teamwork	69.44	18.93	1.66	1.44
Understanding and Evaluating Others	76.50	17.55	-2.09	-3.83
Written Communication	54.55	26.61	-3.44	-3.42



Competencies Findings as of February 2012

Two or More Races N=608

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	70.16	13.80	0.68	-0.75
Conflict Management	58.32	23.03	5.49	5.19
Continuous Learning	75.98	17.18	9.09	9.91
Creativity	50.32	25.00	0.66	-0.46
Customer Focus	80.64	14.94	7.74	8.20
Decision Making	72.33	10.93	-0.11	-1.08
Diplomacy and Tact	65.98	19.33	5.50	5.90
Empathy	46.66	26.29	5.53	5.99
Employee Development and Coaching	72.05	21.08	5.74	6.12
Flexibility	73.68	15.95	0.49	-1.24
Futuristic Thinking	25.05	21.22	1.81	1.60
Goal Orientation	73.52	21.50	1.72	1.64
Interpersonal Skills	83.80	20.76	10.72	11.94
Leadership	67.91	24.74	7.45	7.41
Negotiation	52.18	26.08	7.90	7.83
Personal Accountability	70.13	10.83	-0.12	-0.71
Persuasion	60.00	26.51	7.82	7.80
Planning and Organizing	50.16	16.97	-5.00	-4.54
Presenting	62.34	29.19	9.71	10.93
Problem Solving Ability	72.47	17.03	0.36	-1.39
Resiliency	71.34	11.92	-0.42	-0.73
Self-Management	71.16	12.36	-0.80	-1.47
Teamwork	70.41	18.91	2.62	2.41
Understanding and Evaluating Others	78.90	14.43	0.31	-1.43
Written Communication	61.89	26.29	3.90	3.92



Competencies Findings as of February 2012

Non-Disabled N=16,575

Measurement	Mean	Standard Deviation	Difference from Random Sample
Conceptual Thinking	69.55	14.55	0.07
Conflict Management	53.07	21.83	0.24
Continuous Learning	67.09	20.85	0.20
Creativity	49.62	25.34	-0.03
Customer Focus	73.22	19.26	0.32
Decision Making	72.53	10.84	0.09
Diplomacy and Tact	60.56	21.39	0.09
Empathy	41.22	24.69	0.09
Employee Development and Coaching	66.44	20.37	0.14
Flexibility	73.28	16.45	0.08
Futuristic Thinking	23.14	22.15	-0.10
Goal Orientation	71.98	19.82	0.18
Interpersonal Skills	73.39	27.17	0.31
Leadership	61.25	26.23	0.80
Negotiation	44.53	29.07	0.25
Personal Accountability	70.35	10.69	0.10
Persuasion	52.69	29.31	0.51
Planning and Organizing	55.13	20.37	-0.03
Presenting	52.98	31.74	0.34
Problem Solving Ability	72.23	17.97	0.12
Resiliency	71.86	11.36	0.10
Self-Management	72.07	11.86	0.11
Teamwork	68.47	20.13	0.68
Understanding and Evaluating Others	78.65	15.39	0.05
Written Communication	57.94	25.42	-0.04



Competencies Findings as of February 2012

Disabled N=228

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	66.58	17.01	-2.90	-2.97
Conflict Management	49.60	24.75	-3.24	-3.48
Continuous Learning	68.98	19.52	2.09	1.89
Creativity	53.76	27.30	4.11	4.14
Customer Focus	70.29	15.58	-2.61	-2.93
Decision Making	69.96	12.72	-2.49	-2.58
Diplomacy and Tact	62.64	19.74	2.17	2.08
Empathy	38.60	24.28	-2.54	-2.63
Employee Development and Coaching	69.31	20.63	3.01	2.87
Flexibility	69.94	18.81	-3.26	-3.34
Futuristic Thinking	28.88	27.00	5.64	5.74
Goal Orientation	74.43	18.07	2.63	2.45
Interpersonal Skills	70.17	26.23	-2.91	-3.22
Leadership	55.24	28.99	-5.22	-6.01
Negotiation	43.83	31.83	-0.45	-0.70
Personal Accountability	67.38	12.42	-2.88	-2.97
Persuasion	53.14	31.95	0.96	0.45
Planning and Organizing	58.29	17.13	3.13	3.16
Presenting	54.21	32.33	1.58	1.24
Problem Solving Ability	67.67	20.57	-4.45	-4.57
Resiliency	69.12	12.88	-2.64	-2.74
Self-Management	68.66	13.51	-3.30	-3.41
Teamwork	65.90	21.60	-1.88	-2.56
Understanding and Evaluating Others	76.25	15.71	-2.35	-2.40
Written Communication	59.26	28.66	1.28	1.32



Competencies Findings as of February 2012

Non-Veteran N=15,517

Measurement	Mean	Standard Deviation	Difference from Random Sample
Conceptual Thinking	69.54	14.65	0.07
Conflict Management	52.64	22.10	-0.19
Continuous Learning	66.94	20.90	0.05
Creativity	49.57	25.42	-0.09
Customer Focus	73.29	19.23	0.40
Decision Making	72.50	10.90	0.06
Diplomacy and Tact	60.82	21.17	0.35
Empathy	41.51	24.53	0.38
Employee Development and Coaching	66.20	20.46	-0.10
Flexibility	73.25	16.53	0.06
Futuristic Thinking	23.29	22.01	0.05
Goal Orientation	71.92	19.82	0.12
Interpersonal Skills	73.22	27.26	0.15
Leadership	60.54	26.42	0.09
Negotiation	44.00	29.20	-0.29
Personal Accountability	70.31	10.74	0.06
Persuasion	51.98	29.43	-0.20
Planning and Organizing	55.58	20.29	0.42
Presenting	52.32	31.75	-0.31
Problem Solving Ability	72.20	18.07	0.08
Resiliency	71.81	11.42	0.05
Self-Management	72.01	11.92	0.05
Teamwork	68.30	20.39	0.51
Understanding and Evaluating Others	78.61	15.43	0.01
Written Communication	58.06	25.45	0.07



Competencies Findings as of February 2012

Disabled Veteran N=122

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	69.44	14.41	-0.03	-0.10
Conflict Management	52.27	19.46	-0.56	-0.37
Continuous Learning	63.27	22.79	-3.61	-3.66
Creativity	52.14	23.80	2.48	2.57
Customer Focus	70.14	20.42	-2.76	-3.16
Decision Making	72.50	11.23	0.05	0.00
Diplomacy and Tact	51.73	22.53	-8.75	-9.10
Empathy	29.05	27.10	-12.09	-12.46
Employee Development and Coaching	66.50	24.63	0.20	0.30
Flexibility	74.01	15.76	0.82	0.76
Futuristic Thinking	28.00	24.59	4.76	4.71
Goal Orientation	79.82	13.52	8.02	7.90
Interpersonal Skills	70.05	33.44	-3.03	-3.18
Leadership	68.05	28.93	7.59	7.50
Negotiation	50.00	25.45	5.72	6.00
Personal Accountability	70.36	10.10	0.11	0.04
Persuasion	58.14	32.83	5.96	6.16
Planning and Organizing	61.32	16.62	6.16	5.74
Presenting	63.00	34.21	10.37	10.68
Problem Solving Ability	72.34	17.79	0.23	0.14
Resiliency	72.04	10.07	0.28	0.23
Self-Management	71.83	11.34	-0.12	-0.17
Teamwork	67.45	16.62	-0.33	-0.85
Understanding and Evaluating Others	79.13	15.21	0.53	0.52
Written Communication	60.86	23.20	2.88	2.81



Competencies Findings as of February 2012

Other Veteran N=895

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	69.31	13.62	-0.16	-0.23
Conflict Management	55.86	19.59	3.03	3.22
Continuous Learning	67.85	21.32	0.96	0.91
Creativity	49.25	25.67	-0.40	-0.32
Customer Focus	70.06	19.11	-2.84	-3.23
Decision Making	72.57	10.62	0.13	0.07
Diplomacy and Tact	57.97	22.99	-2.50	-2.85
Empathy	40.75	25.12	-0.38	-0.76
Employee Development and Coaching	66.31	18.79	0.01	0.11
Flexibility	73.27	15.95	0.08	0.02
Futuristic Thinking	23.01	24.37	-0.23	-0.28
Goal Orientation	72.99	20.06	1.19	1.07
Interpersonal Skills	73.36	26.98	0.28	0.14
Leadership	62.97	26.22	2.52	2.43
Negotiation	47.04	28.16	2.76	3.04
Personal Accountability	70.26	10.88	0.01	-0.05
Persuasion	57.94	26.09	5.76	5.96
Planning and Organizing	49.37	19.45	-5.79	-6.21
Presenting	52.55	31.54	-0.08	0.23
Problem Solving Ability	72.32	17.17	0.21	0.12
Resiliency	72.09	11.48	0.32	0.27
Self-Management	72.15	12.08	0.19	0.14
Teamwork	68.72	19.41	0.93	0.42
Understanding and Evaluating Others	79.28	14.84	0.69	0.68
Written Communication	53.44	26.82	-4.54	-4.62



Competencies Findings as of February 2012

Vietnam Veteran N=216

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Conceptual Thinking	68.86	12.91	-0.62	-0.68
Conflict Management	62.03	22.41	9.20	9.39
Continuous Learning	71.61	15.62	4.72	4.67
Creativity	53.58	24.21	3.92	4.01
Customer Focus	79.61	14.90	6.71	6.31
Decision Making	73.12	9.75	0.68	0.63
Diplomacy and Tact	67.00	20.70	6.53	6.18
Empathy	40.06	25.86	-1.07	-1.45
Employee Development and Coaching	75.70	17.72	9.39	9.49
Flexibility	73.42	15.69	0.22	0.17
Futuristic Thinking	22.24	23.89	-1.00	-1.05
Goal Orientation	73.00	21.00	1.20	1.08
Interpersonal Skills	76.91	25.13	3.83	3.69
Leadership	70.64	17.95	10.18	10.09
Negotiation	53.12	30.80	8.84	9.12
Personal Accountability	70.78	9.02	0.53	0.46
Persuasion	61.97	30.46	9.79	9.99
Planning and Organizing	51.09	22.33	-4.07	4.48
Presenting	65.58	27.98	12.94	13.26
Problem Solving Ability	72.24	16.05	0.13	0.04
Resiliency	72.36	8.61	0.60	0.55
Self-Management	73.14	9.77	1.19	1.13
Teamwork	70.52	17.71	2.73	2.21
Understanding Others	79.47	14.08	0.88	0.86
Written Communication	67.94	24.48	9.95	9.88

*The difference from the non-protected group compares the protected subgroup to the non-protected subgroup within the same EEOC category. All data has been rounded to the nearest hundredth.



Adverse Impact:

Personal Soft Skills Indicator Findings as of February 2012

Random Sample N = 17,801

Measurement	Mean	Standard Deviation
Analytical Problem Solving	54.79	19.05
Conflict Management	52.83	21.97
Continuous Learning	66.89	20.77
Creativity and Innovation	49.65	25.44
Customer Service	72.90	19.35
Decision Making	43.78	24.03
Diplomacy	60.47	21.47
Empathy	41.13	24.64
Employee Development and Coaching	66.30	20.52
Flexibility	48.97	22.78
Futuristic Thinking	23.24	22.34
Goal Orientation	71.80	19.87
Interpersonal Skills	73.08	27.21
Leadership	60.45	26.39
Management	53.97	17.67
Negotiation	44.28	29.09
Personal Effectiveness	55.98	21.13
Planning and Organizing	55.16	20.25
Persuasion	52.18	29.37
Presenting	52.63	31.66
Self-Management	59.59	27.11
Teamwork	67.79	20.32
Written Communication	57.98	25.62



Personal Soft Skills Indicator Findings as of February 2012

Males N = 10,667

Measurement	Mean	Standard Deviation	Difference from Random Sample
Analytical Problem Solving	57.49	18.26	2.70
Conflict Management	56.26	21.64	3.43
Continuous Learning	68.19	19.56	1.30
Creativity and Innovation	50.83	24.67	1.18
Customer Service	72.73	18.06	-0.17
Decision Making	46.22	22.89	2.44
Diplomacy	59.58	22.59	-0.89
Empathy	36.97	24.25	-4.16
Employee Development and Coaching	68.15	19.71	1.85
Flexibility	49.83	22.43	0.86
Futuristic Thinking	24.89	22.66	1.65
Goal Orientation	72.95	20.04	1.15
Interpersonal Skills	72.16	27.02	-0.91
Leadership	65.10	25.03	4.64
Management	56.88	17.48	2.91
Negotiation	51.44	28.41	7.16
Personal Effectiveness	60.62	19.95	4.64
Planning and Organizing	51.99	19.56	-3.17
Persuasion	58.61	28.37	6.43
Presenting	58.73	30.48	6.09
Self-Management	60.32	26.73	0.73
Teamwork	69.18	19.44	1.39
Written Communication	57.24	25.39	-0.74



Personal Soft Skills Indicator Findings as of February 2012

Females N = 7,134

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	52.58	19.39	-2.21	-4.91
Conflict Management	49.95	21.84	-2.88	-6.31
Continuous Learning	65.81	21.70	-1.07	-2.38
Creativity and Innovation	48.69	26.04	-0.96	-2.14
Customer Service	73.03	20.39	0.14	0.30
Decision Making	41.73	24.78	-2.05	-4.49
Diplomacy	61.23	20.44	0.79	1.65
Empathy	44.59	24.46	3.46	7.62
Employee Development and Coaching	64.79	21.05	-1.51	-3.36
Flexibility	48.26	23.07	-0.71	-1.57
Futuristic Thinking	21.87	22.00	-1.37	-3.02
Goal Orientation	70.81	19.69	-0.99	-2.14
Interpersonal Skills	73.82	27.36	0.74	1.66
Leadership	56.59	26.89	-3.86	-8.51
Management	51.55	17.48	-2.42	-5.33
Negotiation	38.33	28.32	-5.95	-13.11
Personal Effectiveness	52.11	21.33	-3.87	-8.51
Planning and Organizing	57.80	20.46	2.64	5.81
Persuasion	46.79	29.12	-5.39	-11.82
Presenting	47.56	31.77	-5.08	-11.17
Self-Management	58.99	27.44	-0.60	-1.33
Teamwork	66.62	20.97	-1.17	-2.56
Written Communication	58.59	25.83	0.61	1.35



Personal Soft Skills Indicator Findings as of February 2012

Caucasians N = 11,988

Measurement	Mean	Standard Deviation	Difference from Random Sample
Analytical Problem Solving	54.12	18.50	-0.67
Conflict Management	53.12	21.83	0.29
Continuous Learning	66.07	21.04	-0.81
Creativity and Innovation	50.78	25.50	1.13
Customer Service	72.43	19.03	-0.46
Decision Making	43.63	23.56	-0.16
Diplomacy	60.08	21.81	-0.39
Empathy	40.67	24.36	-0.46
Employee Development and Coaching	65.92	20.25	-0.38
Flexibility	49.16	23.06	0.19
Futuristic Thinking	23.44	22.38	0.20
Goal Orientation	71.88	19.72	0.09
Interpersonal Skills	71.85	27.75	-1.22
Leadership	60.50	26.23	0.05
Management	53.99	17.23	0.02
Negotiation	44.35	29.34	0.06
Personal Effectiveness	55.34	21.13	-0.64
Planning and Organizing	54.70	20.28	-0.46
Persuasion	52.20	29.30	0.02
Presenting	51.41	31.93	-1.22
Self-Management	59.05	27.35	-0.54
Teamwork	68.00	20.16	0.21
Written Communication	57.96	25.44	-0.02



Personal Soft Skills Indicator Findings as of February 2012

African Americans N = 1,849

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	56.13	20.35	1.34	2.01
Conflict Management	51.27	22.81	-1.56	-1.85
Continuous Learning	70.70	17.28	3.81	4.63
Creativity and Innovation	40.21	21.91	-9.45	-10.57
Customer Service	74.94	21.17	2.04	2.51
Decision Making	44.16	24.26	0.37	0.53
Diplomacy	60.56	17.44	0.09	0.48
Empathy	48.04	23.79	6.91	7.37
Employee Development and Coaching	67.24	21.32	0.94	1.32
Flexibility	46.05	19.48	-2.92	-3.11
Futuristic Thinking	18.78	19.79	-4.46	-4.66
Goal Orientation	67.12	18.19	-4.68	-4.76
Interpersonal Skills	71.48	29.98	-1.60	-0.37
Leadership	60.55	27.63	0.09	0.05
Management	50.90	18.57	-3.07	-3.09
Negotiation	39.30	28.30	-4.98	-5.05
Personal Effectiveness	54.54	21.81	-1.44	-0.80
Planning and Organizing	54.15	20.57	-1.01	-0.55
Persuasion	50.45	29.81	-1.73	-1.75
Presenting	57.84	27.39	5.21	6.43
Self-Management	62.54	26.33	2.95	3.49
Teamwork	68.40	22.18	0.61	0.40
Written Communication	57.04	25.98	-0.95	-0.92



Personal Soft Skills Indicator Findings as of February 2012

American Indian or Alaskan Native N = 175

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	57.08	22.36	2.29	2.96
Conflict Management	44.50	19.00	-8.33	-8.62
Continuous Learning	59.25	21.14	-7.64	-6.82
Creativity and Innovation	55.75	28.47	6.10	4.97
Customer Service	75.92	17.22	3.02	3.49
Decision Making	35.58	28.20	-8.20	-8.05
Diplomacy	52.58	18.20	-7.89	-7.50
Empathy	28.42	17.61	-12.71	-12.25
Employee Development and Coaching	68.00	23.05	1.70	2.08
Flexibility	43.67	18.42	-5.30	-5.49
Futuristic Thinking	16.92	23.88	-6.32	-6.52
Goal Orientation	68.83	22.06	-2.96	-3.05
Interpersonal Skills	81.42	13.88	8.34	9.57
Leadership	60.75	34.66	0.30	0.25
Management	49.75	18.00	-4.22	-4.24
Negotiation	31.67	22.64	-12.62	-12.68
Personal Effectiveness	54.17	18.16	-1.81	-1.17
Planning and Organizing	58.92	10.83	3.76	4.22
Persuasion	46.17	25.65	-6.01	-6.03
Presenting	51.92	34.38	-0.72	-0.51
Self-Management	62.58	25.41	2.99	3.53
Teamwork	57.08	20.04	-10.71	-10.92
Written Communication	51.42	20.40	-6.57	-6.54



Personal Soft Skills Indicator Findings as of February 2012

Asian N = 1,079

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	63.67	19.43	8.88	9.55
Conflict Management	50.94	20.95	-1.89	-2.18
Continuous Learning	71.46	18.14	4.57	5.39
Creativity and Innovation	46.53	24.74	-3.13	-4.25
Customer Service	75.87	19.08	2.97	3.44
Decision Making	46.93	25.16	3.14	3.30
Diplomacy	63.79	20.80	3.31	3.71
Empathy	39.73	27.77	-1.40	-0.94
Employee Development and Coaching	69.60	19.57	3.30	3.68
Flexibility	53.99	20.31	5.02	4.85
Futuristic Thinking	24.99	20.76	1.75	1.55
Goal Orientation	77.43	17.22	5.63	5.55
Interpersonal Skills	80.71	21.75	7.64	8.86
Leadership	66.09	24.31	5.63	5.59
Management	54.34	18.85	0.37	0.35
Negotiation	48.83	29.88	4.54	4.48
Personal Effectiveness	60.76	18.20	4.78	5.42
Planning and Organizing	60.99	18.19	5.83	6.29
Persuasion	57.40	28.90	5.22	5.20
Presenting	64.71	30.86	12.08	13.30
Self-Management	64.94	23.78	5.35	5.89
Teamwork	72.94	20.38	5.15	4.94
Written Communication	60.61	23.14	2.63	2.65



Personal Soft Skills Indicator Findings as of February 2012

Hispanic or Latino N = 1,078

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	56.30	21.89	1.51	2.18
Conflict Management	53.90	23.05	1.07	0.78
Continuous Learning	68.82	21.01	1.93	2.75
Creativity and Innovation	45.53	25.05	-4.12	-5.25
Customer Service	76.10	19.69	3.20	3.67
Decision Making	49.91	22.64	6.13	6.28
Diplomacy	61.40	20.90	0.93	1.32
Empathy	41.45	23.82	0.32	0.78
Employee Development and Coaching	67.67	20.45	1.36	1.75
Flexibility	50.18	21.86	1.21	1.02
Futuristic Thinking	23.59	23.31	0.35	0.15
Goal Orientation	74.30	21.01	2.50	2.42
Interpersonal Skills	79.07	24.18	5.99	7.22
Leadership	63.54	24.98	3.08	3.04
Management	55.62	20.07	1.65	1.63
Negotiation	46.86	28.27	2.57	2.51
Personal Effectiveness	60.43	20.77	4.46	5.09
Planning and Organizing	57.91	21.36	2.75	3.21
Persuasion	53.19	31.96	1.01	0.99
Presenting	51.49	32.51	-1.14	-0.08
Self-Management	63.25	26.32	3.66	4.20
Teamwork	69.44	18.93	1.66	1.44
Written Communication	54.55	26.61	-3.44	-3.41



Personal Soft Skills Indicator Findings as of February 2012

Two or More Races N = 608

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	53.43	17.98	-1.36	-0.69
Conflict Management	58.32	23.03	5.49	5.20
Continuous Learning	75.98	17.18	9.09	9.91
Creativity and Innovation	50.32	25.00	0.66	-0.46
Customer Service	80.64	14.94	7.74	8.21
Decision Making	46.70	23.26	2.92	3.07
Diplomacy	65.97	19.33	5.50	5.89
Empathy	46.66	26.29	5.53	5.99
Employee Development and Coaching	72.05	21.08	5.74	6.13
Flexibility	54.91	19.38	5.94	5.75
Futuristic Thinking	25.05	21.22	1.81	1.61
Goal Orientation	73.52	21.50	1.72	1.64
Interpersonal Skills	83.80	20.76	10.72	11.95
Leadership	67.91	24.74	7.45	7.41
Management	53.95	19.19	-0.02	-0.04
Negotiation	52.18	26.08	7.90	7.83
Personal Effectiveness	59.52	17.06	3.54	4.18
Planning and Organizing	50.16	16.97	-5.00	-4.54
Persuasion	60.00	26.51	7.82	7.80
Presenting	62.34	29.19	9.71	10.93
Self-Management	56.82	24.92	-2.77	-2.23
Teamwork	70.41	18.91	2.62	2.41
Written Communication	61.89	26.29	3.90	3.93



Personal Soft Skills Indicator Findings as of February 2012

Non-Disabled = 16,575

Measurement	Mean	Standard Deviation	Difference from Random Sample
Analytical Problem Solving	54.87	18.97	0.08
Conflict Management	53.07	21.83	0.24
Continuous Learning	67.09	20.85	0.20
Creativity and Innovation	49.62	25.34	-0.03
Customer Service	73.22	19.26	0.32
Decision Making	44.29	23.82	0.50
Diplomacy	60.56	21.39	0.09
Empathy	41.22	24.69	0.09
Employee Development and Coaching	66.44	20.37	0.14
Flexibility	49.39	22.53	0.42
Futuristic Thinking	23.14	22.15	-0.10
Goal Orientation	71.98	19.82	0.18
Interpersonal Skills	73.39	27.17	0.31
Leadership	61.25	26.23	0.80
Management	53.90	17.68	-0.07
Negotiation	44.53	29.07	0.25
Personal Effectiveness	56.27	20.84	0.29
Planning and Organizing	55.13	20.37	-0.03
Persuasion	52.69	29.31	0.51
Presenting	52.98	31.74	0.34
Self-Management	59.89	26.95	0.30
Teamwork	68.47	20.13	0.68
Written Communication	57.94	25.42	-0.04



Personal Soft Skills Indicator Findings as of February 2012

Disabled = 228

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	57.93	21.07	3.14	3.06
Conflict Management	49.60	24.75	-3.24	-3.48
Continuous Learning	68.98	19.52	2.09	1.89
Creativity and Innovation	53.76	27.30	4.11	4.14
Customer Service	70.29	15.58	-2.61	-2.93
Decision Making	42.31	24.30	-1.47	-1.98
Diplomacy	62.64	19.74	2.17	2.08
Empathy	38.60	24.28	-2.54	-2.63
Employee Development and Coaching	69.31	20.63	3.01	2.87
Flexibility	48.12	26.80	-0.85	-1.27
Futuristic Thinking	28.88	27.00	5.64	5.74
Goal Orientation	74.43	18.07	2.63	2.45
Interpersonal Skills	70.17	26.23	-2.91	-3.22
Leadership	55.24	28.99	-5.22	-6.01
Management	55.10	17.53	1.12	1.19
Negotiation	48.83	31.83	-0.45	4.30
Personal Effectiveness	53.45	22.94	-2.53	-2.82
Planning and Organizing	58.29	17.13	3.13	3.16
Persuasion	53.14	31.95	0.96	0.45
Presenting	54.21	32.33	1.58	1.23
Self-Management	57.33	26.19	-2.26	-2.56
Teamwork	65.90	21.60	-1.88	-2.57
Written Communication	59.26	28.66	1.28	1.32



Personal Soft Skills Indicator Findings as of February 2012

Non-Veteran = 15,517

Measurement	Mean	Standard Deviation	Difference from Random Sample
Analytical Problem Solving	54.39	19.03	0.40
Conflict Management	52.64	22.10	-0.19
Continuous Learning	66.94	20.90	0.05
Creativity and Innovation	49.57	25.42	-0.09
Customer Service	73.29	19.23	0.40
Decision Making	43.84	24.05	0.06
Diplomacy	60.82	21.17	0.35
Empathy	41.51	24.53	0.38
Employee Development and Coaching	66.20	20.46	-0.10
Flexibility	49.34	22.65	0.37
Futuristic Thinking	23.29	22.01	0.05
Goal Orientation	71.92	19.82	0.12
Interpersonal Skills	73.22	27.26	0.15
Leadership	60.54	26.42	0.09
Management	53.71	17.74	-0.26
Negotiation	44.00	29.20	-0.29
Personal Effectiveness	55.89	20.95	-0.09
Planning and Organizing	55.58	20.29	0.42
Persuasion	51.98	29.43	-0.20
Presenting	52.32	31.75	-0.31
Self-Management	59.59	27.00	0.00
Teamwork	68.30	20.39	0.51
Written Communication	58.06	25.45	0.07



Personal Soft Skills Indicator Findings as of February 2012

Disabled Veteran = 122

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	59.55	13.94	4.75	5.16
Conflict Management	52.27	19.46	-0.56	-0.37
Continuous Learning	63.27	22.79	-3.61	-3.67
Creativity and Innovation	52.14	23.80	2.48	2.57
Customer Service	70.14	20.42	-2.76	-3.15
Decision Making	51.32	22.72	7.53	7.48
Diplomacy	51.73	22.53	-8.75	-9.09
Empathy	29.05	27.10	-12.09	-12.46
Employee Development and Coaching	66.50	24.63	0.20	0.30
Flexibility	48.27	26.55	-0.70	-1.07
Futuristic Thinking	28.00	24.59	4.76	4.71
Goal Orientation	79.82	13.52	8.02	7.90
Interpersonal Skills	70.05	33.44	-3.03	-3.17
Leadership	68.05	28.93	7.59	7.51
Management	56.36	13.15	2.39	2.65
Negotiation	50.00	25.45	5.72	6.00
Personal Effectiveness	60.59	20.29	4.61	4.70
Planning and Organizing	61.32	16.62	6.16	5.74
Persuasion	58.14	32.83	5.96	6.16
Presenting	63.00	34.21	10.37	10.68
Self-Management	68.36	23.37	8.77	8.77
Teamwork	67.45	16.62	-0.33	-0.85
Written Communication	60.86	23.20	2.88	2.80



Personal Soft Skills Indicator Findings as of February 2012

Other Veteran = 895

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	55.57	17.95	0.78	1.18
Conflict Management	55.86	19.59	3.03	3.22
Continuous Learning	67.85	21.32	0.96	0.91
Creativity and Innovation	49.25	25.67	-0.40	-0.32
Customer Service	70.06	19.11	-2.84	-3.23
Decision Making	46.95	22.35	3.17	3.11
Diplomacy	57.97	22.98	-2.50	-2.85
Empathy	40.75	25.12	-0.38	-0.76
Employee Development and Coaching	66.31	18.79	0.01	0.11
Flexibility	50.12	21.01	1.15	0.78
Futuristic Thinking	23.01	24.37	-0.23	-0.28
Goal Orientation	72.99	20.06	1.19	1.07
Interpersonal Skills	73.36	26.98	0.28	0.14
Leadership	62.97	26.22	2.52	2.43
Management	54.29	18.47	0.32	0.58
Negotiation	47.04	28.16	2.76	3.04
Personal Effectiveness	56.36	21.45	0.38	0.47
Planning and Organizing	49.37	19.45	-5.79	-6.21
Persuasion	57.94	26.09	5.76	5.96
Presenting	52.55	31.54	-0.08	0.23
Self-Management	58.70	28.87	-0.89	0.89
Teamwork	68.72	19.41	0.93	0.42
Written Communication	53.44	26.82	-4.54	-4.62



Personal Soft Skills Indicator Findings as of February 2012

Vietnam Veteran = 216

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group
Analytical Problem Solving	63.45	20.55	8.66	9.06
Conflict Management	62.03	22.41	9.20	9.39
Continuous Learning	71.61	15.62	4.72	4.67
Creativity and Innovation	53.58	24.21	3.92	4.01
Customer Service	79.61	14.90	6.71	6.32
Decision Making	48.79	21.25	5.00	4.95
Diplomacy	67.00	20.70	6.53	6.18
Empathy	40.06	25.86	-1.07	-1.45
Employee Development and Coaching	75.70	17.72	9.39	9.50
Flexibility	52.88	20.43	3.91	3.54
Futuristic Thinking	22.24	23.89	-1.00	-1.05
Goal Orientation	73.00	20.06	1.20	1.08
Interpersonal Skills	76.91	25.13	3.83	3.69
Leadership	70.64	17.95	10.18	10.10
Management	59.48	15.12	5.51	5.77
Negotiation	53.12	30.80	8.84	9.12
Personal Effectiveness	63.82	17.49	7.84	7.93
Planning and Organizing	51.09	22.33	-4.07	-4.49
Persuasion	61.97	30.46	9.79	9.99
Presenting	65.58	27.98	12.94	13.26
Self-Management	62.67	22.28	3.08	3.08
Teamwork	70.52	17.71	2.73	2.22
Written Communication	67.94	24.48	9.95	9.88



Hartman Value Profile Findings as of February 2012

Random Sample N=17,801

Measurement	Mean	Standard Deviation
Understanding Others	7.47	1.56
Practical Thinking	7.24	1.70
Systems Judgment	7.02	1.48
Sense of Self	6.97	1.43
Role Awareness	6.56	1.45
Self Direction	6.73	1.25

Males N=10,667

Measurement	Mean	Standard Deviation	Difference from Random Sample
Understanding Others	7.91	1.47	0.45
Practical Thinking	7.74	1.59	0.50
Systems Judgment	7.45	1.41	0.43
Sense of Self	7.36	1.42	0.38
Role Awareness	6.97	1.42	0.41
Self Direction	7.06	1.24	0.33

Females N=7,134

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.78	1.64	0.31	0.14
Practical Thinking	7.48	1.79	0.24	0.26
Systems Judgment	7.39	1.52	0.37	0.06
Sense of Self	7.41	1.40	0.44	0.05
Role Awareness	6.94	1.42	0.38	0.03
Self Direction	7.23	1.19	0.50	0.16



Hartman Value Profile Findings as of February 2012

Caucasians N=11,988

Measurement	Mean	Standard Deviation	Difference from Random Sample
Understanding Others	8.03	1.37	0.56
Practical Thinking	7.80	1.52	0.56
Systems Judgment	7.55	1.36	0.52
Sense of Self	7.42	1.36	0.44
Role Awareness	6.96	1.41	0.41
Self Direction	7.15	1.18	0.42

African Americans N=1,849

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.30	1.94	-0.17	-0.74
Practical Thinking	6.93	2.12	-0.31	-0.88
Systems Judgment	7.00	1.72	-0.02	-0.55
Sense of Self	7.48	1.43	0.51	0.06
Role Awareness	7.02	1.39	0.46	0.06
Self Direction	7.15	1.34	0.42	0.00

American Indian or Alaskan Native N=175

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Understanding Others	7.57	1.88	0.10	0.46
Practical Thinking	7.29	2.04	0.05	0.51
Systems Judgment	7.23	1.53	0.21	0.32
Sense of Self	7.38	1.49	0.40	0.04
Role Awareness	7.02	1.43	0.46	0.06
Self Direction	7.18	1.22	0.45	0.03



Hartman Value Profile Findings as of February 2012

Asian N=1,079

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.30	1.74	-0.17	-0.73
Practical Thinking	7.41	1.84	0.17	0.40
Systems Judgment	7.07	1.59	0.05	0.47
Sense of Self	6.89	1.60	-0.08	-0.52
Role Awareness	6.87	1.40	0.31	0.10
Self Direction	6.97	1.26	0.24	0.18

Hispanic or Latino N=1,078

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.65	1.76	0.18	0.38
Practical Thinking	7.39	1.83	0.15	0.41
Systems Judgment	7.24	1.61	0.21	0.31
Sense of Self	7.32	1.54	0.34	0.10
Role Awareness	6.99	1.47	0.43	0.02
Self Direction	7.03	1.36	0.30	0.12

Two or More Races N=608

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Protected Group
Understanding Others	7.89	1.44	0.42	0.14
Practical Thinking	7.67	1.64	0.43	0.13
Systems Judgment	7.52	1.39	0.50	0.02
Sense of Self	7.35	1.53	0.38	0.06
Role Awareness	6.80	1.52	0.25	0.16
Self Direction	7.09	1.25	0.36	0.06



Hartman Value Profile Findings as of February 2012

Non-Disabled N=16,575

Measurement	Mean	Standard Deviation	Difference from Random Sample
Understanding Others	7.86	1.54	0.40
Practical Thinking	7.64	1.67	0.40
Systems Judgement	7.43	1.45	0.41
Sense of Self	7.39	1.40	0.41
Role Awareness	6.97	1.41	0.41
Self Direction	7.14	1.21	0.41

Disabled N=228

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.63	1.57	0.16	0.24
Practical Thinking	7.31	2.07	0.07	0.33
Systems Judgement	7.21	1.65	0.18	0.23
Sense of Self	7.07	1.72	0.10	0.31
Role Awareness	6.61	1.56	0.06	0.35
Self Direction	6.81	1.32	0.08	0.32



Hartman Value Profile Findings as of February 2012

Non-Veteran N=15,517

Measurement	Mean	Standard Deviation	Difference from Random Sample
Understanding Others	7.86	1.54	0.39
Practical Thinking	7.64	1.68	0.40
Systems Judgement	7.43	1.46	0.41
Sense of Self	7.38	1.41	0.41
Role Awareness	6.96	1.42	0.40
Self Direction	7.14	1.22	0.41

Disabled Veteran N=122

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.91	1.52	0.44	0.05
Practical Thinking	7.67	1.76	0.43	0.04
Systems Judgment	7.43	1.37	0.41	0.00
Sense of Self	7.39	1.41	0.42	0.01
Role Awareness	6.91	1.28	0.35	0.05
Self Direction	7.12	1.09	0.40	0.01



Hartman Value Profile Findings as of February 2012

Other Veteran N=895

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.93	1.48	0.46	0.07
Practical Thinking	7.69	1.58	0.45	0.05
Systems Judgment	7.40	1.37	0.37	0.04
Sense of Self	7.41	1.40	0.44	0.03
Role Awareness	6.98	1.45	0.43	0.03
Self Direction	7.10	1.21	0.37	0.04

Vietnam Veteran N=216

Measurement	Mean	Standard Deviation	Difference from Random Sample	Difference from Non-Protected Group*
Understanding Others	7.95	1.41	0.48	0.09
Practical Thinking	7.74	1.62	0.50	0.10
Systems Judgment	7.37	1.32	0.35	0.06
Sense of Self	7.37	1.16	0.39	0.02
Role Awareness	7.22	1.11	0.67	0.27
Self Direction	7.01	1.05	0.28	0.12



About Target Training International

Target Training International, Ltd. is the world's leading developer of research-based, validated assessment and coaching tools that enable organizations to effectively meet their human resources needs. Many Fortune 500 companies are using TTI's products. Its related companies TTI Performance Systems, Ltd. and Success Insights International have put assessments and reports to work in more than 90 countries and in 40 languages. TTI is also a leader in cutting edge research on human behavior, communication and workplace attitudes and performance. TTI develops thought leadership in the realms of entrepreneurship, education and human interaction.
