

WORK PERSONALITY[®]
 **INDEX**
MANUAL
2nd Edition

DONALD MACNAB
SHAWN BAKKER

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INTRODUCTION

Business professionals continue to search for methods that enable the effective use of human resources. In order to make the best use of their personnel, organizations have focused on identifying the characteristics of workers that predict exceptional performance. It is common knowledge that people have skills and capabilities that allow them to be successful in certain types of work. A wide variety of tools and techniques have been developed to identify these skills.

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Currently, assessment experts recognize that a person's success at work involves much more than his or her cognitive abilities. The ability requirements of an occupation represent only one type of attribute that influences the potential for success. Differences revolving around individuals' preferences and typical work behavior also influence how successful they may be. The idea that people differ from one another is quite obvious, and it is conceivable that individuals with certain traits are more effective in some jobs than others. Research over the years has indicated that workers' personality traits are related to job performance in a wide variety of occupations. Personality traits, which are the distinctive patterns of behaviour that characterize an individual, have been found to play a key role in an individual's effectiveness at work.

Personality can be thought of as a combination of an individual's traits and tendencies. These traits are relatively enduring dispositions that distinguish one person from another. Personality traits describe an individual's tendency to act, think, or feel in a certain manner. These traits tend to be stable and do not change much over the course of a person's lifetime. Similar to cognitive abilities, aspects of personality can be clearly and efficiently assessed through psychometric tests and questionnaires. Personality tests measure unique characteristics that cannot be identified by ability and aptitude tests, and as a result, they provide complimentary and unique information that can be extremely useful for selection, career, development and team-building applications.

THE WORK PERSONALITY INDEX® (WPI) ASSESSMENT

The Work Personality Index assessment is a questionnaire that identifies personality traits that directly relate to work performance. By helping identify individuals' personality traits, the WPI can help select candidates, guide career development, and improve team functioning. This primary focus of the WPI helps professionals make the most efficient and effective match between people and work roles.

The WPI focuses on the traits that are important in the work environment. It measures personality traits for the normal adult population and does not examine clinical or mental health related issues. As a result, low scores on the scales are not indicative of pathology, but rather, different preferences and motivations for working. These different preferences and motivations influence the type of work in which people are successful at and what they enjoy doing.

The WPI assesses 21 primary scales that measure distinct aspects of work personality which allow professionals to make logical and informed connections regarding an individual's preferences and their work behavior. These 21 scales are categorized into five groups that provide a global view of work personality.

USES OF THE WPI

With the Work Personality Index tool you can assess aspects of personal work style for a number of different applications. The most common uses of the WPI include personnel selection, leadership development, personal development, and team building. Personnel selection is one of the primary applications of the WPI since it helps match a person's characteristics with those required for successful performance on the job. For leadership and personal development the WPI helps individuals identify their preferences and motivations and how these relate to different occupations and work environments. In team building the WPI can help resolve conflict and improve team communication.

USING THE WPI IN PERSONNEL SELECTION

The Work Personality Index assessment is useful in personnel selection because it was designed to help match candidates' characteristics with job requirements. The WPI, when used in conjunction with other techniques and tools, can increase the effectiveness, accuracy and objectivity of an organization's selection procedure. By conducting a job analysis to identify the personality traits of successful employees, and using the WPI to identify the presence or absence of these traits in candidates, professionals can increase the efficiency and accuracy of their personnel selection process. For example, when hiring salespeople, the candidates who tend to be successful score high on the Ambition, Persistence, and Outgoing scales. By using the WPI to screen for applicants who have these characteristics, you can enhance the quality of those hired and improve turnover reduction.

USING THE WPI IN CAREER DEVELOPMENT

Career development revolves around helping people gain self-awareness of their skills, preferences and values and then identifying occupations that provide a good fit. The WPI can help individuals gain an understanding of their work preferences and link them to possibly satisfying occupations. This information is extremely useful for people who desire to identify potential careers and make choices regarding further education and skill development. Results from the WPI are also helpful for examining job satisfaction in a potential career area. For example, individuals who score low on Energy and high on Attention to Detail usually enjoy work that follows a steady pace, uses methodical procedures, and is well organized. When these same people are placed in a fast-paced, loosely structured environment, they tend to experience dissatisfaction, and potentially poorer performance outcomes.

USING THE WPI IN TEAM BUILDING

The WPI can also be effective in team building applications. The key aspect of effective team building is to help individuals understand themselves and the other members of their team. This process allows the team to make the most of each person's strengths and gives each team member an understanding of why and how others adopt different approaches to their work. By helping team

members appreciate the differences amongst themselves, they can make constructive use of their diverse skills. For example, with teams working in a structured environment on projects that follow a strict schedule, it is important for someone on the team to adopt a leadership role. In settings where a team needs to brainstorm ideas and develop alternative solutions, it is important that team members be innovative and democratic.

USING THE WPI IN LEADERSHIP DEVELOPMENT

The WPI allows organizations to assist leaders identify their strengths and common challenges in areas important to leadership development including how they work with others, how they set goals, approach their work, solve problems, deal with stress, and manage change. Using the WPI in leadership development will help an individual increase their effectiveness and identify pivotal issues – including leveraging their strengths and overcoming key weaknesses that, when addressed, will significantly enhance their performance and effectiveness.

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PERSONALITY AND THE WORK PERSONALITY INDEX[®] MODEL

Personality is the pattern of behaviour that characterizes an individual and his or her reactions to the environment. Most experts believe that personality is composed of a combination of traits that distinguish one person from another. Traits are enduring tendencies to act, think or feel in a certain way in any given circumstance.

Every individual's combination and strength of different traits leads him/her to act a certain way in a wide variety of circumstances. For example, extraverted people tend to be outgoing in most settings. When it comes to measuring extraversion and other traits that make up personality, we know that personality questionnaires can provide a reliable and valid assessment of these traits. Our current understanding of personality supports the claim that personality traits can predict effective performance in many occupations. Therefore, it is easy to see why organizations would like to measure personality. If they can identify an individual's traits, which predict how the person will act and react to the job, the organization can select the candidates who have the traits associated with for successful performance increasing the probability of employee success. There are many models of personality that measure a large number of personality traits. Some of these models are built around two or three traits, while others may have upwards of thirty. There is considerable debate around the true number of personality traits that should be measured. Rather than trying to measure all aspects of human personality, the WPI examines only those traits that empirical research has shown to be related to successful work performance.

CONCEPTUALIZATION OF THE WORK PERSONALITY INDEX MODEL

The Work Personality Index model is built upon the personality traits identified in the Occupational Information Network (O*NET) developed by the U.S. Department of Labor. This model is not based upon a theoretical view of human personality, but is a combination and ordering of personality traits that have been shown to predict job performance. The model was formulated by examining two main sources. Firstly, predictive or concurrent validity studies provide important evidence of the traits that can be measured effectively and that predict job performance. Examining these studies provide a number of personality traits that consistently relate to ongoing effectiveness on the job.

Second, existing taxonomies that are already used in personal development and personnel selection were reviewed. To examine these taxonomies, the personality measures that operationalize them were analyzed, and their research critiqued. These personality measures included: the California Psychological Inventory, by Harrison Gough, the Hogan Personality Inventory, by R. Hogan and J. Hogan, and the NEO PI-R, by Paul Costa and Robert McCrae. Reviewing these personality assessments led to the identification of other personality traits that are closely tied to work preferences and motivations.

By examining these two main sources, 17 primary scales were identified, which the O*NET researchers grouped into 7 global scales. Since the development and release of the original version of the WPI, further research has revealed the usefulness of additional 4 scales. These include Planning, Multi-Tasking, Social Confidence and Persuasion. This version of the WPI has 21 primary scales.

Factor analytic studies indicate that the 21 scales can be categorized into 5 global scales. Figure 2.1 illustrates how these scales are organized. The 5 groups are labeled Energy and Drive, Work Style, Working With Others, Problem Solving Style, and Dealing with Pressure and Stress. These constructs have been re-labeled since the first version of the WPI: Achievement Orientation is now Energy and Drive; Conscientiousness is now Work Style; Social Orientation is now Working with Others; Practical Intelligence is now Problem Solving Style; and Adjustment is now Dealing with Pressure and Stress. These groups closely mirror the global traits identified in the Five-Factor Model

of Personality (Costa and McCrae, 1992). The 21 primary scales represent a finer grained assessment of the 5 constructs. For example, the Work Style construct contains the following Primary scales: Attention to Detail, Dependability, Persistence, Planning, and Rule-Following. Descriptions of the 5 global constructs and the primary traits are shown below.

FIGURE 2.1 – 5 GLOBAL CONSTRUCTS AND 21 PRIMARY TRAITS OF THE WORK PERSONALITY INDEX MODEL

<u>Energy and Drive</u>	<u>Work Style</u>	<u>Working with Others</u>	<u>Problem Solving Style</u>
Ambition	Persistence	Teamwork	Innovation
Initiative	Attention to Detail	Concern for Others	Analytical Thinking
Flexibility	Rule-Following	Outgoing	
Energy	Dependability	Democratic	
Leadership	Planning		
Multi-Tasking		<u>Dealing with Pressure and Stress</u>	
Persuasion		Self-Control	
Social Confidence		Stress Tolerance	

ENERGY AND DRIVE

Energy and Drive involves working hard and wanting to get ahead, persisting in the face of obstacles, and striving for career success. This construct has been an important component of personality theory for many years. In the Five-Factor Model, Energy and Drive is captured by the Conscientiousness factor. However, the WPI separates achievement striving from the dependable and disciplined behaviours that are grouped in the Conscientiousness factor of the Five-Factor Model. This construct is commonly called Achievement Striving, Assertiveness, and Ambition.

The **Energy and Drive** composite contains the following primary scales: **Ambition, Initiative, Flexibility, Energy, Leadership, Multi-Tasking, Persuasion, and Social Confidence.**

WORK STYLE

Work Style involves being planful, careful, dependable and disciplined in one's role. Research has shown that Work Style is consistently related to work performance in a wide variety of occupations.

The five primary scales that reflect the **Work Style** composite are: **Persistence, Attention to Detail, Rule-Following, Dependability and Planning.**

WORKING WITH OTHERS

Working with Others is represented by sensitivity to the needs of others, a willingness to work cooperatively rather than independently, and a preference for working with others and establishing personal relationships. This composite closely resembles the Extraversion factor of the Five-Factor Model.

The elements of **Working with Others** are found in the following primary scales: **Teamwork, Concern for Others, Outgoing, and Democratic.**

PROBLEM SOLVING STYLE

Problem Solving Style involves characteristics such as insight, imagination, originality, being open to new ideas, and maintaining a thoughtful approach to work. This construct is commonly found in many personality taxonomies and has been labeled Openness to Experience, Openness, Culture, Intellect, and Intellectance in previous measures.

The **Problem Solving Style** composite found in the WPI is composed of two primary scales; **Innovation and Analytical Thinking**.

DEALING WITH PRESSURE AND STRESS

The **Dealing with Pressure and Stress** composite found in the WPI closely resembles the Neuroticism composite found in the Five-Factor Model. Representing the tendency to remain calm, composed and free from worry in stressful situations, other common labels for this construct include Emotional Stability, Negative Emotionality, and Worrying.

The two primary scales that reflect the key aspects of **Dealing with Pressure and Stress** are **Self-Control and Stress Tolerance**.

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ADMINISTRATION OF THE WORK PERSONALITY INDEX[®] ASSESSMENT

This chapter covers the administration guidelines that describe the settings and populations where the Work Personality Index assessment can be used effectively. The most important consideration when having people complete self-report measures of personality is to create an atmosphere where the individual feels at ease and free to accurately report their traits. This is usually best achieved when the administration is clear and consistent, and respondents' questions are handled appropriately.

ADMINISTRATION PROCEDURE

The WPI is largely self-administered, and can be completed individually or in groups. The instrument is administered mainly on-line through a web-based test administration system. While there is no time limit to the administration, most people complete the 196 items in approximately 20–30 minutes. Those who take longer may be encouraged to work more rapidly and not study the items at length.

No rigorous controls are required to establish dependable, reliable results. The WPI has been used in a variety of conditions, including online testing, formal testing, individual administrations, and take home administrations. While a standard, supervised administration is ideal, the reliability and validity of individuals' results have not been negatively affected through less stringent administration conditions.

When conducting a supervised group assessment, the administrator should ensure that the assessment environment is relatively free from distractions, is quiet, and well lit. It is important to create an environment that makes the individuals taking the WPI as comfortable as possible. It is useful to follow the steps below:

Step 1 Ensure that you have the proper materials to complete the assessment.

Step 2 Prepare the room by providing enough space for each respondent to feel comfortable and that they have some privacy while answering the items.

Step 3 At the beginning of the assessment session, give a brief introduction that includes the following:

- a) The WPI is a personality index, not a test. The WPI is designed to assess equally valid personal styles and preferences. Therefore, there are no right or wrong answers.
- b) There is no time limit for completing the WPI, however, most people complete the assessment in approximately 20–30 minutes.
- c) When completing the assessment, it is best not to think too long about any item. Generally, the person's first response is the best response.
- d) If an individual truly feels unable to make a choice, instruct them to select N for Neutral.
- e) Inform the people taking the WPI what will happen to their results. A statement that discusses the purposes of the assessment and how the results will be used is helpful in gaining the respondents' attention and motivation.
- f) Provide respondents with the opportunity to ask questions.

- g) Emphasize the need for respondents to carefully complete the required identifying information, and tell them to carefully read through the instructions before responding to the items.
- h) If using a paper-pencil administration, stress the importance of matching the numbers on the answer sheet to the numbers on the item booklet.

Step 4 If respondents have questions during the administration about the meaning of a word or item, the administrator should answer them.

Step 5 After all the respondents have completed the assessment, review their answer sheet to ensure that they did not miss items and have completed all the required identifying information.

APPROPRIATE POPULATIONS FOR ADMINISTRATION

Age

The WPI measures personality traits immediately applicable to work settings. The test items revolve around typical work experiences, and for people to respond to them in an informed manner they need to be able to relate to the situations presented in each item. For this reason, the WPI is appropriate for people in the working population. Younger adults may not have enough work experience to respond to the items in a valid way. Therefore, it is recommended that the WPI be used with people who are older than seventeen years of age.

Ethnic Groups

The WPI has been normed with individuals from a variety of ethnic and cultural backgrounds in the United States and Canada. Research results presented in Chapter 5 suggest that the WPI may be used effectively with people from different cultures with little probability of adverse impact.

Required Reading Level

The reading level of the WPI questionnaire was assessed using two popular methods. The Flesch Reading Ease score rates text on a 100-point scale using the average sentence length and the average number of syllables per word. The score for the WPI questionnaire was 51.6, indicating that it is easily understandable by individuals 12 years or older. The Flesch-Kincaid Grade level score rates text on a U.S. grade-school level. For most standard documents, a score of approximately 7.0 to 8.0 indicates it can be read by the majority of the population. The WPI questionnaire is rated at 8.0, meaning that a typical eighth grader can understand the items.

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INTERPRETING THE WORK PERSONALITY INDEX® ASSESSMENT

There are many applications where the WPI can be useful. The most popular include personnel selection, communication and team building, leadership development, personal development and career development. After the responses have been scored and the reports have been generated, the results can be interpreted. This chapter outlines the steps for appropriately interpreting WPI results, and provides in-depth information on the meaning of the 21 WPI scales.

STEPS FOR INTERPRETING THE WPI

The following four steps outline the recommended process for interpreting an individual's WPI results.

Step One: Assess the validity of the WPI results

The validity of the WPI results should be evaluated before proceeding with the interpretation of an individual's profile. A large number of extremely high or low scores could indicate that the results should be interpreted with caution. On the Select and Job Match Reports, the WPI assessment includes a Profile Validity scale that provides an indicator of candidates who respond to the assessment in an overly positive or unusual manner. Information on how this scale can be used to determine the candidness of the candidate and the validity of the resulting profile can be found in the following section titled Profile Validity.

Step Two: Interpret the Primary Scale Scores

The next level of interpretation is at the primary scale level which identifies specific strengths, challenges, preferences, and tendencies for the respondent. This allows you to identify differences among people which play an important role in effectively matching candidates to a job, guiding team building, and making career choices. Individuals' highest and lowest scale scores are important to examine closely since their pattern closely relates to the work tasks they will be successful at, the work environment in which they will perform effectively, and the types of tasks they will enjoy. If you are selecting personnel and have developed benchmarks for the position, it is appropriate to compare the candidate's style with the benchmarks at this stage. Differences between the individual and the job requirements can be explored in Step Three when conducting interviews or utilizing other assessments.

When interpreting the primary scales it is important to recognize that scores are never good or bad, only more or less appropriate to certain types of work. For example, low scores on the Democratic scale are appropriate for work that requires many solitary hours. However, this independent style can be counterproductive for work in a team environment. Specific interpretation for each of the 21 scales can be found later in this chapter.

Step Three: Compare WPI results to other sources of information

When making decisions related to personnel selection, or helping people with career choices, it is recommended that the results be used to guide an interview that is designed to come to a greater understanding of the individual. Hypotheses developed about an individual's approach to work and preferred environment can be examined through interviews, additional assessments, and behavioural observation. These other sources of information can provide a more meaningful interpretation of the WPI results. The WPI should not be used as the only source of information when making important selection or developmental decisions. Rather, when combined with other details gathered from different techniques, the WPI can contribute comprehensive, powerful information.

Step Four: Summarize the findings and make decisions

Making decisions is the crucial step in employing the WPI. While the WPI should never be used alone as a decision making tool, it can enhance the selection and development of individuals when used in conjunction with other sources of information. Based on the nature and strength of individuals' scale scores, hypotheses can be generated regarding their appropriateness for specific occupations, and their hiring potential can be determined. These hypotheses can be followed up through interviews or further assessments to better determine an individual's suitability.

PROFILE VALIDITY

Assessing the validity requires examining the Profile Validity section of the candidate's report. The Profile Validity scale assesses the extent to which the questionnaire was answered candidly rather than in an overly positive or unusual way.

When a candidate's responses to the assessment are similar to that of most other job candidates, and they admit to common short-comings and limitations, the following text is presented on the report:

"The candidate's responses to the questionnaire follow a typical pattern."

If signs of motivational distortion or a socially desirable response pattern are identified, the following text will be printed on the candidate's report:

"The candidate responded to the questionnaire in an overly positive or unusual way. Further verification to determine the accuracy of these results is recommended."

When this text is presented, it indicates that the candidate has responded to some specific questions (e.g. I never make mistakes; I have never been late for work) in an unrealistically positive way, or obtained a profile which does not fit normal patterns. The candidate may have responded to the items in order to make him/herself look good as opposed to providing honest responses. It does not necessarily mean that the person is lying, but it does indicate that his/her pattern of results is atypical, which increases the uncertainty in the accuracy of the profile. When this occurs, the candidate's results should be viewed interpreted with caution and verified through other methods.

What should you do when a candidate receives a low score on the Profile Validity scale?

When a candidate receives a low score on the Profile Validity scale the goal should be to determine the accuracy of their responses. Until his/her responses can be verified through other methods (different assessment tools, reference checks or interviews), their results should be considered to be potentially inaccurate.

INTERPRETING THE WPI PRIMARY SCALES

The 21 Primary Scales measure precise dimensions, providing a specific analysis of an individual's personality. In order to examine the many variations in how people approach and complete their work, spending some time carefully reviewing the 21 scales is often necessary.

The 21 Primary Scales are bipolar, and therefore both low and high scores have meaning. Low scores are not “bad” and high scores are not “good.” Instead they describe an individual's personality style that should be interpreted in the context of his/her current or potential work environment. Very low (sten scores of 1-2) and very high (sten scores of 9-10) scores on any of the scales are associated with both positive and negative elements. Scores that fall in the average range (5-6) suggest that the respondent shows a few of the strong tendencies and behaviors (both positive and negative) found at both ends of the scale. For example, people with high scores on the Teamwork scale work well with others. Yet when required to work alone, they may quickly become dissatisfied and have difficulty motivating themselves. On the other hand, people with low Teamwork scores work well alone, but often struggle when required to work closely with others.

ENERGY AND DRIVE SCALES

Ambition

The Ambition scale measures an individual's tendency to set high standards, establish tough goals, and work to achieve success.

High scorers tend to:

- set difficult goals for themselves
- be driven to achieve high standards
- have high aspirations and work hard to achieve their goals
- be described as driven and competitive
- put a lot of effort into everything they do

Low scorers tend to:

- set less difficult goals that are easily reached
- dislike expending great amounts of energy to get ahead
- be described as easy going, and noncompetitive
- find happiness where they are currently, and do not feel the urge to get ahead
- prefer occupations that do not require great amounts of effort

Initiative

The Initiative scale measures the individual's willingness to take on new or additional work responsibilities and challenges.

High scorers tend to:

- enjoy identifying and taking on new challenges
- frequently volunteer to take on new or additional work responsibilities
- start projects without help from others
- be described as proactive
- take the initiative when they see new opportunities

Low scorers tend to:

- prefer stable work responsibilities
- dislike having new responsibilities added to their workload
- have little interest in identifying and meeting new challenges
- rarely take the initiative to solve work problems
- undertake new projects only after discussing the benefits and repercussions with others and receiving their support and feedback

Flexibility

The Flexibility scale measures the person's capacity to cope with a frequently changing work environment and adapt to emerging situations.

High scorers tend to:

- prefer novelty and work with lots of variety
- dislike routine, stable work environments
- adapt quickly and enjoy adjusting to changes
- often try new things at work
- initiate change for the sake of doing things differently, not because it is needed

Low scorers tend to:

- prefer stable work environments and enjoy routine work
- value order, structure, and predictability
- stick with methods that have worked well in the past
- have difficulty dealing with sudden or frequent changes

Energy

The Energy scale measures an individual's stamina and the tendency to maintain a high level of energy.

High scorers tend to:

- be very energetic
- enjoy work environments that are mentally/physically demanding
- lead busy lives, and participate in a large number of activities
- work well under pressure

Low scorers tend to:

- tire quickly when faced with difficult or long tasks
- dislike being extremely busy, and prefer not having lots to do in a short period of time
- work less effectively when under pressure
- feel tired at the end of the work day
- prefer working at a steady pace

Leadership

The Leadership scale measures the willingness to lead, take charge of situations, and offer opinions and directions to others.

High scorers tend to:

- enjoy influencing others and acting decisively
- assume leadership positions
- freely offer advice, and do not hesitate to provide guidance to others
- be dominant and forceful

Low scorers tend to:

- generate consensus rather than direct others
- avoid leadership positions
- prefer working in the background
- rarely tell others what to do
- dislike being in charge and having to give directions to others

Persuasion

The Persuasion Scale measures an individual's comfort in negotiating, selling, influencing and attempting to persuade people or trying to change the point of view of others.

High scorers tend to:

- enjoy selling
- have a talent for influencing people
- be comfortable negotiating
- enjoy trying to change people's views

Low scorers tend to:

- do not enjoy selling
- have difficulty in influencing people
- be uncomfortable in negotiations
- dislike pressuring others to change their views

Social-Confidence

The Social Confidence scale measures the individual's tendency to be self-assured and at ease with people in all types of social situations

High scorers tend to:

- be comfortable in social situations
- be socially confident
- have a self-assured personal style
- enjoy being the centre of attention

Low scorers tend to:

- feel awkward in social situations
- lack social-confidence
- be timid with new people
- do not enjoy being the centre of attention

Multi-Tasking

The Multi-Tasking scale measures the individual's preference for dealing with several activities at a time.

High Scorers tend to:

- enjoy doing many things at once
- enjoy being given many different things to do
- do their best work when they have many tasks to complete
- enjoy being given new tasks before they have finished another

Low Scorers tend to:

- enjoy doing one thing at a time
- not cope well with doing several things at once
- do their best work when focusing on a single task
- prefer to complete one task before starting another

WORK STYLE SCALES

Persistence

The Persistence scale measures the preference for sticking with tasks, and the element of not giving up and overcoming obstacles in completing one's task.

High scorers tend to:

- persist in the face of obstacles
- enjoy overcoming challenges
- keep trying to solve problems, no matter how difficult
- dislike leaving things unfinished
- want to see things through to the end

Low scorers tend to:

- give up when things become difficult
- be easily distracted and have difficulty motivating themselves to complete boring work
- dislike work that requires overcoming too many obstacles
- prefer straightforward tasks that can be completed quickly and with relative ease

Attention to Detail

The Attention to Detail scale measures the individual's tendency to focus on details, work towards perfection, and approach work in a neat and organized manner.

High scorers tend to:

- focus on details
- be well organized and take a methodical approach to tasks
- strive for perfection
- rarely skip corners
- be seen as perfectionists

Low scorers tend to:

- focus on global problems and solutions
- rarely concern themselves with minor details
- cut corners to get things done on time
- be seen as sloppy or careless
- dislike highly detailed work

Rule-Following

The Rule-Following scale measures the tendency to adhere to rules and strictly follow work regulations.

High scorers tend to:

- strictly follow rules and adhere to work procedures
- believe no opportunity justifies ignoring or breaking regulations
- conduct themselves according to a rigid set of principles
- follow guidelines even when they are personally inconvenient or arguably outdated or irrelevant

Low scorers tend to:

- ignore rules and regulations when they hinder work
- be casual about work procedures and codes
- treat rules as general guidelines, not specific instructions

Dependability

The Dependability scale measures the extent to which a person is reliable, responsible, dependable and fulfills obligations.

High scorers tend to:

- occasionally meet all their obligations
- be described as responsible and trustworthy
- finish what they start
- follow through on their commitments
- rarely fail to finish their tasks

Low scorers tend to:

- occasionally miss deadlines and do not meet all their commitments
- treat work requirements and deadlines casually
- be seen as unreliable and irresponsible
- leave things unfinished

Planning

The Planning scale measures the individual's desire to plan their work and to follow their plan.

High Scorers tend to:

- Enjoy making long-terms plans
- Enjoy making detailed plans before starting a project
- Enjoy thinking about the future in a structured fashion
- Feel that long-term planning leads to more efficient work routines

Low scorers tend to:

- Get started on tasks without having detailed plans
- Do not enjoy making long-term plans
- Be spontaneous and comfortable reacting to shifting priorities
- Enjoy making plans in the spur of the moment
- Feel that detailed, long-term plans inhibit their ability to work

WORKING WITH OTHERS SCALES

Teamwork

The Teamwork scale measures an individual's tendency to be cooperative with others, display a good-natured attitude, and encourage people to work together.

High scorers tend to:

- enjoy helping others reach their goals
- encourage people to work together
- like cooperative work environments
- be pleasant and good-natured
- rarely get frustrated with colleagues

Low scorers tend to:

- prefer working alone
- be more formal and reserved
- dislike working in large groups
- be described by colleagues as distant or withdrawn
- prefer environments where there are many opportunities to work independently

Concern for Others

The Concern for Others scale measures how sensitive and understanding an individual is to the needs and feelings of others.

High scorers tend to:

- be sympathetic and show concern for others
- quickly pick up on the feelings of others
- lend a helping hand and support colleagues
- show a willingness to help people with their problems
- be described as caring and understanding

Low scorers tend to:

- pay less attention to the personal feelings of others
- be reluctant to get involved with individuals' personal problems
- miss minor cues that indicate what a person is feeling
- take a more logical approach to solving problems
- be more task oriented than people focused

Outgoing

The Outgoing scale measures the preferences for interacting with others and establishing personal connections with people.

High scorers tend to:

- like making friends at work
- enjoy meeting new people and spending time with others
- quickly establish relationships with people
- be talkative and outgoing

Low scorers tend to:

- enjoy spending time by themselves
- prefer work that does not require them to interact with lots of new people
- may appear detached
- be quiet and reserved

Democratic

The Democratic scale measures the preference for making decisions through consultation, collaboration, and working with close supervision.

High scorers tend to:

- make decisions by consulting with others
- be willing to adopt others' ideas
- seek out guidance and feedback
- dislike making decisions on their own

Low scorers tend to:

- like making important decisions on their own
- prefer to be given full responsibility for their tasks
- dislike frequent or close supervision
- be willing to move forward without guidance or leadership
- like developing their own ways of doing things

PROBLEM SOLVING STYLE SCALES

Innovation

The Innovation scale measures the degree of creativity and open-mindedness when addressing work issues.

High scorers tend to:

- have many original ideas
- enjoy solving problems
- enjoy work that requires creativity
- be curious about many things, and enjoy learning
- be open to new things
- focus on new opportunities

Low scorers tend to:

- use established ways of working
- prefer focusing their energy on narrow topics
- be suspicious of new or unconventional ideas
- keep to the task at hand

Analytical Thinking

The Analytical Thinking scale measures the tendency to carefully analyze information and use logic to address issues and problems.

High scorers tend to:

- enjoy discussing theoretical concepts
- like solving complex problems
- analyze problems from many different angles
- be critical and take an impartial, logical approach to evaluation
- be seen as calculating, cautious and deliberate
- make decisions only after careful analysis

Low scorers tend to:

- make quick decisions
- be more spontaneous and willing to make choices with limited information
- dislike analytical tasks
- rely on their intuition when making decisions

DEALING WITH PRESSURE AND STRESS SCALES

Self-Control

The Self-Control scale measures the extent to which individuals maintain their composure, keep emotions in check, and control their anger.

High scorers tend to:

- be slow to anger, and rarely lose their temper
- maintain their composure, even in difficult situations
- deal with problems in a calm and relaxed manner
- rarely experience feeling angry with others
- keep their emotions in check

Low scorers tend to:

- readily feel anger and frustration
- be easily annoyed and quickly become upset
- act impatiently when things do not go their way
- let others know what they are feeling

Stress Tolerance

The Stress Tolerance scale measures the tendency to be accepting of criticism and to deal calmly and effectively with high stress situations.

High scorers tend to:

- tolerate stress well
- be able to cope with many demands
- react calmly in potentially stressful situations
- accept criticism positively
- not worry about things beyond their control

Low scorers tend to:

- have difficulty relaxing
- become tense when faced with many tasks
- dislike high pressure work
- take criticism personally
- quickly become nervous and tense
- worry about things that are beyond their control

chapter

DEVELOPMENT AND NORMING OF THE WORK PERSONALITY INDEX[®] ASSESSMENT

The WPI was designed to provide an efficient and useful measure of personality for workplace applications. To meet this goal, the development of the items and the creation of test norms conformed to a specific set of procedures. This chapter outlines how the personality model, test items, and norms were developed.

The starting point in the development process was to set design criteria that would guide the progress of the WPI's creation. In order to meet the overall goal to develop a comprehensive but efficient work personality measure, 5 key criteria were established.

1. The WPI should only measure personality traits that are directly related to the work environment and job performance.
2. The WPI should be useful for applications such as personnel selection, team building, leadership development and personal development.
3. The application and interpretation of the WPI should not require specialist training in psychology or personality.
4. The questions should be easy to read and comprehend.
5. Respondents should be able to complete the assessment in a timely manner.

The design criteria guided the development of the WPI in several ways. The personality traits measured by the WPI have been found to relate to work preferences and job performance in a direct way. This ensures that users are provided information that directly helps in the accurate selection or informed development of personnel. In traditional personality assessments, job relevant traits are measured alongside non-job relevant traits, making the interpretation of the results more difficult and thereby increasing the chances for making errors.

Alongside the selection of work related personality traits, the application and interpretation of the WPI was designed for the typical business professional. Many tests require the services of a psychologist or specially trained human resource professionals. However, the WPI avoids complex personality factors, making the results easily interpretable.

DEVELOPMENT PROCESS

As mentioned earlier in this chapter, the WPI is built upon the 17 personality traits identified in O*NET, the occupational classification system designed by the U.S. Department of Labor. After conducting an extensive literature review and examination of current personality measures, researchers identified 17 traits that were commonly found to relate to and predict work performance. These 17 traits provided the foundation of the WPI. After 10 years of use and research with the WPI it was established that additional scales were required over and above the original 17 traits. The traits added included Persuasion, Social Confidence, Multi-Tasking and Planning. Having identified the 21 traits, the following steps were taken to construct the WPI.

SCALE DEVELOPMENT AND ITEM WRITING

To construct a measure of the 21 traits, a thorough review was conducted of research studies and current personality measures in order to develop objective, operational definitions for each trait. At this stage, the definitions developed for the O*NET model were modified to better reflect research

findings. After having created definitions for each personality trait, items that provided behavioural evidence for the traits were developed. The items were written according to the following rules:

1. Items should relate directly to work behaviour. The situation presented in the item needed to examine preferences and motivations for different types of work and work environments.
2. Items were to be written in the first person (e.g. “I am...”, “At work I...”, “For me...”). Since the WPI is a self-report measure, it was necessary to write items in the first person.
3. Items should target a single construct. It was essential for the situation outlined in each item to be related to only one of the twenty-one personality traits. The items were designed around behaviours that provided evidence of one specific trait.
4. Items should be short, direct, and easy to understand.
5. A five-point Likert scale was developed to allow individuals to register the extent of their agreement or disagreement with each statement. The respondents could indicate their preferences by choosing one of the five options for each item.

For example:

People describe me as understanding.

Strongly Disagree Disagree Neutral Agree Strongly Agree

In addition to the items from the first version of the WPI more than 300 items were written and field-tested over a period of 18 months. Over 15000 individuals took various forms of the assessment during this time period. A combination of classical test analysis and Rasch analysis of the items for each scale were examined.

The Rasch model (Rasch, 1980; Wright, 1979, 1982) is a mathematical formula that indicates the relationship between persons and scores that define a trait. The model is usually referred to as a one-parameter model, but in fact looks at two parameters: people and items. These are usually defined as person logits and item logits. The analysis provides a number of fit statistics that are indices of how well the data fit the model. The fit statistics include average fit and individual item fit. Fit statistics include “infit”, a chi-squared based statistic that is sensitive to unexpected patterns of observations by persons on items; and “outfit” statistics a chi-squared based statistic that is sensitive to unexpected observations by persons on items. High outfit or outfit mean squares greater than 1.5 indicate that an item is not fitting the model reasonably well. In addition, an examination of the mean infit and outfit statistics presents overall information about whether the data acceptably fit the model. It is expected that the mean infit and outfit for both persons and items should be about 1.0. At the level of an individual item the accepted general rule regarding infit and outfit mean square fit statistics is they should be between 0.5 and 1.5 (Linacre, 1995, 2002, 2004, 2010).

In addition, the Rasch model allows the examination of how the items perform for different groups of people. This is known as Differential Item Functioning (DIF) (Zwick and Thorpe, 1996). DIF is carried out by comparing two groups of interest (for example, males and females). One set of parameters used to judge this are called DIF Contrast Logits. In general logits under 0.43 are considered to indicate negligible differences between groups: those between 0.44 and 0.64 to be slight, and those over 0.65 to be moderate or large (Linacre, 2010).

Through this process, the research questionnaire consisting of 221 items (10 items per scale) was used to collect normative data. Examination of the large data pool from the normative study was once again analyzed using Rasch technology. This analysis suggested that the scales could function as well if not better by being reduced by 1 item per scale. Internal consistency and item reliability analysis resulted in the dropping of 21 items, bringing the total to 189 or 9 items per scale. The items that were retained contributed positively to coefficient alpha reliability and ensured that the number of items on the questionnaire remained manageable for users. Internal consistency reliabilities range from .70 to .89 (for complete internal consistency results see page 27). The Rasch analysis for the final 189 item version of the Work Personality Index assessment is summarized in Table 5.1.

TABLE 5.1 RASCH ANALYSIS SUMMARY FOR THE WPI (N=5808)

WPI	Average Mean Square Outfit	Average Mean Square Infit	Outfit	Infit	DIF Contrast Logits above negligible
Ambition	1.03	1.03	0	1	1
Analytical Thinking	1.02	1.02	0	0	0
Attention to Detail	1.03	1.04	0	0	0
Concern for Others	1.06	1.03	0	0	0
Democratic	1.01	1.01	0	0	0
Dependability	1.02	1.02	0	0	1
Energy	1.02	1.01	0	0	0
Flexibility	1.00	1.00	0	0	0
Initiative	1.02	1.02	0	0	0
Innovation	1.02	1.02	0	0	0
Leadership	1.03	1.02	0	0	0
Multi-Tasking	0.99	0.99	0	0	0
Outgoing	1.02	1.01	0	0	0
Persistence	1.02	1.02	0	0	0
Persuasion	1.01	1.02	0	0	0
Planning	1.03	1.03	0	0	0
Rule-Following	1.00	1.00	0	0	0
Self-Control	1.02	1.01	0	0	0
Social Confidence	1.03	1.03	0	0	0
Stress Tolerance	1.02	1.02	0	0	0
Teamwork	0.99	1.02	0	0	0

The table above indicates that each of the 21 WPI scales shows very good model fit with average mean square outfit and average mean square infit statistics being extremely close to 1.00. Table 5.1 also displays the number of items that do not fit the model as measured by the item mean squared (infit or outfit). One item on the Ambition scale has a marginally high Outfit mean square. Considering that there are 189 item items in the total test this is an extremely positive result. Two items show DIF that is above the negligible level (both would be classified as slight to moderate): one in the Dependability scale (0.44) (Females higher than Males) and one on the Ambition scale (-0.51) (Males higher than Females).

COMPARING VERSIONS OF THE WPI

As part of the development process we did not wish for the new version of the WPI to fundamentally deviate in psychometric characteristics from the previous versions. For the common scales we therefore expected that the alternate form reliability would be high, as would the factorial structure of the two assessments. The previous version of the Work Personality Index consists of 153 items representing 17 scales. The new version consists of the same 17 scales with the addition of Multi-Tasking, Planning, Social Confidence, Persuasion and an 8 item validity scale. The first step in judging the comparability of the new and previous versions of the WPI was to look at alternate forms of reliability for the scales. This is a measure of how the individual scales compare across versions. 1852 individuals completed both versions of the WPI. In general, observed correlations between the two forms are shown in Table 5.2. Correlations are very high, indicating that the traits measured by both versions are similar and that any resulting interpretation would also be similar.

TABLE 5.2 ALTERNATE FORM RELIABILITY OF THE WPI (N=1852)

Scale	r
Ambition	0.89
Analytical	0.98
Attention	0.84
Concern	0.96
Democratic	0.97
Dependability	0.94
Energy	0.93
Flexibility	0.93
Initiative	0.91
Innovation	0.96
Leadership	0.93
Outgoing	0.96
Persistence	0.96
Rule-Following	0.98
Self-Control	0.95
Stress	0.95
Teamwork	0.97

Additionally, the factor structures of the 17 common scales across the two forms were compared. The inter-correlation matrices of the 17 WPI scales for each version of the WPI were calculated. A principal components analysis was applied to each correlation matrix with varimax rotation. A comparison was made between the factor structures using procedures and methods outlined by Barrett, Petrides, Eysenck, & Eysenck (1998). Comparison of the factor solutions with varimax rotation for the two assessments was made using congruence analysis, following the procedures outlined by Barrett (1986). In the analysis the North American norming sample was used as the target matrix with comparisons made to data gathered on the new version of the Work Personality Index. Results are shown in Table 5.3. All congruence coefficients are above 0.90 which is indicative of congruence between factors (Barrett, 1986; Ten Berge, 1986). The overall coefficient of congruence (0.99) for the analyses demonstrates high similarity for all five factors. The present study sought to demonstrate the initial validity and factor invariance of the Work Personality Index scales across the two versions of the assessment. The number and content of the factors are similar. All five factors showed near perfect equivalence across versions. The results suggest that the factor structure of the WPI is consistent across versions. At this level, participants responded to the two versions of the WPI in a highly similar fashion. Overall, this study supports the validity of the WPI factor structure. This gives administrators confidence that the WPI may be utilized across versions with similar interpretations.

TABLE 5.3 COEFFICIENTS OF CONGRUENCE FOR WPI VERSION 1 AND 2

	Congruence Coefficients	Congruence Coefficients between the target (WPI Version 1) and maximally congruent comparison matrix (WPI Version 2)					
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
<i>Energy and Drive</i>							
Ambition	0.98	1	0.98	0.23	0.23	0.51	0.35
Initiative	0.99	2	0.22	0.99	0.22	0.08	0.18
Flexibility	0.97	3	0.21	0.04	0.99	0.05	0.28
Energy	0.95	4	0.50	0.08	0.17	0.98	0.24
Leadership	0.98	5	0.35	0.18	0.39	0.25	0.97
<i>Work Style</i>							
Persistence	1.00	Overall Solution Congruence = 0.98					
Attention to Detail	0.96						
Rule-Following	0.97						
Dependability	0.99						
<i>Working with Others</i>							
Teamwork	1.00						
Concern for Others	0.99						
Outgoing	0.97						
Democratic	0.97						
<i>Problem Solving</i>							
Innovation	0.99						
Analytical Thinking	0.99						
<i>Dealing with Pressure and Stress</i>							
Self-Control	0.99						
Stress Tolerance	0.99						

NORMING OF THE WPI

Norming is a key step in test development. The norms establish the baseline by which all test results are measured against, which allows the comparison of different individual scores. Norms identify the below average, average, and above average performance on the test, and help the test user appropriately interpret a person's results and make decisions. The more people that are included in the norm sample the more we can ensure that the test norms represent the actual distribution of personality traits of the people in the population. In turn, this allows the test results to be more accurate and informative when comparing different individuals.

The WPI was standardized using a large sample of 8360 people (4180 females and 4180 males). The large number of participants in the norm sample ensures that the WPI results accurately represent personality traits in the target population.

Sten Scores

A person's results on the WPI are reported in a standard score format known as Sten Scores. Standard scores are converted raw scores that help with the interpretation of the test results by allowing the comparison of an individual's results with the norm group. Standard scores also help compare a person's primary scale scores against each other. This allows us, as an example, to determine if the person scores higher on Flexibility than on Persistence. Sten scores range from 1 to 10, have a Mean of 5.5, and a Standard Deviation of 2. This means that an individual with a Sten score of 5.5 precisely reflects the average score of the norm population. As a result, 50 percent of the norm sample would score above and below the individual.

MEANS AND STANDARD DEVIATIONS OF THE NORMING SAMPLE

Table 5.4 provides a detailed description of the WPI raw scale scores for the norming sample. The means and standard deviations shown provide the norms which individuals who complete the WPI are compared against. The mean raw score for each scale represents the "average" score of people in North America. The standard deviation indicates the spread of scores found among people in the normative sample. Approximately 68% of the population will obtain scores within one standard deviation above and below the mean, while 95% of the population will score within two standard deviations of the mean.

TABLE 5.4 RAW SCORE MEANS AND STANDARD DEVIATIONS FOR THE NORMING SAMPLE (N=8360)

	Minimum	Maximum	Mean	Std. Deviation
Ambition	12	45	31.81	5.50
Analytical Thinking	9	45	33.90	5.39
Attention to Detail	11	45	31.60	5.85
Concern for Others	9	45	34.88	5.81
Democratic	9	45	25.43	4.32
Dependability	10	45	32.51	5.53
Energy	9	45	30.24	5.37
Flexibility	10	45	28.35	4.99
Initiative	12	45	34.16	4.84
Innovation	9	45	33.33	5.93
Leadership	9	45	30.81	6.24
Multi-Tasking	9	45	27.48	6.45
Outgoing	9	45	30.07	5.98
Persistence	9	45	32.71	5.66
Persuasion	9	45	28.79	6.89
Planning	11	45	31.07	5.51
Rule Following	9	45	27.41	6.49
Self-Control	9	45	30.40	6.11
Social Confidence	9	45	31.48	7.14
Stress Tolerance	9	45	28.96	6.45
Teamwork	9	45	30.16	5.39

Standard Error of Measurement

Every time someone completes the WPI, their scores are comprised of two components. The first component is their true score – the amount of their score represents the personality trait being measured. The second component is a random score – the proportion of their score that is attributable to external conditions which have nothing to do with the trait being measured, known as chance or external influence. For example, if an individual is distracted or tired, it may impact their responses, and thus the score they obtain on the WPI. Since this random score has a negative influence on the consistency of an individual's results, it is usually called random error. The Standard Error of Measurement (SEM) gives an indication of how much an individual's obtained score might vary from their true score. The SEM can be interpreted as meaning that an individual's true score will fall within +1 or -1 SEM 68% of the time, and within +2 or -2 SEM's 95% of the time. To illustrate, consider the following. Paul receives a Sten score of 6 on the Ambition scale. We know that 68% of the time, his true score will lie in between 5.09 and 6.91 (+1 SEM). We also know that 95% of the time, his true score will lie between 4.17 and 7.83(+2 SEM).

TABLE 5.5 STANDARD ERROR OF MEASUREMENT FOR WPI SCALES AND CONFIDENCE INTERVALS (N=8360)

	SEM (as sten score)	68% Confidence Interval	95% Confidence Interval
Ambition	.87	1	1.5
Analytical Thinking	.87	1	1.5
Attention to Detail	.80	1	1.5
Concern for Others	.72	1	1.5
Democratic	1.13	1	2
Dependability	.85	1	1.5
Energy	.89	1	2
Flexibility	.94	1	2
Initiative	.87	1	1.5
Innovation	.69	.5	1.5
Leadership	.72	.5	1.5
Multi-Tasking	.69	.5	1.5
Outgoing	.80	1	1.5
Persistence	.80	1	1.5
Persuasion	.66	.5	1.5
Planning	.89	1	1.5
Rule-Following	.69	.5	1.5
Self-Control	.82	1	1.5
Social Confidence	.60	.5	1.5
Stress Tolerance	.77	1	1.5
Teamwork	.85	1	1.5

DEMOGRAPHICS OF THE NORMING SAMPLE

The final sample consists of 8360 individuals (4180 females and 4180 males). A detailed breakdown of the Age, Education Level, Ethnicity, Employment Status, Position Level, Work Experience and Occupational Area of the norming sample is provided in Tables 5.6 to Table 5.12.

TABLE 5.6 – AGE DISTRIBUTION OF NORMING SAMPLE (N=8360)

Age Group	Total	Percent	% Female	% Male
15-17	450	5.4	4.5	6.3
18-20	430	5.1	4.7	5.6
21-24	920	11.0	10.5	11.5
25-28	917	11.0	10.8	11.1
29-34	1299	15.5	14.7	16.3
35-44	1779	21.3	21.8	20.8
45-54	1505	18.0	20.5	15.5
55-65	911	10.9	11.4	10.4
65+	149	1.8	1.0	2.5

TABLE 5.7 – HIGHEST EDUCATION LEVEL ACHIEVED BY SUBJECTS IN NORMING SAMPLE (N=8360)

	Total	Percent	% Female	% Male
Some High School	515	6.2	5.1	7.2
High School	666	8.0	7.1	8.9
Trade	274	3.3	2.8	3.7
Some College	1871	22.4	20.3	24.5
Associate Degree	365	4.4	4.5	4.2
Community College	365	4.4	5.3	3.4
Bachelors	2166	25.9	29.7	22.1
Masters	1592	19.0	19.3	18.8
Professional	277	3.3	3.6	3.0
Doctorate	271	3.2	2.3	4.2

TABLE 5.8 – ETHNIC ORIGIN OF SUBJECTS IN NORMING SAMPLE (N=8360)

	Frequency	Percent	% Female	% Male
Asian	262	3.1	3.1	3.2
African American/Canadian	682	8.0	7.6	8.8
Latino/Latina	397	4.7	4.6	4.9
Middle Eastern	109	1.3	0.8	1.8
Native American/Canadian	144	1.7	1.9	1.5
South East Asian	101	1.2	0.9	1.5
White/Caucasian	5652	67.6	68.7	66.6
Other	1013	12.1	12.5	11.8

TABLE 5.9 – EMPLOYMENT STATUS OF SUBJECTS IN NORMING SAMPLE (N=8360)

	Frequency	Percent	% Female	% Male
Entry level	1068	12.8	12.5	13.0
Non-supervisory employee	2257	27.0	30.2	23.8
Management	1486	17.8	16.4	19.1
Supervisor	851	10.2	8.2	12.2
Executive	478	5.7	4.5	6.9
Top Executive	234	2.8	1.8	3.8
None Given	1986	23.8	26.4	21.1
Seeking Employment	948	11.3	10.8	11.9

TABLE 5.10 – POSITION LEVEL OF SUBJECTS IN NORMING SAMPLE (N=8360)

	Frequency	Percent	% Female	% Male
Entry level	1068	12.8	12.5	13.0
Non-supervisory employee	2257	27.0	30.2	23.8
Management	1486	17.8	16.4	19.1
Supervisor	851	10.2	8.2	12.2
Executive	478	5.7	4.5	6.9
Top Executive	234	2.8	1.8	3.8
None Given	1986	23.8	26.4	21.1

TABLE 5.11 – YEARS OF WORK EXPERIENCE OF SUBJECTS IN NORMING SAMPLE (N=8360)

	Frequency	Percent	% Female	% Male
Less than 1 year	742	8.9	8.4	9.4
1-2 years	831	9.9	10.0	9.9
3-5 years	1250	15.0	14.8	15.1
5-10 years	1586	19.0	19.7	18.2
More than 10 years	3024	36.2	35.2	37.2
None Given	927	11.1	11.9	10.2

TABLE 5.12 – OCCUPATIONAL AREA OF SUBJECTS IN NORMING SAMPLE (N=8360)

	Frequency	Percent	% Female	% Male
Agriculture, Fishing and Forestry	44	0.5	0.6	0.4
Arts or Design	170	2.0	2.2	1.8
Building and Maintenance	45	0.5	0.1	1.0
Business or Financial	785	9.4	9.5	9.3
Community and Social Services	394	4.7	6.5	2.9
Construction	77	0.9	0.4	1.5
Customer Service-Call Center Support	148	1.8	2.4	1.1
Customer Service-Technical support	76	0.9	0.6	1.2
Education or Training	1315	15.7	17.1	14.4
Engineering	224	2.7	1.4	3.9
Entertainment	80	1.0	0.9	1.0
Food Preparation and Serving	223	2.7	2.7	2.7
Healthcare Practitioner	230	2.8	3.3	2.2
Healthcare Support	272	3.3	4.7	1.8
Information Systems and Technology	381	4.6	2.2	6.9
Installation, Maintenance and Repair	69	0.8	0.2	1.5
Journalism or Media	104	1.2	1.5	1.0
Legal Occupations	141	1.7	1.7	1.7
Library Sciences	38	0.5	0.7	0.2
Life or Physical Science	125	1.5	1.9	1.1
Management	877	10.5	10.5	10.5
Manufacturing	146	1.7	1.1	2.4
Mathematics	28	0.3	0.2	0.5
Military	467	5.6	2.1	9.1
Mining	26	0.3	0.1	0.5
Office and Administrative Support	531	6.4	10.4	2.3
Personal Care and Service	110	1.3	1.9	0.7
Protective Services	98	1.2	0.5	1.9
Retail Sales	458	5.5	5.4	5.6
Sales Management	173	2.1	1.5	2.6
Social Science	268	3.2	4.3	2.2
Sports	59	0.7	0.4	1.1
Transportation	133	1.6	0.9	2.2
Wholesale Sales	45	0.5	0.2	0.9

DESCRIPTIVE STATISTICS FOR WPI STEN SCORES OF THE NORMING SAMPLE DEMOGRAPHIC GROUPS

The following tables (5.13 to 5.20) present the means and standard deviations of the Work Personality Index scales for each demographic category.

Gender

Since the WPI is used to compare people, including both males and females, it is important to have an understanding of the gender differences found on the 21 scales. A number of minor gender effects were discovered when comparing the mean scores of males and females. Most of the differences are quite small in magnitude. In general, females tended to receive higher scores on Concern for Others, and Multi-Tasking. Males tended to receive higher scores on Analytical Thinking and Persuasion. As demonstrated earlier only 2 items show DIF above the negligible level (both would be classified as slight to moderate); one in the Dependability scale (Females higher than Males) and one on the Ambition scale (Males higher than Females). Since the differences between the other WPI scales were minimal these outcomes should not influence test interpretation.

TABLE 5.13 – MEAN STEN SCORES ON WPI SCALES FOR FEMALES AND MALES
(FEMALE (N=4180) MALE (N=4180))

	Female	SD	Male	SD
Ambition	5.36	1.93	5.64	2.01
Analytical Thinking	5.26	1.96	5.83	2.00
Attention to Detail	5.58	1.94	5.52	1.94
Concern for Others	6.01	1.86	5.13	2.02
Democratic	5.62	2.05	5.39	1.92
Dependability	5.63	1.91	5.41	1.99
Energy	5.65	2.00	5.41	1.99
Flexibility	5.54	2.03	5.54	1.90
Initiative	5.70	1.91	5.39	2.03
Innovation	5.36	1.98	5.55	1.92
Leadership	5.33	2.01	5.75	1.93
Multi-Tasking	5.80	2.01	5.20	1.99
Outgoing	5.45	1.98	5.29	1.95
Persistence	5.55	1.94	5.49	2.03
Persuasion	5.20	1.94	5.83	2.02
Planning	5.51	2.00	5.47	1.97
Rule-Following	5.59	2.03	5.42	2.01
Self-Control	5.36	1.98	5.60	2.05
Social Confidence	5.49	1.99	5.51	1.93
Stress Tolerance	5.24	1.97	5.81	1.99
Teamwork	5.51	1.99	5.51	2.00

Ethnicity

The norm sample for the WPI contains a significant number of minorities, allowing for the examination of ethnic differences. A test which finds significantly large variations among ethnic groups can result in adverse impact, making it inadvisable to use such a test in the selection process. These types of differences are commonly observed when using cognitive ability tests. However, these variations tend to be less frequent and less pronounced for measures of personality such as the WPI. Table 5.14 lists the mean score for the WPI dimensions for seven ethnic groups. While minor differences can be observed between the ethnic groups, their effect on test interpretation is minimal.

TABLE 5.14 – MEAN STEN SCORES ON WPI SCALES FOR ETHNIC GROUPS

	Asian	Black	Latino	Mid-eastern	Native	SE Asian	White	Other
Ambition	5.30	5.58	5.99	6.08	5.21	5.89	5.47	5.47
Analytical Thinking	5.40	5.18	5.68	6.25	5.05	5.24	5.62	5.41
Attention to Detail	5.55	5.82	6.08	6.09	5.15	5.61	5.47	5.63
Concern for Others	5.55	5.47	5.44	5.47	5.63	5.03	5.60	5.62
Democratic	6.16	5.01	5.68	5.29	5.63	6.37	5.49	5.54
Dependability	5.22	5.88	5.77	5.75	5.45	5.05	5.52	5.30
Energy	4.87	5.63	5.68	5.64	5.64	4.84	5.56	5.51
Flexibility	5.37	5.07	5.67	5.95	5.79	5.54	5.55	5.73
Initiative	4.94	5.40	5.70	5.43	5.57	4.52	5.64	5.40
Innovation	5.03	5.35	5.40	5.58	5.63	5.14	5.47	5.60
Leadership	5.09	5.70	5.73	6.27	5.38	5.49	5.51	5.68
Multi-Tasking	5.30	5.16	5.23	5.36	5.70	4.76	5.60	5.41
Outgoing	5.09	5.33	5.40	5.72	5.76	4.97	5.38	5.41
Persistence	5.03	5.85	5.95	5.38	5.59	4.72	5.55	5.21
Persuasion	5.16	5.92	5.60	6.39	5.73	5.37	5.42	5.72
Planning	5.48	5.97	5.90	6.02	5.13	5.62	5.37	5.64
Rule-Following	5.50	6.55	6.04	5.48	5.17	5.15	5.39	5.38
Self-Control	5.32	6.00	5.72	5.53	5.74	4.79	5.46	5.30
Social Confidence	4.92	5.70	5.64	5.79	5.80	5.06	5.49	5.53
Stress Tolerance	5.24	6.31	5.97	5.65	5.85	4.89	5.45	5.40
Teamwork	5.66	5.60	5.60	6.06	5.56	5.48	5.47	5.56

Age Groups

Some psychological traits can change throughout a person's lifetime, and others tend to remain very stable. Examining the differences among people of different ages can help determine the effects that age may have on a person's reported personality traits. Age effects for the WPI are summarized in Table 5.15, where age is divided into nine categories. While some differences can be found between the different age groups, the overall similarity of the mean scale scores across the nine age groups indicates the WPI can be useful in comparing the personality traits for people from ages that range from 15 to over 60.

TABLE 5.15 – AGE GROUPS MEAN STEN SCORES

	15-17	18-20	21-24	25-28	29-34	35-44	45-54	55-65	65+
Ambition	5.18	5.66	5.90	5.84	5.63	5.50	5.18	5.19	5.49
Analytical Thinking	4.38	5.17	5.47	5.53	5.63	5.72	5.66	5.68	5.89
Attention to Detail	5.08	5.77	6.06	5.95	5.93	5.63	5.27	4.68	4.61
Concern for Others	4.27	5.27	5.25	5.15	5.67	5.68	5.85	6.18	6.27
Democratic	5.91	6.00	5.87	5.77	5.68	5.30	5.23	5.13	5.00
Dependability	4.77	5.18	5.68	5.46	5.58	5.53	5.62	5.60	5.80
Energy	4.70	4.99	5.51	5.54	5.47	5.60	5.76	5.67	6.31
Flexibility	5.06	5.23	5.08	5.20	5.24	5.66	5.85	6.23	6.41
Initiative	3.89	4.68	5.21	5.37	5.60	5.80	5.87	6.04	6.37
Innovation	4.60	5.17	5.30	5.22	5.38	5.56	5.60	5.96	6.08
Leadership	5.10	5.20	5.54	5.57	5.52	5.68	5.59	5.52	5.94
Multi-Tasking	4.72	4.66	5.04	5.34	5.45	5.73	5.83	5.93	5.78
Outgoing	5.00	5.16	5.25	5.35	5.40	5.35	5.45	5.57	5.90
Persistence	4.58	5.04	5.65	5.47	5.62	5.52	5.67	5.65	5.73
Persuasion	5.55	5.54	5.60	5.37	5.39	5.51	5.46	5.63	6.58
Planning	4.97	5.66	5.93	5.67	5.68	5.47	5.35	5.10	5.11
Rule-Following	5.47	5.55	5.81	5.69	5.90	5.58	5.35	4.75	4.47
Self-Control	4.75	5.50	5.55	5.29	5.52	5.46	5.57	5.69	5.92
Social Confidence	4.88	5.13	5.32	5.38	5.49	5.46	5.64	5.95	6.57
Stress Tolerance	5.29	5.61	5.60	5.54	5.49	5.54	5.49	5.49	6.13
Teamwork	4.76	4.99	5.27	5.36	5.57	5.64	5.69	5.83	5.88

Educational Level

Variation of WPI scores for people with different levels of education also provides evidence of the usability of the WPI for individuals with different educational levels. Some of the personality traits measured by the WPI would appear to interact with the type and level of education achieved by people. For example, individuals with less than a high school education tend in general to be lower than the average in all traits except Democratic, Persuasion, and Rule-Following. People with post-graduate degrees tend to be higher than average on Analytical Thinking, Concern for Others and Initiative and lower on average on Rule-Following.

TABLE 5.16 MEAN STEN SCORES ON WPI SCALES FOR EDUCATIONAL GROUPS

	Some High School	High School	Associate Degree	Community College	Trade	Some University	Bachelors	Masters	Doctorate	Professional
Ambition	5.03	5.22	5.61	5.06	5.63	5.70	5.38	5.69	5.71	5.47
Analytical Thinking	4.50	4.97	5.54	5.06	5.18	5.31	5.72	6.12	6.50	5.74
Attention to Detail	5.15	5.86	6.10	5.36	6.16	6.01	5.54	4.99	4.72	5.40
Concern for Others	4.47	5.12	5.48	5.59	5.43	5.30	5.77	6.04	6.17	5.99
Democratic	5.92	5.60	5.21	5.41	5.39	5.25	5.74	5.54	5.08	5.44
Dependability	4.67	5.53	5.75	5.47	5.76	5.73	5.45	5.52	5.70	5.26
Energy	4.74	5.35	5.67	5.67	5.65	5.67	5.48	5.70	5.45	5.54
Flexibility	4.98	4.95	5.49	5.89	5.02	5.03	5.63	6.27	6.27	6.00
Initiative	4.09	4.92	5.70	5.72	5.44	5.52	5.61	6.06	5.91	5.70
Innovation	4.72	5.12	5.48	5.37	5.43	5.32	5.45	5.87	6.07	5.60
Leadership	5.05	5.36	5.82	5.52	5.45	5.77	5.39	5.67	5.70	5.54
Multi-Tasking	4.70	4.81	5.50	5.88	5.17	5.37	5.60	5.95	5.78	5.90
Outgoing	4.98	5.18	5.35	5.64	5.36	5.35	5.40	5.56	5.23	5.49
Persistence	4.55	5.50	5.87	5.41	5.95	5.80	5.36	5.57	5.66	5.27
Persuasion	5.42	5.60	5.68	5.52	5.45	5.90	5.25	5.47	5.24	5.52
Planning	4.94	5.59	5.68	5.15	5.84	5.77	5.50	5.29	5.19	5.57
Rule-Following	5.61	6.06	5.81	5.08	6.58	6.21	5.25	4.81	4.82	4.99
Self-Control	4.92	5.49	5.69	5.46	5.55	5.66	5.43	5.48	5.66	5.29
Social Confidence	4.91	5.25	5.58	5.50	5.52	5.58	5.42	5.74	5.60	5.77
Stress Tolerance	5.22	5.61	5.74	5.37	5.68	5.98	5.32	5.37	5.43	5.22
Teamwork	4.80	5.33	5.46	5.64	5.55	5.49	5.57	5.81	5.23	5.65

Employment Status

There is little variation in WPI score across employment status. Interestingly, Homemakers are above average in Attention to Detail, Concern for Others and Rule-Following; the Self-Employed are above average in Flexibility, Initiative and Innovation and below average in Rule-Following.

TABLE 5.17 MEAN STEN SCORES ON WPI SCALES FOR EMPLOYMENT STATUS

	High School	College Student	Full Time	Part time	Homemaker	Seeking Employment	Self-Employed	Retired
Ambition	5.42	5.75	5.62	5.27	4.82	5.09	5.61	5.32
Analytical Thinking	4.67	5.51	5.61	5.43	4.98	5.61	5.94	5.77
Attention to Detail	5.39	6.00	5.53	5.55	6.28	5.87	5.00	5.54
Concern for Others	4.64	5.40	5.58	5.87	6.17	5.54	6.03	6.03
Democratic	6.14	5.88	5.39	5.62	5.72	5.81	5.07	4.85
Dependability	4.81	5.49	5.66	5.49	5.63	5.22	5.54	6.06
Energy	4.67	5.25	5.74	5.37	5.08	5.22	5.74	5.40
Flexibility	5.12	5.13	5.58	5.44	4.50	5.44	6.33	5.33
Initiative	4.05	5.03	5.82	5.35	4.99	5.17	6.13	5.42
Innovation	4.85	5.37	5.44	5.42	4.93	5.46	6.18	5.79
Leadership	5.15	5.50	5.71	5.09	4.82	5.20	5.88	5.56
Multi-Tasking	4.58	4.99	5.71	5.25	4.84	5.28	5.85	5.14
Outgoing	5.03	5.19	5.46	5.39	5.10	5.24	5.49	4.99
Persistence	4.66	5.52	5.69	5.47	5.50	5.23	5.46	6.08
Persuasion	5.59	5.67	5.58	5.18	4.75	5.22	5.77	6.06
Planning	5.16	5.90	5.49	5.41	6.01	5.55	5.29	5.90
Rule-Following	5.56	5.78	5.51	5.56	6.38	5.82	4.69	5.62
Self-Control	4.90	5.53	5.57	5.52	5.10	5.44	5.37	5.76
Social Confidence	4.89	5.25	5.61	5.47	5.03	5.30	5.86	5.96
Stress Tolerance	5.21	5.58	5.63	5.35	4.98	5.39	5.44	5.74
Teamwork	4.96	5.25	5.65	5.51	5.22	5.40	5.59	5.27

Position Level

Variation of WPI scores for individuals with different positions in organizations also provides evidence of the usability of the WPI. Some of the personality traits measured by the WPI would appear to interact with the position level that individuals currently have. For example, Executives and Top Executives tend to be above average on a number of traits including: Ambition, Analytical Thinking, Energy, Flexibility, Initiative, Innovation, Leadership, Multi-Tasking, Persuasion and Social Confidence, as well as below average in Democratic and Rule-Following.

TABLE 5.18 MEAN STEN SCORES ON WPI SCALES FOR POSITION LEVEL

	Entry Level	Non Supervisory	Supervisor	Management	Executive	Top Executive
Ambition	5.38	5.24	5.84	5.86	6.07	6.26
Analytical Thinking	5.14	5.51	5.45	5.92	5.99	6.24
Attention to Detail	5.79	5.67	5.80	5.40	4.87	4.87
Concern for Others	5.27	5.60	5.22	5.66	5.82	6.03
Democratic	6.07	5.54	5.39	5.11	5.07	4.56
Dependability	5.39	5.56	5.85	5.64	5.48	5.94
Energy	5.09	5.41	5.79	6.12	6.31	6.49
Flexibility	5.04	5.36	5.29	6.01	6.44	6.71
Initiative	4.74	5.41	5.81	6.33	6.44	6.71
Innovation	5.05	5.20	5.46	5.78	6.03	6.39
Leadership	5.09	5.07	6.07	6.35	6.46	6.81
Multi-Tasking	4.83	5.47	5.49	6.20	6.31	6.31
Outgoing	5.21	5.17	5.54	5.74	5.97	5.72
Persistence	5.24	5.51	5.94	5.79	5.64	5.82
Persuasion	5.26	5.07	5.73	5.99	6.47	6.62
Planning	5.68	5.43	5.69	5.53	5.28	5.35
Rule-Following	5.88	5.60	5.96	5.40	4.64	4.42
Self-Control	5.40	5.50	5.64	5.58	5.55	5.63
Social Confidence	5.14	5.27	5.73	5.92	6.21	6.35
Stress Tolerance	5.37	5.42	5.92	5.77	5.83	6.10
Teamwork	5.28	5.32	5.67	6.01	6.05	5.95

Years of Experience

There is little variation in WPI score with years of experience. Few of the groups show average sten scores of more than 0.5, indicating that the groups are highly similar overall.

TABLE 5.19 MEAN STEN SCORES ON WPI SCALES FOR YEARS OF EXPERIENCE

	Less than 1	1 to 2	3 to 5	5 to 10	10+
Ambition	5.27	5.76	5.72	5.59	5.43
Analytical Thinking	5.05	5.52	5.60	5.65	5.74
Attention to Detail	5.63	5.93	5.76	5.69	5.23
Concern for Others	5.18	5.46	5.42	5.55	5.86
Democratic	6.05	5.76	5.65	5.40	5.15
Dependability	5.21	5.64	5.57	5.60	5.63
Energy	5.12	5.52	5.53	5.66	5.81
Flexibility	5.06	5.31	5.43	5.51	5.91
Initiative	4.68	5.40	5.58	5.77	5.98
Innovation	4.99	5.17	5.45	5.52	5.73
Leadership	5.09	5.52	5.55	5.61	5.79
Multi-Tasking	4.88	5.36	5.39	5.61	5.93
Outgoing	5.17	5.36	5.34	5.40	5.54
Persistence	5.04	5.57	5.55	5.61	5.72
Persuasion	5.24	5.42	5.45	5.52	5.68
Planning	5.47	5.76	5.62	5.52	5.36
Rule-Following	5.81	5.85	5.60	5.48	5.28
Self-Control	5.36	5.52	5.42	5.42	5.63
Social Confidence	5.10	5.35	5.59	5.53	5.74
Stress Tolerance	5.32	5.56	5.53	5.49	5.66
Teamwork	5.18	5.50	5.39	5.52	5.80

Occupational Groups

Table 5.20 lists the average sten scores for 34 different occupational groups. Key findings are listed below. For each scale, the occupational groups with the highest scores (generally one-half of one sten above the normative group mean) are listed.

Key Findings

Ambition – Agriculture, Engineering, Math, Military, Sales Management, Sport

Analytical Thinking - Engineering, Life and Physical Sciences, Math, Social Science, Wholesale Sales

Attention-to-Detail – Construction, Technical Support, Engineering, Installation, Military, Office, Personal Care, Retail Sales, Transport

Concern for Others – Social Service, Education, Health Practitioner, Personal Care, Social Science

Democratic – Agriculture, Journalism, Life and Physical Science, Math, Mining

Dependability – Building, Military, Transport

Energy – Management, Manufacturing, Sales Management,

Flexibility – Education, Management, Sales Management

Initiative – Management

Innovation – Arts and design, Entertainment, Journalism

Leadership – Management, Military, Sales Management, Sport

Multi-Tasking – Management

Outgoing – Sales Management

Persistence – Construction, Installation, Military, Protective Services, Transport

Planning – Installation, Math, Transport

Rule-Following – Construction, Call Centre, Technical Support, Health Support, Computers, Manufacturing, Military, Office, Personal Care, Protective Services, Retail Sales, Transport

Self-Control – Technical Support, Retail sales

Social Confidence – Management, Sales Management

Stress Tolerance – Manufacturing, Military, Protective Services,

Teamwork – Engineering, Management

TABLE 5.20 MEAN STEN SCORES ON WPI SCALES FOR OCCUPATIONAL GROUPS

WPI Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ambition	6.23	4.86	4.91	5.65	5.03	5.61	5.44	5.43	5.32	5.97	5.36	5.39	5.39	5.27	5.27	5.41	5.35
Analytical Thinking	5.59	5.19	5.64	5.79	5.37	5.35	5.34	5.42	5.57	6.01	5.33	5.25	5.64	5.25	5.25	5.49	5.78
Attention to Detail	5.23	5.34	5.87	5.46	5.16	6.17	5.89	6.08	5.01	5.99	5.38	5.94	5.20	5.88	5.88	6.17	5.92
Concern for Others	5.30	5.42	5.64	5.44	6.58	4.96	5.75	5.72	6.09	5.29	5.31	5.17	6.22	5.83	5.83	5.00	5.84
Democratic	6.05	5.43	5.84	5.55	5.88	5.55	5.61	5.37	5.47	5.84	5.70	5.82	5.43	5.43	5.43	5.65	6.14
Dependability	5.68	4.33	6.07	5.45	5.52	5.65	5.68	5.59	5.61	5.21	5.08	5.32	5.36	5.74	5.74	5.41	5.47
Energy	5.80	4.58	5.22	5.61	5.25	5.43	5.54	5.37	5.62	5.68	5.38	5.58	5.20	5.53	5.53	5.57	5.29
Flexibility	5.73	5.82	4.71	5.66	5.74	5.08	5.03	5.01	5.96	5.78	5.83	4.83	5.55	5.19	5.19	5.01	5.59
Initiative	5.50	4.67	4.91	5.58	5.75	5.09	5.35	5.33	5.78	5.49	4.96	5.18	5.40	5.59	5.59	4.88	5.44
Innovation	5.09	6.04	5.33	5.22	5.68	5.52	5.27	5.29	5.79	5.75	6.04	5.16	5.49	5.18	5.18	5.61	5.96
Leadership	5.91	4.71	5.20	5.55	5.12	5.88	5.45	5.18	5.42	5.79	5.24	5.56	5.25	5.24	5.24	5.25	5.08
Multi-Tasking	5.59	5.26	4.69	5.71	5.57	5.08	5.11	4.95	5.73	5.41	5.21	5.15	5.39	5.51	5.51	4.62	5.32
Outgoing	5.52	4.74	5.20	5.42	5.47	5.44	5.19	5.25	5.58	5.46	5.18	5.56	5.17	5.30	5.30	5.06	5.05
Persistence	5.75	4.29	5.80	5.36	5.35	5.96	5.67	5.50	5.53	5.39	5.14	5.36	5.51	5.72	5.72	5.97	5.42
Persuasion	5.86	4.54	5.49	5.61	5.03	5.64	5.40	5.53	5.53	5.50	5.09	5.58	5.17	5.11	5.11	5.51	5.33
Planning	5.57	4.79	5.76	5.42	5.25	5.52	5.70	5.75	5.30	5.78	5.21	5.68	5.22	5.69	5.69	6.03	5.61
Rule-Following	5.07	4.68	5.84	5.31	5.13	6.34	6.19	6.45	4.93	5.54	5.30	5.78	5.06	6.13	6.13	5.96	5.13
Self-Control	5.39	4.99	5.80	5.40	5.55	5.43	5.66	5.89	5.62	5.44	5.01	5.09	5.49	5.53	5.53	5.54	4.85
Social Confidence	5.34	4.72	5.22	5.50	5.52	5.55	5.35	5.22	5.75	5.47	5.08	5.46	5.43	5.37	5.37	5.22	5.13
Stress Tolerance	5.91	4.94	5.84	5.44	5.15	5.48	5.72	5.83	5.44	5.64	5.14	5.44	5.35	5.52	5.52	5.59	4.99
Teamwork	5.32	4.42	5.82	5.51	5.59	5.65	5.55	5.78	5.71	5.94	5.09	5.43	4.97	5.59	5.59	5.09	5.10

1=Agriculture; 2=Art & Design; 3=Building; 4=Business; 5=Social Services; 6=Construction; 7=Call Centre; 8=Technical Support; 9=Education; 10=Engineering; 11=Entertainment; 12=Food Services; 13=Health Practitioner; 14=Health Support; 15=Computers; 16=Installation; 17=Journalism

TABLE 5.20 MEAN STEN SCORES ON WPI SCALES FOR OCCUPATIONAL GROUPS (CONTINUED)

WPI Scale	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Ambition	5.88	4.89	5.44	5.70	5.87	6.39	6.01	5.15	5.05	5.14	5.53	5.53	6.17	5.71	6.08	5.86	5.56
Analytical Thinking	5.74	5.71	6.02	5.62	5.26	6.18	5.10	4.77	5.09	4.74	4.96	5.50	5.60	6.20	4.86	5.68	6.04
Attention to Detail	5.81	5.92	5.77	4.97	5.79	5.25	6.10	4.69	6.14	6.12	5.65	6.12	5.66	5.17	5.12	6.15	5.53
Concern for Others	5.44	5.66	5.46	5.59	4.87	4.64	4.41	4.38	5.60	6.09	4.57	5.56	5.37	6.53	4.39	4.83	5.91
Democratic	5.23	6.50	6.12	5.28	5.41	6.46	5.17	6.23	5.72	5.65	5.05	5.27	5.44	5.56	5.64	4.88	5.47
Dependability	5.47	5.58	5.22	5.42	5.63	5.54	6.11	5.23	5.70	5.56	5.84	5.66	5.46	5.54	5.32	5.93	5.11
Energy	5.69	4.97	4.69	6.09	6.29	4.71	5.73	4.85	5.33	5.29	5.74	5.39	6.14	5.22	5.51	5.74	5.16
Flexibility	5.34	5.18	5.50	6.17	5.49	5.46	4.69	5.81	5.03	5.03	5.24	5.01	5.70	5.84	5.69	4.98	4.76
Initiative	5.79	4.89	5.14	6.13	5.62	4.61	5.44	5.12	5.36	5.09	5.54	5.33	5.79	5.69	4.71	5.53	5.18
Innovation	5.42	5.79	5.38	5.58	5.14	5.82	4.77	5.23	5.07	5.55	4.90	5.48	5.79	5.52	5.27	5.41	5.31
Leadership	5.91	4.34	4.67	6.26	5.85	5.11	6.14	5.50	4.94	5.33	5.93	5.72	6.28	5.31	6.02	5.74	5.67
Multi-Tasking	5.62	5.63	5.21	6.19	5.40	4.71	5.09	5.65	5.50	4.96	5.06	5.10	5.62	5.50	5.14	5.36	4.89
Outgoing	5.45	5.00	4.70	5.72	5.40	4.71	5.35	4.58	4.95	5.47	5.46	5.45	5.94	5.42	5.44	4.90	5.38
Persistence	5.69	5.24	5.40	5.45	5.73	5.11	6.26	5.00	5.54	5.50	6.05	5.49	5.49	5.53	5.44	6.24	4.91
Persuasion	5.87	4.42	4.44	6.05	5.55	5.82	6.15	6.15	4.85	5.37	5.76	5.94	6.80	5.13	5.85	5.67	5.73
Planning	5.65	5.34	5.55	5.34	5.53	5.93	5.85	5.00	5.73	5.69	5.68	5.78	5.27	5.36	4.61	6.11	5.80
Rule-Following	5.72	5.32	5.35	5.13	6.42	5.89	6.21	5.38	6.16	6.41	6.55	6.29	5.38	4.85	4.85	6.65	5.73
Self-Control	5.40	5.61	5.34	5.63	5.74	4.57	5.39	5.19	5.41	5.39	5.72	5.81	4.72	5.54	5.31	5.47	5.58
Social Confidence	5.80	4.92	4.56	5.86	5.46	5.04	5.71	4.92	5.17	5.52	5.55	5.49	6.36	5.51	5.42	5.38	5.73
Stress Tolerance	5.67	4.97	4.86	5.85	5.95	5.04	6.17	5.35	5.29	5.25	6.32	5.75	5.13	5.25	5.68	5.88	5.71
Teamwork	5.32	5.24	4.83	5.93	5.64	5.07	5.55	5.23	5.10	5.38	5.77	5.57	5.69	5.43	5.24	5.57	5.56

18=Legal; 19=Library; 20=Life & Physical Sciences; 21=Management; 22=Manufacturing; 23=Math; 24=Military; 25=Mining; 26=Office;
 27=Personal Care; 28=Protective Service; 29=Retail Sales; 30=Sales Management; 31=Social Science; 32=Sport; 33=Transport;
 34=Wholesale Sales

chapter

RELIABILITY AND VALIDITY OF THE WORK PERSONALITY INDEX® ASSESSMENT

When developing assessments for psychological constructs such as personality, it is necessary to conduct research to determine the reliability and validity of the tool. Reliability directly examines the consistency and stability of the assessment, while validity is concerned with the types of inferences (e.g. predicting work behavior, identifying better employees) that can be made from test results. For an assessment to be useful it needs to be both reliable and valid. The following chapter examines evidence for both the reliability and validity of the WPI.

RELIABILITY OF THE WPI

Reliability is concerned with the consistency of test scores, and how free test results are from external, confounding influences. The higher the reliability of a test, the more likely it is consistently measuring actual differences between people. More reliable tests provide results that remain unaffected by irrelevant variations, or what is commonly called random errors. We assess the reliability of the WPI by examining how consistently the test measures personality traits. For example, a test that yields similar scores for a person who repeats the test at a later point in time is said to be reliable. However, if a person takes the same test twice and receives very different scores, the test is unreliable. In general, reliability refers to how dependable a test is.

Reliability is measured using correlation coefficients. A reliability coefficient is denoted by the letter “r”, and is expressed as a number ranging between 0 and 1.00 with $r=0$ indicating no reliability, and $r=1.00$ indicating perfect reliability. It is important to recognize that tests are never 100% accurate, so you will not find a test with a correlation coefficient of $r=1.00$. In general you will see the reliability of a test expressed as a decimal, for example, $r=.80$ or $r=.93$. The larger the reliability coefficient, the more consistent are the test scores. There are a number of reasons and/or conditions that lead to unreliable test results. Some of the possible reasons include the following:

1. **Candidate related.** Test performance can be influenced by a person’s psychological or physical state at the time of testing. For example, differing levels of anxiety, fatigue, or motivation may affect the individual’s test results.
2. **Test-related.** Item design, instructions, examples and the design of the response procedure can influence an individual’s test results. For example, confusing items or complicated instructions which make understanding the test difficult can negatively affect a person’s results.
3. **Procedural.** Differences in the testing environment, such as room temperature, lighting, noise, or even the test administrator and scoring procedures can influence an individual’s test performance.

These three factors are sources of chance or random measurement error in the assessment process. If there were no random errors of measurement, the individual would get the same test score (their “true” score) each time. The degree to which test scores are unaffected by measurement errors is an indication of the reliability of the test.

INTERNAL CONSISTENCY OF THE WPI

One of the main approaches used to assess reliability is through measures of internal consistency. A sophisticated form of internal consistency reliability is Cronbach’s alpha. It effectively splits the test items in every possible way and computes the average of all combinations. Consistency should be achieved in such a way that all the items on a scale measure the same thing to the same degree, and, therefore, the items for each test scale should have a high degree of correlation with one another. Most professionals agree that test scales with correlation coefficients above .70 are useful for most applications. The internal consistency reliability coefficients for each of the WPI scales are listed in Table 6.1. As shown in the table, the reliability coefficients range from 0.68 to 0.91

for the Norm sample. The average consistency across all scales is 0.83 for the norm sample. Most of the reliability coefficients for males and females in the sample are close – the largest difference being Flexibility (Females - 0.80 and Males - 0.72). The table also shows reliability coefficient for a number of different national groups: Australia, Canada, South Africa, United Kingdom, United States and for the French version of the assessment. Similar coefficients are found across all countries and for English and French. The strength of the reliability coefficients indicates that the Work Personality Index is relatively free from external errors that could negatively impact the measurement of personality traits. This allows the WPI to provide a close estimate of each individual's true score on the 21 scales.

TABLE 6.1 – INTERNAL CONSISTENCY OF WPI SCALES FOR VARIOUS SAMPLES

	Norm	Norm Female	Norm Male	AU	CA	SA	UK	US	FR
Ambition	81	79	84	82	81	77	81	80	86
Analytical Thinking	81	80	82	81	81	83	81	82	81
Attention to Detail	84	84	83	82	86	82	80	80	86
Concern for Others	87	87	85	89	86	86	89	86	88
Democratic	68	68	69	67	68	69	64	66	60
Dependability	82	82	82	83	81	82	81	84	81
Energy	80	81	78	82	80	79	79	80	81
Flexibility	78	80	72	76	81	79	74	72	86
Initiative	81	81	80	82	82	79	80	80	83
Innovation	88	88	87	88	89	87	88	87	90
Leadership	87	87	85	88	87	87	86	88	89
Multi-Tasking	88	88	86	87	89	89	88	86	90
Outgoing	84	84	81	81	84	83	81	83	83
Persistence	84	84	84	85	81	83	82	86	75
Persuasion	89	88	90	88	89	90	89	89	92
Planning	80	81	79	83	82	81	80	78	83
Rule-Following	88	88	86	86	86	87	85	88	82
Self-Control	83	84	82	86	83	85	83	84	76
Social Confidence	91	92	90	91	91	89	91	92	87
Stress Tolerance	85	86	84	87	84	86	85	87	82
Teamwork	82	83	81	80	82	80	77	83	82

All – n=8360, Females=4180, Males=4180, AU (Australia n=240), CA (Canada n=1945), SA (South Africa n=973), UK (United Kingdom n=350), US (United States n=2530), FR (French version n=119)

The internal consistency reliability coefficients for each of the WPI global scales are listed in Table 6.2. As shown in the table, the reliability coefficients range from 0.87 to 0.95 for the Norm sample. The average consistency across all scales is 0.91 for the norm sample. Most of the reliability coefficients for males and females in the sample are very close. The table also shows reliability coefficient for a number of different national groups, Australia, Canada, South Africa, United

Kingdom, United States and for the French version of the assessment. Similar coefficients are found across all countries and for English and French. The strength of the reliability coefficients indicates that the Work Personality Index global scales are relatively free from external errors that could negatively impact the measurement of personality traits. This allows the WPI to provide a close estimate of each individual's true score on the 5 global scales.

TABLE 6.2 – INTERNAL CONSISTENCY OF WPI GLOBAL SCALES FOR VARIOUS SAMPLES

	Norm	Norm Female	Norm Male	AU	CA	SA	UK	US	FR
Dynamism and Energy	95	95	95	95	95	95	95	95	90
Workstyle	93	93	93	93	93	93	91	94	92
Working with Others	89	89	88	88	89	88	87	89	87
Problem Solving	89	87	88	88	88	87	87	88	87
Dealing with Pressure & Stress	91	91	91	92	90	91	90	91	96

All – n=8360, Females=4180, Males=4180, AU (Australia n=240), CA (Canada n=1945), SA (South Africa n=973), UK (United Kingdom n=350), US (United States n=2530), FR (French version n=119)

TEST-RETEST RELIABILITY OF THE WPI

Test-retest reliability is an estimate of how stable a characteristic is over time. It is calculated by correlating the results of a group of individuals tested on two separate occasions. The degree to which the scores are similar will indicate the test-retest reliability of the test. Evidence of this type of reliability is important for personality measures since personality traits are thought to be quite stable and change very little over time. A sample of 145 people completed the WPI on two separate occasions. The sample consisted of 100 females and 45 males. The median time interval was 62 weeks, and the time intervals ranged from 12 to 120 weeks. Table 6.3 lists the test-retest indices for the 21 WPI traits, which range from 0.78 to 0.90. The mean reliability index across all 21 scales was 0.85 for the total sample, 0.85 for the female sample, and 0.84 for the male sample and indicate that the WPI traits show consistency over time. Table 6.4 lists the test-retest indices for the 5 WPI global scales, which range from 0.87 to 0.91. The mean reliability index across all 5 scales was 0.89 for the total sample, 0.89 for the female sample, and 0.88 for the male sample and indicate that the WPI global scales show consistency over time.

TABLE 6.3 TEST-RETEST CORRELATIONS OF THE WPI

	ALL (n=145)	Female (n=100)	Male (n=45)
Ambition	88	87	90
Analytical Thinking	90	90	89
Attention to Detail	89	89	89
Concern for Others	82	82	82
Democratic	80	84	65
Dependability	82	84	82
Energy	85	84	87
Flexibility	86	86	88
Initiative	81	82	79
Innovation	88	87	90
Leadership	87	88	84
Multi-Tasking	87	86	89
Outgoing	86	86	87
Persistence	84	82	87
Persuasion	89	91	78
Planning	85	85	84
Rule-Following	85	85	84
Self-Control	86	89	80
Social Confidence	86	89	85
Stress Tolerance	83	82	84
Teamwork	78	76	83

TABLE 6.4 TEST-RETEST CORRELATIONS OF THE WPI GLOBAL SCALES

	ALL (n=145)	Female (n=100)	Male (n=45)
Dynamism and Energy	91	92	86
Workstyle	91	91	90
Working with Others	87	88	86
Problem Solving	89	88	91
Dealing with Pressure & Stress	88	88	87

VALIDITY OF THE WPI

When deciding to use a test, validity is arguably the most important consideration. While reliability focuses on how consistently a test measures a particular trait, validity examines the extent to which a test measures what it claims to measure. Validity describes the degree to which you can make specific conclusions or predictions about people based on their test scores. In short, validity shows the usefulness of a test. A test's validity is established in reference to a specific purpose; the test may not be valid for all purposes. This means that a test is never valid or invalid. Instead, how the test is used can be classified as valid or invalid. For example, a ruler is a valid measure of a person's height, but an invalid measure of that individual's technical proficiency or leadership style.

There are various types of evidence that can indicate the valid uses of a test. Each piece of validity evidence can help determine how useful the test will be for specific situations, and with specific populations. While it is common to talk about different types of validity (e.g. construct validity, content validity, criterion validity), it is better to consider them as sources of evidence that assess the overall validity of a test, rather than as separate measures. A valid test is supported by various types of evidence that indicate whether it is acceptable for your situation. Therefore validity evidence should be able to tell you if the test measures what you need to measure, indicate which groups the test is useful for, and inform you of the decisions you can make based on individual's results.

CORRELATIONS WITH OTHER MEASURES

One primary source of validity evidence is known as construct validity. Construct validity evidence shows whether the test is appropriate to measure a particular psychological construct. The most popular method of examining construct evidence is to compare two different tests that are supposed to measure the same construct. For example, if the Outgoing scale on the WPI is valid, individual's scores should relate with other tests that also measure extraversion and social orientation. A number of correlational matrices have been derived involving the WPI and other psychological tests and instruments. This research was conducted to provide further evidence of the validity of the WPI as a measure of personality traits. The findings listed below outline the relationship between the WPI and other established measures of personality, values and interests.

COMPARISON OF THE WPI AND THE MYERS-BRIGGS TYPE INDICATOR® (MBTI®)

A sample of 455 individuals completed the WPI and the MBTI® Step I assessment (Myers, McCaulley, Quenk, and Hammer (1998). The MBTI® measures four dichotomies: Extraversion vs. Introversion (EI), Sensing vs. Intuition (SN), Thinking vs. Feeling (TF), and Judging vs. Perceiving (JP). The analysis examined the correlations between the 21 WPI scales and MBTI® preference scores. In order to compute these correlations, the MBTI® dimensions were arranged as single continuous variables ranging from low to high: Extraversion-Introversion (EI), Sensing-Intuition (SN), Thinking-Feeling (TF), Judging-Perceiving (JP). As a result, people with low scores on these variables would identify with Extraversion, Sensing, Thinking, and Judging, while people with high scores would identify with Introversion, Intuition, Feeling, and Perceiving. The relationships between the 21 WPI scales and the MBTI® preference scales are shown in Table 6.5.

TABLE 6.5 – CORRELATIONS OF WPI SCALES WITH MBTI PREFERENCE SCORES (N = 455)

	EI	SN	TF	JP
Ambition	-0.08	0.01	-0.33	-0.21
Analytical Thinking	0.19	0.27	-0.43	-0.04
Attention to Detail	0.19	-0.5	-0.22	-0.56
Concern for Others	-0.11	0.08	0.53	0.08
Democratic	-0.11	-0.06	0.25	-0.03
Dependability	0.09	-0.32	-0.24	-0.45
Energy	-0.47	0.04	-0.14	0.08
Flexibility	-0.15	0.53	0.03	0.60
Initiative	-0.17	0.18	-0.20	0.14
Innovation	-0.11	0.65	0.03	0.38
Leadership	-0.23	0.02	-0.33	-0.04
Multi-Tasking	-0.24	0.23	0.06	0.37
Outgoing	-0.79	0.10	0.20	0.18
Persistence	0.03	-0.25	-0.27	-0.35
Persuasion	-0.40	0.19	-0.16	0.15
Planning	0.14	-0.35	-0.26	-0.72
Rule Following	0.14	-0.50	-0.08	-0.51
Self-Control	0.04	0.03	0.01	0.06
Social Confidence	-0.67	0.12	0.08	0.13
Stress Tolerance	-0.13	0.05	-0.20	0.13
Teamwork	-0.57	0.05	0.19	0.11

WPI Correlations with E-I preference scores

The MBTI® Extraversion-Introversion scale correlates most strongly with Outgoing (-.79), Social Confidence (-.67), Teamwork (-.57), Energy (-.47), and Persuasion (-.40). These findings indicate that people who indicate a preference for Extraversion on the MBTI® tend to be outgoing, comfortable in social situations, have high energy, enjoy working closely with others, and like situations where they can be persuasive as measured by the WPI. These results suggest that these WPI scales are measuring some of the same personality characteristics as the Extraversion-Introversion scale on the MBTI®.

WPI Correlations with S-N preference scores

The Sensing-Intuition dichotomy describes what an individual pays attention to. People with a preference for Sensing tend to focus on information that can be gathered through the five senses. As a result, they tend to be practical, and focus on factual details. People with a preference for Intuition tend to focus on future possibilities and novelty. As a result, they tend to be theoretical, creative, driven by insights, and enjoy variety. The MBTI® Sensing-Intuition dichotomy correlates

with Innovation (0.65), Flexibility (.53), Rule Following (-.50), and Attention to Detail (-.50). These findings indicate that people who indicate a preference for Intuition on the MBTI® tend to be identified as flexible and innovative by the WPI. Those individuals who score toward Sensing on the MBTI® are identified as preferring to pay close attention to detail and rule-following on the WPI.

WPI Correlations with T-F preference scores

The Thinking-Feeling dichotomy describes the process an individual uses to make decisions. People with a Thinking preference tend to structure and organize information to make decisions in a logical, objective way. Individuals who have a preference for Feeling organize and structure information to decide in a personal, values-oriented way. The MBTI® Thinking-Feeling dichotomy correlates with Concern for Others (.53), Analytical Thinking (-.43), Leadership (-.33), Ambition (-.33), and Democratic (0.25). As expected, people with a Feeling preference score high on the Concern for Others and Democratic scales on the WPI. Those individuals who score towards Thinking tend to be analytical, ambitious and have leadership aspirations.

WPI Correlations with J-P preference scores

The Judging-Perceiving dichotomy describes the type of lifestyle a person adopts. People with a preference for Judging live planned, organized lives. Individuals with a preference for Perceiving enjoy living a spontaneous, flexible life. MBTI® Judging-Perceiving scores correlate with Planning (-.72), Flexibility (.60), Attention to Detail (-.56), Rule-Following (-.51), Dependability (-.45), Innovation (.38), Multi-Tasking (.37), and Persistence (-.35). This indicates that individuals who show a preference for Perceiving also tend to be flexible, innovative and enjoy multi-tasking. Those individuals preferring Judging tend to be planful, to follow guidelines closely, are persistent and dependable, and focused on details.

WPI AND MBTI® FORM Q STEP II

In this research study, 369 adults completed the Work Personality Index and the Myers-Briggs Type Indicator® Form Q (Quenk, Hammer, and Majors (2001), which is commonly referred to as the MBTI Step II. The MBTI® Form Q was designed to measure facets of the four Personality Type dichotomies of Extraversion-Introversion, Sensing- Intuition, Thinking-Feeling, and Judging-Perceiving. There are 20 subscales that identify components of each of the four type dichotomies and provide a finer grained interpretation of an individual's personality preferences. The MBTI® Form Q facet scales measure aspects of personality that are similar to those identified through the 21 scales on the Work Personality Index. Therefore, one would expect to find a number of significant correlations between the scales of these two assessment instruments. Table 6.6 lists the 20 facet scales from the Form Q. The purpose of this study was to identify the relationships between the WPI and MBTI® Form Q scales, and examine whether these relationships fit with current knowledge and understanding of personality. Correlating the scores of an assessment like the WPI with those of other instruments is a common method of establishing validity. This type of comparison provides validity evidence by determining if the WPI scales correlate with Form Q scales in ways that would be expected. For example, one would expect that the WPI scale of Outgoing demonstrated significant relationships with the Form Q scales that measure aspects of Extraversion.

TABLE 6.6 – MBTI® FORM Q FACET SCALES

MBTI® Form Q**E-I Facets**

Initiating-Receiving
 Expressive-Contained
 Gregarious-Intimate
 Active-Reflective
 Enthusiastic-Quiet

S-N Facets

Concrete-Abstract
 Realistic-Imaginative
 Practical-Conceptual
 Experiential-Theoretical
 Traditional-Original

T-F Facets

Logical-Empathetic
 Reasonable-Compassionate
 Questioning-Accommodating
 Critical-Accepting
 Tough-Tender

J-P Facets

Systematic-Casual
 Planful-Open Ended
 Early Starting-Pressure Prompted
 Scheduled-Spontaneous
 Methodical-Emergent

The most detailed study of the relationship between the Work Personality Index assessment and the MBTI® Form Q is obtained when correlating the results from the 21 WPI traits and the 20 Form Q facets. Since each of these scales measures distinct personality traits, rather than global traits, the comparison between the two tests at this level provides the best indication of their relationship. Tables 6.7 to 6.10 show the correlations between the 21 WPI traits and the 20 Form Q facet scales.

Extraversion - Introversion Facet Scales

The first five scales on the MBTI Form Q measure facets of the Extraversion-Introversion dichotomy. They would be expected to correlate with the scales on the WPI that measure aspects of social outgoingness and activity. The results shown in Table 6.7 are in line with expectations. Some significant results include:

- Initiating-Receiving correlates highest with the WPI scales of Outgoing, Social Confidence, Persuasion, and Energy.
- Expressive-Contained correlates highest with the WPI scales of Outgoing, Social Confidence, Teamwork and Energy.
- Gregarious-Intimate correlates highest with the WPI scales of Outgoing, Social Confidence, Energy, Persuasion and Teamwork
- Active-Reflective correlates highest with the WPI scales of Outgoing, Social Confidence, Energy, Persuasion and Teamwork.
- Enthusiastic-Quiet correlates highest with the WPI scales of Outgoing, Energy, Social Confidence, Persuasion and Teamwork.

TABLE 6.7 CORRELATIONS BETWEEN THE WPI SCALES AND THE MBTI FORM Q EI FACETS (N=369)

	Initiating - Receiving	Expressive - Contained	Gregarious - Intimate	Active - Reflective	Enthusiastic - Quiet
Ambition	-0.09	0.00	-0.11	-0.08	-0.10
Analytical Thinking	0.13	0.24	0.18	0.19	0.18
Attention to Detail	0.18	0.16	0.13	0.15	0.19
Concern for Others	-0.09	-0.15	-0.06	-0.07	-0.10
Social Confidence	-0.65	-0.49	-0.53	-0.56	-0.49
Democratic	-0.05	-0.15	-0.07	-0.05	-0.06
Dependability	0.06	0.12	0.08	0.11	0.11
Energy	-0.39	-0.31	-0.46	-0.40	-0.50
Flexibility	-0.16	-0.14	-0.14	-0.12	-0.24
Initiative	-0.18	-0.12	-0.19	-0.14	-0.25
Innovation	-0.14	-0.08	-0.09	-0.09	-0.14
Leadership	-0.19	-0.14	-0.24	-0.20	-0.26
Multi-Tasking	-0.22	-0.20	-0.26	-0.17	-0.29
Outgoing	-0.70	-0.66	-0.70	-0.67	-0.71
Persistence	0.05	0.08	0.03	0.06	0.04
Persuasion	-0.41	-0.28	-0.36	-0.35	-0.40
Planning	0.14	0.10	0.11	0.10	0.13
Rule-Following	0.15	0.11	0.12	0.11	0.19
Self-Control	0.02	0.05	0.01	0.05	0.03
Stress Tolerance	-0.14	-0.01	-0.13	-0.09	-0.13
Teamwork	-0.50	-0.45	-0.52	-0.45	-0.52

Correlations greater than 0.135 are significant at the 0.01 level.

Sensing - Intuition Facet Scales

The next five facet scales on the MBTI Form Q measure aspects of the Sensing-Intuition dichotomy. These would be expected to correlate with WPI scales that measure whether people are practical and detail-oriented, or innovative and focused on possibilities. The relationships between the WPI and the MBTI Form Q appear to be consistent with the hypothesis and are shown in Table 6.8. Significant findings in this area include:

- Concrete-Abstract correlates highest with the WPI scales of Innovation, Flexibility, Rule-Following, Attention to Detail and Planning.
- Realistic-Imaginative correlates highest with the WPI scales of Innovation, Flexibility, Rule-Following and Attention to Detail
- Practical-Conceptual correlates highest with the WPI scales of Innovation, Flexibility, Analytical thinking, and Rule-Following
- Experimental-Theoretical correlates highest with the WPI scales of Innovation, Rule-Following, Flexibility, Attention to Detail, and Dependability.
- Traditional-Original correlates highest with the WPI scales of Innovation, Flexibility, Rule-Following, Planning, Democratic and Analytical Thinking.

TABLE 6.8 CORRELATIONS BETWEEN THE WPI SCALES AND THE MBTI FORM Q SN FACETS (N=369)

	Concrete - Abstract	Realistic - Imaginative	Practical - Conceptual	Experimental - Theoretical	Traditional - Original
Ambition	-0.02	0.01	-0.02	0.00	-0.13
Analytical Thinking	-0.25	-0.27	-0.15	-0.24	-0.28
Attention to Detail	0.03	0.06	-0.09	-0.02	0.19
Concern for Others	0.10	0.17	-0.06	0.08	0.15
Democratic	-0.46	-0.45	-0.30	-0.43	-0.50
Dependability	0.20	0.18	0.11	0.14	0.33
Energy	0.61	0.59	0.49	0.46	0.64
Flexibility	0.01	0.03	-0.07	-0.03	0.19
Initiative	0.20	0.20	0.07	0.13	0.28
Innovation	-0.22	-0.21	-0.10	-0.24	-0.16
Leadership	0.17	0.16	0.10	0.13	0.29
Multi-Tasking	0.05	0.05	0.04	0.01	0.12
Outgoing	0.47	0.44	0.29	0.39	0.58
Persistence	0.02	-0.06	-0.06	0.03	-0.02
Persuasion	0.28	0.16	0.29	0.30	0.30
Planning	-0.46	-0.42	-0.29	-0.42	-0.42
Rule-Following	-0.33	-0.32	-0.23	-0.30	-0.34
Self-Control	0.14	0.17	0.02	0.12	0.19
Social Confidence	0.08	0.09	0.09	0.04	-0.05
Stress Tolerance	0.02	-0.04	-0.07	0.01	0.12
Teamwork	0.07	0.11	-0.03	0.03	0.06

Correlations greater than 0.135 are significant at the 0.01 level.

Thinking - Feeling Facet Scales

The Thinking-Feeling facet scales help identify typical ways in which people make decisions and the standards they use to maintain relationships. One would expect that these facet scales show some relationships to the WPI scales that measure aspects of how people relate to others, and how they deal with information. Table 6.9 lists the correlation coefficients. Some of the more interesting results include:

- Logical-Empathetic correlates highest with the WPI scales of Concern for Others, Analytical Thinking, Leadership and Democratic.
- Reasonable-Compassionate correlates highest with the WPI scales of Concern for Others, Leadership, Analytical Thinking, and Democratic
- Questioning-Accommodating correlates highest with the WPI scales of Persuasion, Leadership, Innovation and Attention to Detail
- Critical-Accepting correlates highest with the WPI scales of Concern for Others, Democratic, Leadership, and Analytical Thinking.
- Tough-Tender correlates highest with the WPI scales of Concern for Others, Leadership, Democratic, Analytical Thinking and Initiative.

TABLE 6.9 CORRELATIONS BETWEEN THE WPI SCALES AND THE MBTI FORM Q SN FACETS (N=369)

	Logical - Empathetic	Reasonable - Compassionate	Questioning - Accommodating	Critical - Accepting	Tough - Tender
Ambition	-0.27	-0.34	-0.16	-0.18	-0.36
Analytical Thinking	-0.44	-0.36	-0.27	-0.31	-0.28
Attention to Detail	-0.18	-0.16	0.15	-0.19	-0.12
Concern for Others	0.47	0.46	0.20	0.43	0.43
Democratic	0.24	0.23	0.10	0.26	0.24
Dependability	-0.21	-0.22	0.06	-0.19	-0.21
Energy	-0.07	-0.19	-0.14	-0.03	-0.23
Flexibility	0.08	-0.02	-0.24	0.04	-0.06
Initiative	-0.13	-0.22	-0.24	-0.09	-0.28
Innovation	0.03	-0.03	-0.26	0.07	0.00
Leadership	-0.25	-0.30	-0.21	-0.21	-0.36
Multi-Tasking	0.07	-0.02	-0.13	0.08	-0.03
Outgoing	0.24	0.13	-0.04	0.27	0.09
Persistence	-0.27	-0.28	-0.02	-0.19	-0.29
Persuasion	-0.10	-0.17	-0.23	-0.03	-0.20
Planning	-0.24	-0.23	0.05	-0.22	-0.20
Rule-Following	-0.11	-0.08	0.23	-0.07	-0.06
Self-Control	0.01	0.04	0.08	0.04	0.03
Social Confidence	0.11	0.05	-0.09	0.15	0.01
Stress Tolerance	-0.17	-0.15	-0.08	-0.11	-0.20
Teamwork	0.24	0.15	0.02	0.28	0.11

Correlations greater than 0.135 are significant at the 0.01 level.

Judging - Perceiving Facet Scales

The final five facet scales on the MBTI Form Q measure personality traits that are considered part of the Judging-Perceiving dichotomy. These facets reflect whether an individual is planful and organized, or spontaneous and flexible. The relationship between the J-P facets and the WPI scales are also in line with expectations, and are provided in Table 6.10. These results include findings wherein:

- WPI Flexibility correlates significantly with all J-P Facets in the direction of Perceiving. People with higher scores on the Flexibility scale describe themselves as Casual, Open-ended, Pressure Prompted, Spontaneous, and Emergent on the MBTI Form Q.
- Systematic-Casual correlates highest with the WPI scales of Flexibility, Planning, Rule-Following, Multi-Tasking and Attention to Detail.
- Planful-Open Ended correlates highest with the WPI scales of Planning, Flexibility, Rule-Following, Innovation and Dependability.
- Early-Starting- Pressure Prompted correlates highest with the WPI scales of Planning, Dependability, Flexibility, Multi-Tasking, Rule-Following and Persistence.
- Scheduled-Spontaneous correlates highest with the WPI scales of Flexibility, Planning, Rule-Following, Attention to Detail, Innovation, and Multi-Tasking.
- Methodical-Emergent correlates highest with the WPI scales of Planning, Flexibility, Attention to Detail, Dependability and Multi-Tasking.

TABLE 6.10 CORRELATIONS BETWEEN THE WPI SCALES AND THE MBTI FORM Q JP FACETS (N=369)

	Systematic - Casual	Planful - Open Ended	Early Starting - Pressure Prompted	Schedule - Spontaneous	Methodical - Emergent
Ambition	-0.17	-0.14	-0.10	-0.12	-0.13
Analytical Thinking	-0.11	-0.03	-0.10	-0.04	-0.13
Attention to Detail	-0.49	-0.45	-0.35	-0.46	-0.42
Concern for Others	0.12	0.04	0.02	0.08	0.07
Democratic	0.05	0.05	0.04	0.03	0.00
Dependability	-0.40	-0.38	-0.49	-0.37	-0.37
Energy	0.06	0.09	0.23	0.10	0.09
Flexibility	0.50	0.52	0.47	0.61	0.42
Initiative	0.12	0.14	0.18	0.17	0.13
Innovation	0.33	0.34	0.27	0.34	0.22
Leadership	-0.07	-0.04	0.06	-0.01	-0.02
Multi-Tasking	0.30	0.32	0.42	0.35	0.33
Outgoing	0.22	0.15	0.19	0.19	0.14
Persistence	-0.34	-0.27	-0.39	-0.29	-0.33
Persuasion	0.12	0.14	0.12	0.13	0.06
Planning	-0.62	-0.64	-0.54	-0.64	-0.61
Rule-Following	-0.48	-0.42	-0.40	-0.47	-0.39
Self-Control	0.08	0.04	0.01	0.03	-0.03
Social Confidence	0.17	0.12	0.06	0.17	0.09
Stress Tolerance	0.09	0.12	0.13	0.12	0.03
Teamwork	0.16	0.10	0.14	0.15	0.12

Correlations greater than 0.135 are significant at the 0.01.

Conclusion

The results of this study indicate a number of significant relationships between the WPI and the MBTI® Form Q. These relationships demonstrate that both tests measure some of the same personality characteristics. All of the MBTI Form Q facet scales are significantly correlated with at least one of the WPI scales. These findings lend support to the use of the WPI as a valid measure of personality traits that play an important role in how people approach their work.

WPI AND THE CAREER VALUES SCALE (CVS)

The Career Values Scale (Macnab, Bakker, and Fitzsimmons, 2001) is an assessment of career values that identifies a hierarchy of importance of particular values in a person's life and work. Two versions of the CVS are available. The original CVS inventory that consists of 88 Likert-based questions. The paired-comparison version of the CVS contains 45 paired-comparison items. These values are categorized into three main areas:

Working With Others

- Service Orientation - providing direct service and benefit to others
- Team Orientation - team work, good co-worker relations
- Influence - influencing people and events

Self-Expression

- Creativity - creativity and originality
- Independence - being free from the influence of others
- Excitement - variety, risk and fast-paced work

Extrinsic

- Career Development - personal and professional development
- Financial Rewards - high salary and financial security
- Security - security, stability and predictability
- Prestige - recognition, admiration and status

WPI AND THE CAREER VALUES SCALE (CVS) PAIRED-COMPARISON VERSION

A sample of 1726 individuals completed both the Work Personality Index and the Career Values Scales – (paired comparison edition). The correlations between the Work Personality Index and the Career Values Scale in Table 6.11, 6.12 and 6.13 present the correlations between the 21 WPI scales and the Career Values Scale.

Key Findings

Working with Others

- Individuals who value Service Orientation score higher on Concern for Others and Teamwork.
- Individuals who value Team Orientation score higher on the WPI scales of Teamwork, Democratic, Outgoing, Concern for Others and lower on Analytical Thinking.
- Individuals who value Influence score higher on Leadership, Energy, Flexibility, Ambition, Persistence, Stress Tolerance, Social Confidence and Multi-Tasking.

Self-Expression

- Individuals who value Creativity score higher on the WPI scales of Innovation, Flexibility and Analytical Thinking and lower on Rule-Following.
- Individuals who value Independence score lower on the WPI scales of Outgoing, Teamwork, Energy, Rule-Following, Democratic, and Persistence.
- Individuals who value Excitement score higher on Flexibility, Multitasking, and Energy and lower on Rule-Following, Planning and Attention to detail.

Extrinsic

- Individuals who value Financial Rewards score lower on the WPI scales of Concern for Others and Teamwork.
- Individuals who value Security scored higher on the WPI scale of Rule-Following and lower on the WPI scales of Flexibility, Innovation, Initiative, Multi-Tasking, Energy, Ambition, Social Confidence, Leadership, Outgoing, Stress Tolerance and Analytical Thinking.

TABLE 6.11 CORRELATIONS WPI AND CVS (PAIRED COMPARISON) WORKING WITH OTHERS SCALES (N=1726)

	Service Orientation	Team Orientation	Influence
Ambition	-0.02	-0.18	0.28
Analytical Thinking	-0.07	-0.25	0.18
Attention to Detail	0.03	-0.15	0.07
Concern for Others	0.35	0.34	-0.10
Democratic	0.11	0.39	-0.18
Dependability	0.11	-0.07	0.16
Energy	0.11	0.02	0.33
Flexibility	-0.05	0.00	0.05
Initiative	0.09	-0.10	0.33
Innovation	-0.04	-0.13	0.09
Leadership	-0.06	-0.16	0.53
Multitasking	0.03	-0.04	0.20
Outgoing	0.19	0.37	0.13
Persistence	0.12	-0.10	0.25
Persuasion	0.02	0.01	0.31
Planning	0.01	-0.11	0.13
Rule Following	0.18	-0.02	0.09
Self-Control	0.19	0.12	0.04
Social Confidence	0.14	0.18	0.20
Stress Tolerance	0.09	-0.03	0.26
Teamwork	0.30	0.43	0.13

Correlation >0.057 are significant at the .01 level.

TABLE 6.12 CORRELATIONS WPI AND CVS (PAIRED COMPARISON) SELF-EXPRESSION SCALES (N=1726)

	Creativity	Independence	Excitement	Development
Ambition	0.08	-0.14	0.07	0.16
Analytical Thinking	0.28	0.04	-0.06	0.16
Attention to Detail	-0.15	-0.12	-0.22	0.04
Concern for Others	-0.03	-0.10	-0.08	0.00
Democratic	-0.13	-0.24	-0.15	0.06
Dependability	-0.17	-0.15	-0.11	0.01
Energy	0.00	-0.30	0.21	0.03
Flexibility	0.36	0.09	0.41	0.09
Initiative	0.12	-0.16	0.16	0.11
Innovation	0.60	0.07	0.14	0.00
Leadership	-0.01	-0.14	0.08	-0.09
Multi-tasking	0.09	-0.10	0.28	0.03
Outgoing	-0.04	-0.31	0.08	0.00
Persistence	-0.09	-0.20	-0.07	0.06
Persuasion	0.08	-0.18	0.10	-0.05
Planning	-0.08	-0.07	-0.23	0.03
Rule Following	-0.26	-0.26	-0.24	0.00
Self-Control	0.03	-0.13	-0.04	0.04
Social Confidence	0.02	-0.17	0.06	0.02
Stress Tolerance	0.08	-0.17	0.10	0.04
Teamwork	-0.05	-0.33	-0.05	-0.01

Correlation >0.057 are significant at the .01 level.

TABLE 6.13 CORRELATIONS WPI AND CVS (PAIRED COMPARISON) EXTRINSIC SCALES (N=1726)

	Financial Rewards	Security	Prestige
Ambition	-0.02	-0.28	0.11
Analytical Thinking	-0.04	-0.20	-0.02
Attention to Detail	0.12	0.27	0.09
Concern for Others	-0.23	-0.08	-0.10
Democratic	-0.08	0.19	0.01
Dependability	0.06	0.08	0.09
Energy	-0.08	-0.34	0.05
Flexibility	-0.18	-0.59	-0.10
Initiative	-0.11	-0.40	-0.01
Innovation	-0.14	-0.47	-0.11
Leadership	0.06	-0.29	0.12
Multi-tasking	-0.06	-0.35	-0.04
Outgoing	-0.15	-0.27	0.01
Persistence	0.00	-0.03	0.07
Persuasion	-0.01	-0.31	0.05
Planning	0.08	0.18	0.05
Rule Following	0.08	0.36	0.04
Self-Control	-0.13	-0.07	-0.10
Social Confidence	-0.14	-0.28	-0.01
Stress Tolerance	-0.08	-0.22	-0.06
Teamwork	-0.21	-0.19	-0.06

Correlation >0.057 are significant at the .01 level.

WPI AND THE CAREER VALUES SCALE (CVS) LIKERT VERSION

A sample of 882 individuals completed both the Work Personality Index assessment and the Career Values Scales – (Likert-version). The correlations between the Work Personality Index and the Career Values Scale are shown in Tables 6.14, 6.15, and 6.16.

TABLE 6.14 CORRELATIONS WPI AND CVS WORKING WITH OTHERS SCALES (N=882)

	Service Orientation	Team Orientation	Influence
Ambition	0.31	0.21	0.49
Analytical Thinking	0.14	0.04	0.27
Attention to Detail	0.23	0.11	0.26
Concern for Others	0.37	0.28	0.06
Democratic	-0.05	0.10	-0.22
Dependability	0.26	0.17	0.31
Energy	0.33	0.31	0.41
Flexibility	0.08	0.13	0.15
Initiative	0.34	0.23	0.46
Innovation	0.23	0.17	0.32
Leadership	0.22	0.26	0.69
Multi-Tasking	0.11	0.06	0.26
Outgoing	0.33	0.51	0.33
Persistence	0.32	0.23	0.40
Persuasion	0.30	0.33	0.53
Planning	0.15	0.11	0.25
Rule-Following	0.27	0.14	0.21
Self-Control	0.22	0.12	0.10
Social Confidence	0.35	0.43	0.40
Stress Tolerance	0.22	0.13	0.28
Teamwork	0.37	0.49	0.31

Correlations greater than 0.10 are significant at 0.01 level.

TABLE 6.15 CORRELATIONS WPI CORRELATIONS WPI AND CVS SELF-EXPRESSION SCALES (N=882)

	Creativity	Independence	Excitement	Career Development
Ambition	0.32	0.10	0.34	0.46
Analytical Thinking	0.43	0.15	0.14	0.34
Attention to Detail	0.14	0.01	0.06	0.26
Concern for Others	0.04	-0.02	-0.01	0.16
Democratic	-0.15	-0.17	-0.11	-0.11
Dependability	0.07	-0.03	0.07	0.24
Energy	0.20	-0.07	0.34	0.32
Flexibility	0.34	0.22	0.39	0.23
Initiative	0.31	0.03	0.30	0.46
Innovation	0.64	0.25	0.28	0.33
Leadership	0.27	0.18	0.33	0.24
Multi-Tasking	0.16	-0.02	0.24	0.18
Outgoing	0.12	-0.07	0.21	0.21
Persistence	0.18	0.02	0.18	0.34
Persuasion	0.32	0.15	0.32	0.22
Planning	0.18	0.05	0.00	0.22
Rule-Following	-0.05	-0.23	-0.02	0.17
Self-Control	0.07	-0.08	0.01	0.17
Social Confidence	0.21	0.01	0.25	0.27
Stress Tolerance	0.14	-0.07	0.18	0.23
Teamwork	0.11	-0.12	0.18	0.24

Correlations greater than 0.10 are significant at 0.01 level.

TABLE 6.16 CORRELATIONS WPI AND CVS EXTRINSIC (N=882)

	Financial Rewards	Security	Prestige
Ambition	0.21	0.00	0.32
Analytical Thinking	0.12	-0.08	0.10
Attention to Detail	0.15	0.25	0.14
Concern for Others	-0.06	-0.01	0.00
Democratic	-0.10	0.01	-0.03
Dependability	0.12	0.23	0.15
Energy	0.11	-0.02	0.19
Flexibility	0.05	-0.40	0.08
Initiative	0.11	-0.11	0.16
Innovation	0.17	-0.17	0.18
Leadership	0.34	0.08	0.37
Multi-Tasking	0.04	-0.20	0.10
Outgoing	0.06	0.01	0.17
Persistence	0.16	0.19	0.19
Persuasion	0.33	0.11	0.35
Planning	0.18	0.18	0.16
Rule-Following	0.06	0.30	0.09
Self-Control	-0.01	-0.01	-0.04
Social Confidence	0.15	0.03	0.22
Stress Tolerance	0.06	-0.05	0.03
Teamwork	0.01	0.00	0.12

Correlations greater than 0.10 are significant at 0.01 level.

Key Findings

Working with Others

- Individuals who value Service Orientation score higher on Concern for Others, Teamwork, Social Confidence, Initiative, Energy and Outgoing.
- Individuals who value Team Orientation score higher on the WPI scales of Teamwork, Outgoing, Social Confidence and Energy.
- Individuals who value Influence score higher on Leadership, Energy, Persuasion, Ambition, Energy, Persistence, and Social Confidence.

Self-Expression

- Individuals who value Creativity score higher on the WPI scales of Innovation, Flexibility and Analytical Thinking, Initiative, Persuasion and Ambition.
- Individuals who value Independence score higher on the WPI scales of Innovation and Flexibility and lower on Rule-Following.
- Individuals who value Excitement score higher on Flexibility, Ambition, Energy, Leadership and Persuasion.
- Individuals who value Development score higher on Ambition, Initiative, Analytic Thinking, Persistence, Innovation and Energy.

Extrinsic

- Individuals who value Financial Rewards score higher on the WPI scales of Leadership, Persuasion, and Ambition.
- Individuals who value Security scored higher on the WPI scales of Rule-Following , Attention to Detail, Dependability and lower on Flexibility, and Multi-tasking.
- Individuals who value Security scored higher on the WPI scale of Leadership, Persuasion, Ambition and Social Confidence.

WPI AND THE CAREER INTEREST PROFILER

A sample of 1170 individuals completed both the Work Personality Index assessment and the Career Interest Profiler (Bakker and Macnab, 2004). Table 6.17 shows the correlations between the WPI and Career Interest Profiler. The Career Interest Profiler is a measure of occupational interests that uses John Holland's theory of vocational personality. This theory, which has become one of the most widely accepted approaches for helping people make informed occupation choices, is based on six vocational personality types. Holland believed that people could be described by one of the six types:

Realistic - These people like active jobs that produce tangible results, and enjoy fixing, building, and repairing things.

Investigative - These people enjoy work that involves gathering information, developing theories, and analyzing data.

Artistic - These people have a great need for self-expression, and enjoy creative work.

Social - These individuals like to work with people. They enjoy team work and tend to be nurturing and caring.

Enterprising - These people like selling, managing, and persuading others, and pursue organizational goals and economic success.

Conventional - These people like activities that require attention to detail, organization and accuracy.

TABLE 6.17 CORRELATIONS WPI AND CAREER INTEREST PROFILER (N=1170)

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Ambition	0.05	0.09	0.06	0.07	0.16	0.07
Analytical Thinking	0.10	0.26	0.16	-0.01	0.06	0.06
Attention to Detail	0.05	0.07	0.01	0.02	0.03	0.22
Concern for Others	-0.11	0.04	0.25	0.31	0.04	0.01
Democratic	-0.04	-0.02	0.03	0.03	-0.03	-0.03
Dependability	0.01	0.02	-0.05	0.10	0.08	0.20
Energy	0.11	0.03	0.04	0.15	0.25	0.12
Flexibility	0.03	0.09	0.20	-0.02	0.05	-0.23
Initiative	0.06	0.08	0.10	0.11	0.17	0.10
Innovation	0.09	0.15	0.38	0.06	0.16	-0.08
Leadership	0.10	0.00	0.02	0.02	0.30	0.11
Multitasking	0.00	0.00	0.05	0.01	0.09	0.04
Outgoing	0.03	-0.02	0.10	0.20	0.26	0.06
Persistence	0.10	0.06	-0.02	0.10	0.17	0.20
Persuasion	0.16	0.00	0.12	0.14	0.53	0.16
Planning	-0.03	0.00	0.02	0.07	0.09	0.20
Rule-Following	0.05	-0.03	-0.08	0.16	0.12	0.30
Self-Control	0.12	0.04	0.05	0.13	0.13	0.16
Social Confidence	0.08	-0.01	0.11	0.20	0.31	0.07
Stress Tolerance	0.18	0.03	-0.01	0.06	0.20	0.16
Teamwork	0.10	0.03	0.05	0.21	0.24	0.12

Correlation >0.075 are significant at 0.01 level.

Key Findings

Individuals who have a high Investigative interest score higher on the WPI scale of Analytical Thinking.

Individuals who have a high Artistic interest score higher on Innovation, Concern for Others and Flexibility.

Individuals who have a high Social interest score higher on Concern for Others, Teamwork, Outgoing and Social Confidence.

Individuals who have a high Enterprising interest score higher on Persuasion, Social Confidence, Leadership, Outgoing, Energy, Teamwork and Stress Tolerance.

Individuals who have a high Conventional interest score higher on Rule-Following, Attention to Detail, Persistence, and Planning and lower on Flexibility.

THE WPI AND THE LEARNING STYLES INDEX (LSI)

The behavioral preferences assessed by the Learning Styles Index (Williams, Rudyk, Staley, Macnab, 2013) are based on the learning styles that correlate with psychological type preferences as measured by the MBTI. The eight LSI scales identify categories of behavior that correspond to the eight MBTI preferences. While the MBTI preferences describe inherent tendencies toward behaving in a given way, the LSI items describe behaviours, i.e. strategies, that are either recommended by study skills professionals or that have been used by learners and categorized according to the eight preferences. The four LSI areas and eight LSI scales are shown in Table 6.18 below.

TABLE 6.18 SCALES IN THE LSI MODEL

Energizing Environments	Environmentally Interactive	Environmentally Reflective
Gathering and Using Information	Factual Practical	Abstract Theoretical
Making Decisions	Analytical Logical	Personally Valued
Organization and Time Management	Organized Planful	Open-ended Spontaneous

Table 6.19 shows the correlations for the WPI and the LSI for a sample of 68 learners.

Energizing Environments

Environmentally Interactive: The EI scale reflects a person's need to be energized by environmental stimuli. Communicating and discussing learning material with peers, background noises from stereo music, television, family activity, and learner activity in the surrounding areas all qualify as environmental stimuli. Individuals who score highly on Environmentally Active also score higher on the WPI scales of Outgoing, Teamwork, Social Confidence, Persuasion and score lower on Attention to Detail.

Environmentally Reflective: The ER scale reflects a person's need to minimize any external stimuli that might distract and interfere with their concentration and ability to focus internally on the learning material. Individuals who score highly on Environmentally Reflective score lower on the WPI scales of Teamwork, Multi-Tasking and Social Confidence.

Gathering and Using Information

Factual Practical: This scale indicates that an individual focuses on learning the facts and details and considers how they can be practically applied. Individuals who score highly on this scale score higher on the WPI scales of Attention-to-Detail, Planning, Dependability, Rule-Following, Persistence, Ambition and Energy.

Abstract Theoretical: The AT scale indicate that a person focuses on course content that is abstract and theoretical while attempting to identify the underlying pattern of relationship. Individuals who report high scores on Abstract-Theoretical score higher on the WPI scales of Flexibility, Innovation, Persuasion, Initiative, Multi-tasking, Ambition, Stress Tolerance and lower on Attention to Detail, Rule-Following and Democratic.

Making Decisions

Analytical Logical: This scale consists of items which assess the extent to which an individual approaches learning material in an objective manner and attempts to make logical sense out of it. Individuals who score highly on this scale score higher on the WPI scales of Leadership, Planning, Analytical Thinking, Persistence and Innovation.

Personally Valued: The PV scale indicates that an individual decides what material to learn on the basis of what he/she personally values and on what he/she likes or dislikes. Individuals who score highly on Personally Valued score lower on the WPI scale of Attention to Detail.

Organization and Time Management

Organized Planful: Individuals who report the frequent use of these strategies could be said to be highly organized and use their time very efficiently. Individuals who score highly on Organized-Planful score higher on the WPI scales of Planning, Dependability, Persistence, Rule-Following, Attention-to-Detail, Stress Tolerance and lower on Multi-tasking, Flexibility, and Stress Tolerance.

Open-ended Spontaneous: People who score high on this scale say that they rely on the urgency of the test date to motivate them to study. Individuals who score highly on Open-Ended Spontaneous score higher on the WPI scales of Multi-tasking, Flexibility, and lower on Planning, Attention-to-Detail, Rule-Following, Persistence, and dependability.

TABLE 6.19 CORRELATION BETWEEN THE WPI AND LSI (N=69)

	Environmentally Interactive	Environmentally Reflective	Analytical Logical	Abstract Theoretical	Factual Practical	Personally Valued	Organized Planful	Open Ended
Ambition	-0.06	0.04	0.50	0.31	0.33	-0.11	0.20	-0.25
Analytical Thinking	-0.12	-0.11	0.25	0.23	-0.13	-0.20	0.00	-0.11
Attention to Detail	-0.25	0.10	0.12	-0.39	0.48	-0.35	0.40	-0.59
Concern for Others	0.12	-0.12	0.03	0.01	0.02	0.09	0.07	-0.06
Democratic	0.13	-0.21	-0.19	-0.25	0.08	-0.03	-0.08	-0.07
Dependability	-0.04	0.11	0.23	-0.10	0.45	-0.14	0.54	-0.46
Energy	0.02	-0.11	0.18	0.18	0.27	-0.22	0.00	-0.10
Flexibility	0.08	-0.04	0.09	0.54	-0.33	0.09	-0.35	0.36
Initiative	-0.11	-0.14	0.24	0.39	-0.10	-0.14	-0.08	-0.03
Innovation	0.07	0.10	0.25	0.48	-0.15	0.14	-0.15	0.23
Leadership	-0.05	-0.16	0.36	0.23	0.02	-0.16	0.03	-0.13
Multi-Tasking	0.06	-0.11	-0.07	0.32	-0.23	-0.05	-0.51	0.42
Outgoing	0.49	-0.35	0.00	0.03	0.20	0.01	0.03	0.01
Persistence	-0.10	0.00	0.25	-0.09	0.42	-0.18	0.47	-0.50
Persuasion	0.28	-0.13	0.22	0.42	0.08	-0.10	0.02	0.11
Planning	-0.04	0.03	0.35	-0.05	0.45	-0.13	0.59	-0.64
Rule-Following	-0.08	-0.08	0.10	-0.25	0.42	-0.20	0.41	-0.55
Self-Control	-0.02	-0.10	0.05	0.06	-0.03	-0.14	-0.22	0.05
Social Confidence	0.37	-0.34	0.17	0.16	0.19	-0.17	-0.01	0.01
Stress Tolerance	0.07	-0.16	0.24	0.28	-0.01	-0.19	-0.26	0.18
Teamwork	0.43	-0.52	0.15	0.15	0.10	-0.05	0.11	-0.08

Correlations > .25 are significant at 0.05 level; Correlation > .30 are significant at 0.01 level.

THE WPI AND THE SALES ACHIEVEMENT PREDICTOR (SALESAP)

The SalesAP (Friedland, Marcus and Mandela, 1995) is an objective measure of characteristics that are considered critical for success in sales. The test consists of separate measures for overall Sales Disposition, Cold Calling, and Sales Closing, in addition to many characteristics related to sales potential and performance such as Assertiveness, Personal Diplomacy, and Patience. A sample of 3671 people took both the SalesAP and the WPI. Table 6.20 shows the correlations between the WPI and the three components of the SalesAP that measure sales related characteristics. The Sales Disposition score (SAL) indicates the degree to which an individual's SalesAP results are similar to those observed for people who are successful in sales careers; the Cold Calling (CC) scale that reflects characteristics necessary for success in cold calling activities; and the Sales Closing (CLS) score indicates the degree to which an individual's SalesAP results are similar to those observed for people who are successful in closing sales.

TABLE 6.20 CORRELATION BETWEEN THE WPI AND SALESAP (N=3671)

	Sales Disposition	Cold Calling	Sales Closing
Ambition	0.40	0.43	0.35
Analytical Thinking	0.22	0.18	0.18
Attention to Detail	0.22	0.24	0.17
Concern for Others	0.09	0.28	0.04
Democratic	-0.16	-0.08	-0.15
Dependability	0.32	0.35	0.27
Energy	0.47	0.51	0.42
Flexibility	0.32	0.39	0.25
Initiative	0.45	0.52	0.38
Innovation	0.33	0.36	0.28
Leadership	0.50	0.45	0.57
Multi-Tasking	0.32	0.40	0.45
Persuasion	0.75	0.69	0.74
Outgoing	0.29	0.50	0.29
Persistence	0.39	0.42	0.33
Planning	0.26	0.31	0.45
Rule-Following	-0.03	0.02	-0.07
Self-Control	0.25	0.28	0.09
Social Confidence	0.52	0.73	0.55
Stress Tolerance	0.38	0.37	0.24
Teamwork	0.26	0.46	0.23

All correlations are significant at a >0.001 level.

Key Findings

- Individuals who are higher on the Sales Disposition scale score are also higher on the WPI scales of Persuasion, Social Confidence, Leadership, Energy, Initiative, and Ambition.
- Individuals who are higher on the Cold Calling scale score are higher on the WPI scales of Social Confidence, Persuasion, Initiative, Energy, Outgoing, Teamwork, Leadership, Ambition, Persistence, and Multi-Tasking.
- Individuals who are higher on the Cold Calling scale score are higher on the WPI scales of Persuasion, Leadership, Social Confidence, Multi-Tasking, Planning, and Energy.

THE WORK PERSONALITY AND THE NEO PI-R

The NEO PI-R (McCrae and Costa, 2010) is a measure of five major factors of personality and some of the important facets that define each factor. The five factor scales and thirty facet scales provide a general assessment of adult personality. Thirty participants completed both the WPI and the NEO PI-R Form S (the self-report version of the assessment). The correlations between the WPI scales and the various NEO PI-R scales are shown in Tables 6.21 and 6.22. There are many conceptual similarities between the WPI and the NEO PI-R dimensions which the data analysis confirms.

TABLE 6.21 WPI SCALES AND NEO PI-R (N=30)

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Ambition	-0.31	0.38	0.13	-0.07	0.34
Analytical Thinking	-0.23	0.30	0.50	-0.23	0.11
Attention to Detail	0.39	0.20	-0.05	0.19	0.26
Concern for Others	0.22	0.47	0.16	0.47	0.05
Democratic	0.29	0.20	0.12	0.29	-0.05
Dependability	0.01	0.51	0.03	-0.22	0.51
Energy	-0.41	0.44	0.10	-0.02	0.33
Flexibility	-0.18	0.54	0.49	0.14	0.07
Initiative	-0.22	0.58	0.28	0.01	0.16
Innovation	-0.09	0.46	0.57	-0.21	0.11
Leadership	-0.09	0.45	0.08	-0.22	0.14
Outgoing	-0.08	0.84	0.14	0.05	0.30
Persistence	0.01	0.24	-0.24	0.17	0.48
Rule Following	0.16	-0.33	-0.47	0.01	0.16
Self-Control	-0.42	0.10	-0.16	0.55	0.10
Stress Tolerance	-0.51	0.30	0.15	-0.07	0.33
Teamwork	-0.01	0.64	0.25	0.34	0.23

Correlations > 0.37 are significant at a .001 level.

Neuroticism

Neuroticism reflects the amount of Anxiety, Hostility, Depression, Self-consciousness and Impulsiveness an individual displays. Individuals who score highly on Neuroticism also score higher on the WPI scale of Attention to Detail and lower on the Energy, Stress Tolerance and Self-Control scales.

Extraversion

Extraversion indicates the amount of Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking and Positive Emotions an individual has. Individuals who score highly on Extraversion scored higher on the WPI scales of Outgoing, Teamwork, Initiative, Flexibility, Dependability, Concern for Others, Innovation, Leadership, Energy and Ambition.

Openness

Openness indicates the amount of Fantasy, Aesthetics, Feelings, Actions and Ideas an individual has. Individuals who score highly on Openness scored higher on the WPI scales of Innovation, Analytical Thinking and Flexibility and lower on Rule-Following.

Agreeableness

Agreeableness indicates the amount of Trust, Straightforwardness, Altruism, Compliance, Modesty and Tender-Mindedness an individual has. Individuals who score highly on Agreeableness scored higher on the WPI scales of Self-Control and Concern for Others.

Conscientiousness

Conscientiousness indicates the amount of Competence, Order, Dutifulness, Achievement-Striving, Self-Discipline and Deliberation an individual has. Individuals who score highly on Conscientiousness scored higher on the WPI scales of Dependability and Persistence.

TABLE 6.22 WORK PERSONALITY INDEX GLOBAL SCALES AND NEO PI-R (N=30)

	Energy & Drive	Work Style	Working with Others	Problem Solving	Dealing with Pressure and Stress
Neuroticism	-0.31	0.21	0.11	-0.15	-0.41
Extraversion	0.68	0.14	0.70	0.45	0.25
Openness	0.33	-0.29	0.22	0.59	0.02
Agreeableness	-0.06	0.07	0.32	-0.23	0.25
Conscientiousness	0.30	0.44	0.14	0.12	0.27

Correlation $>.40$ are significant at a .01 level.

The correlations shown in Table 6.22 between the WPI Global Scales and the NEO scales indicate expected relationships between the two inventories: Neuroticism and Dealing with Pressure and Stress; Extraversion with Working with Others and Energy and Drive; Openness with Problem Solving and Conscientiousness with Work Style. Agreeableness does not correlate significantly with any of the WPI Global Scales.

WPI AND THE EMOTIONAL QUOTIENT INDEX

The Emotional Quotient Inventory (EQi; Bar-On, 2002) is an inventory designed to measure Emotional Intelligence by means of 133 items on a five-point response scale. The assessment aims to measure an array of non-cognitive abilities relating to an individual's coping ability and general psychological well-being. The EQi comprises of five composite scales, fifteen subscales, four validity scales, and also renders a total EQ score. The five composite scales are: Intrapersonal, Interpersonal, Adaptability, Stress Management and General Mood. The EQi presents scales for each of the composite scales. These are shown in Table 6.23 below

TABLE 6.23 EQI SCALES AND SUBSCALES

Intrapersonal Scale	Interpersonal Scale	Adaptability Scale
Self-Regard	Empathy	Reality Testing
Emotional Self-Awareness	Social Responsibility	Flexibility
Assertiveness	Interpersonal Relationship	Problem Solving
Independence		
Self-Actualization		
Stress Management Scale	General Mood Scale	
Stress Tolerance	Optimism	
Impulse Control	Happiness	

A sample of 361 adults took both the EQi and the WPI. Correlations between the EQi Scales and the WPI Global Scales are shown below.

TABLE 6.24 CORRELATIONS BETWEEN WPI GLOBAL SCALES AND EQI COMPOSITE SCALES (N=381)

	Intrapersonal	Interpersonal	General Mood	Stress Management	Adaptability
Energy & Drive	0.64	0.41	0.57	0.74	0.57
Work Style	0.48	0.36	0.47	0.44	0.42
Working with Others	0.33	0.57	0.28	0.33	0.34
Problem Solving Style	0.45	0.18	0.32	0.43	0.42
Dealing with Pressure and Stress	0.53	0.37	0.57	0.74	0.57

All correlations between the WPI Global scales and the EQi Composite scales are significant.

Key Findings

Intrapersonal Scales Summary

Emotional Self Awareness assesses the “ability to recognize one’s feelings” (Bar-On, 1997). Individuals who score highly on Emotional Self Awareness scored high on the WPI scales of Concern for Others (0.44) and Teamwork (0.33).

Assertiveness assesses the ability to “express feelings, beliefs and thoughts and defend one’s rights in a nondestructive manner” (Bar-On, 1997). Individuals who score high on Assertiveness scored high on the WPI scales of Leadership (0.53), Stress Tolerance (0.42), and Initiative (0.39).

Self-Regard measures the ability to “accept oneself as basically good” (Bar-On, 1997). Individuals who score high on Self-Regard scored high on the WPI scales of Stress Tolerance (0.52), Dependability (0.46), Initiative (0.45) and Self Control (0.45).

Self-Actualization measures the ability to “realize one’s potential capacities” (Bar-On, 1997). Individuals who score high on Self-Actualization scored high on the WPI scales of Initiative (0.57), Ambition (0.52), Dependability (0.52), and Persistence (0.52).

Interpersonal Scales Summary

Empathy measures the ability to “be aware of, to understand, and to appreciate the feelings of others” (Bar-On, 1997). Individuals who score highly on Empathy scored higher on the WPI scales of Concern for Others (0.74), Teamwork (0.41) and Outgoing (0.36).

Interpersonal Relationships measures the ability to “establish and maintain satisfying relationships” (Bar-On, 1997). Individuals who score highly on Interpersonal Relationships scored higher on the WPI scales of Outgoing (0.56), Teamwork (0.54), Concern for Others (0.42), Initiative (0.42) and Energy (0.40).

Social Responsibility measures the ability to “demonstrate oneself as cooperative, contributing, and constructive member of one’s social group” (Bar-On, 1997). Individuals who score highly on Social Responsibility scored higher on the WPI scales of Concern for Others (0.67), Teamwork (0.40) and Dependability (0.39).

General Mood Summary

Happiness measures the ability to “feel satisfied with one’s life” (Bar-On, 1997). Individuals who score highly on Happiness scored high on the WPI scales of Initiative (0.44), Stress Tolerance (0.43), Energy (0.42), Self-Control (0.41) and Outgoing (0.40).

Optimism measures the ability to “look on the brighter side of life” (Bar-On, 1997). Individuals who score highly on Optimism scored high on the WPI scales of Initiative (0.60), Ambition (0.56), Persistence (0.54), Stress Tolerance (0.54), Self-Control (0.52), and Energy (0.52).

Adaptability Summary

Problem Solving assesses the ability to “identify and define problems as well as to generate and implement potentially effective solutions” (Bar-On, 1997). Individuals who score highly on Problem Solving scored high on the WPI scales of Persistence (0.61), Ambition (0.57), Analytical Thinking (0.54), Dependability (0.53), and Attention to Detail (0.49).

Reality Testing measures the ability to “assess the correspondence between what is experienced and what objectively exists” (Bar-On, 1997). Individuals who score highly on Reality Testing scored high on the WPI scales of Persistence (0.55), Dependability (0.50), Attention to Detail (0.48), Self-Control (0.47), and Ambition (0.46).

Flexibility is the ability to “adjust one’s emotions, thoughts and behavior to changing situations and conditions” (Bar-On, 1997). Individuals who score highly on Flexibility scored high on the WPI scales of Initiative (0.59), Ambition (0.57), Flexibility (0.54), and Stress Tolerance (0.51).

Stress Management Summary

Stress Tolerance measures the ability to “withstand adverse events and stressful situations” (Bar-On, 1997). Individuals who score highly on Stress Tolerance scored high on the WPI scales of Stress Tolerance (0.72), Self-Control (0.64), Initiative (0.56), Ambition (0.55), and Persistence (0.53).

Impulse Control assesses the ability to “resist or delay impulse, drive or temptation to act” (Bar-On, 1997). Individuals who score highly on Impulse Control scored high on the WPI scales of Dependability (0.52), Persistence (0.50), Self-Control (0.49), Initiative (0.42), and Stress Tolerance (0.40).

A recent study van Zyl and Taylor (2010) compared the WPI and the EQi with a sample of 1602 South African working adults. Significant correlations were found between most WPI scales and those of the EQi. The authors highlight that high correlations between the assessments are as one would expect, with scales such as Self-Control and other WPI scales correlating with Impulse Control on the EQi (0.52), Stress Tolerance on both scales correlated 0.59. Some notable correlations are highlighted below.

- Energy, Initiative, Persistence and Stress Tolerance with Total EQi scores.
- WPI scale Concern for Others with EQi Interpersonal Composite (0.57) as well as with Empathy, Social Responsibility, Interpersonal Relations and General Mood.
- The Mood Scales on the EQi had high correlations with Dependability, Energy, Initiative, Persistence and Stress Tolerance.
- Of 340 possible correlations only 35 are not significantly correlated.

SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES

The Table below shows a summary of the key correlations between Work Personality Index scales and other assessments. Table 6.25 below summarizes the correlations between the Work Personality Index and other aforementioned measures of personality and is organized by WPI scale.

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES

Ambition	Attention to Detail
MBTI Step I Thinking-Feeling (-.33)	MBTI Step I Sensing-Intuition (-.5)
MBTI Step I Judging-Perception (-.21)	MBTI Step I Thinking-Feeling (-.22)
MBTI Step II Logical-Empathetic (-.27)	MBTI Step I Judging-Perception (-.56)
MBTI Step II Reasonable-Compassionate (-.34)	MBTI Step II Systematic-Casual (-.49)
MBTI Step II Critical-Accepting (-.25)	MBTI Step II Planful-Open Ended (-.45)
MBTI Step II Tough-Tender (-.36)	MBTI Step II Early Starting-Pressure Prompted (-.35)
CVS Service Orientation (.31)	MBTI Step II Scheduled-Spontaneous (-.46)
CVS Team Orientation (.21)	MBTI Step II Methodical-Emergent (-.42)
CVS Influence (.49)	CVS Service Orientation (.23)
CVS Creativity (.32)	CVS Influence (.26)
CVS Excitement (.34)	CVS Excitement (-.22)
CVS Development (.46)	CVS Development (.26)
CVS Finance (.21)	CVS Security (.25)
CVS Prestige (.32)	CIP Conventional (.22)
LSI Analytical Logical (.31)	LSI Environmentally Interactive (-.25)
LSI Factual Practical (.33)	LSI Abstract Theoretical (-.39)
LSI Open-Ended (-.25)	LSI Factual Practical (.48)
SalesAP Sales Disposition (.40)	LSI Personally Valued (-.35)
SalesAP Cold Calling (.43)	LSI Organized Planful (.40)
SalesAP Sales Closing (.35)	LSI Open-Ended (-.59)
NEO Extraversion (.38)	SalesAP Sales Disposition (.22)
EQi Self-Actualization (.52)	SalesAP Cold Calling (.24)
EQi Optimism (.56)	NEO Neuroticism (.39)
EQi Problem Solving (.57)	EQi Problem Solving (.49)
EQi Reality Testing (.46)	EQi Reality Testing (.48)
EQi Flexibility (.57)	
EQi Stress Tolerance (.55)	

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Analytical Thinking	Concern for Others
MBTI Step I Sensing-Intuition (.27)	MBTI Step I Thinking-Feeling (.53)
MBTI Step I Thinking-Feeling (-.43)	MBTI Step II Logical-Empathetic (.47)
MBTI Step II Concrete-Abstract (-.25)	MBTI Step II Reasonable-Compassionate (.46)
MBTI Step II Realistic-Imaginative (-.27)	MBTI Step II Questioning-Accommodating (.2)
MBTI Step II Experimental-Theoretical (-.24)	MBTI Step II Critical-Accepting (.43)
MBTI Step II Traditional-Original (-.28)	MBTI Step II Tough-Tender (.43)
MBTI Step II Logical-Empathetic (-.44)	CVS Service Orientation (.37)
MBTI Step II Reasonable-Compassionate (-.36)	CVS Team Orientation (.34)
MBTI Step II Questioning-Accommodating (-.27)	CIP Artistic (.25)
MBTI Step II Critical-Accepting (-.31)	CIP Social (.31)
MBTI Step II Tough-Tender (-.28)	SalesAP Cold Calling (.28)
CVS Team Orientation (-.25)	NEO Extraversion (.47)
CVS Influence (.27)	NEO Agreeableness (.47)
CVS Creativity (.43)	EQi Emotional Self Awareness (.44)
CVS Development (.34)	EQi Empathy (.74)
CIP Investigative (.26)	EQi Interpersonal Relationships (.42)
LSI Analytical Logical (.25)	EQi Social Responsibility (.67)
SalesAP Sales Disposition (.22)	EQi Total (.45)
NEO Openness (.50)	EQi Interpersonal Total EQ (.58)
EQi Problem Solving (.54)	

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Democratic	Dependability
MBTI Step I Thinking-Feeling (.25)	MBTI Step I Sensing-Intuition (-.32)
MBTI Step II Concrete-Abstract (-.46)	MBTI Step I Thinking-Feeling (-.24)
MBTI Step II Realistic-Imaginative (-.45)	MBTI Step I Judging-Perception (-.45)
MBTI Step II Practical-Conceptual (-.30)	MBTI Step II Traditional-Original (-.33)
MBTI Step II Experimental-Theoretical (-.43)	MBTI Step II Logical-Empathetic (-.21)
MBTI Step II Traditional-Original (-.50)	MBTI Step II Reasonable-Compassionate (-.22)
MBTI Step II Logical-Empathetic (.24)	MBTI Step II Tough-Tender (-.21)
MBTI Step II Reasonable-Compassionate (.23)	MBTI Step II Systematic-Casual (-.40)
MBTI Step II Critical-Accepting (.26)	MBTI Step II Planful-Open Ended (-.38)
MBTI Step II Tough-Tender (.24)	MBTI Step II Early Starting-Pressure Prompted (-.49)
CVS Influence (-.22)	MBTI Step II Schedules-Spontaneous (-.37)
CVS Team Orientation (.39)	MBTI Step II Methodical-Emergent (-.37)
CVS Independence (-.24)	CVS Service Orientation (.26)
LSI Abstract-Theoretical (-.25)	CVS Influence (.31)
	CVS Development (.24)
	CVS Security (.23)
	CIP Conventional (.20)
	LSI Factual Practical (.45)
	LSI Organized-Planful (.54)
	LSI Open-Ended (-.46)
	SalesAP Sales Disposition (.32)
	SalesAP Cold Calling (.35)
	SalesAP Sales Closing (.27)
	NEO Extraversion (.51)
	NEO Conscientiousness (.51)
	EQi Self-Regard (.46)
	EQi Self-Actualization (.52)
	EQi Social Responsibility (.39)
	EQi Problem Solving (.53)
	EQi Reality Testing (.50)
	EQi Impulse Control (.52)

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Energy	Flexibility
MBTI Step I Extraversion-Introversion (-.47)	MBTI Step I Sensing-Intuition (.53)
MBTI Step II Initiating-Receiving (-.39)	MBTI Step I Judging-Perception (.6)
MBTI Step II Expressive-Contained (-.31)	MBTI Step II Questioning-Accommodating (-.24)
MBTI Step II Gregarious-Intimate (-.46)	MBTI Step II Systematic-Casual (.50)
MBTI Step II Active-Reflective (-.40)	MBTI Step II Planful-Open Ended (.52)
MBTI Step II Enthusiastic-Quiet (-.50)	MBTI Step II Early Starting-Pressure Prompted (.47)
MBTI Step II Concrete-Abstract (.61)	MBTI Step II Scheduled-Spontaneous (.61)
MBTI Step II Realistic-Imaginative (.59)	MBTI Step II Methodical-Emergent (.42)
MBTI Step II Practical-Conceptual (.49)	CVS Creativity (.36)
MBTI Step II Experimental-Theoretical (.46)	CVS Excitement (.41)
MBTI Step II Traditional-Original (.64)	CVS Security (-.40)
MBTI Step II Tough-Tender (-.21)	CIP Artistic (.20)
MBTI Step II Enthusiastic-Quiet (-.23)	CIP Conventional (-.23)
MBTI Step II Early Starting-Pressure Prompted (.23)	LSI Abstract Theoretical (.54)
CVS Service Orientation (.33)	LSI Factual Practical (-.33)
CVS Team Orientation (.31)	LSI Organized-Planful (-.35)
CVS Influence (.41)	LSI Open-Ended (.36)
CVS Independence (-.30)	SalesAP Sales Disposition (.32)
CVS Excitement (.34)	SalesAP Cold Calling (.39)
CVS Development (.32)	SalesAP Sales Closing (.25)
CIP Enterprising (.25)	NEO Extraversion (.54)
SalesAP Sales Disposition (.47)	NEO Openness (.49)
SalesAP Cold Calling (.51)	EQi Flexibility (.54)
SalesAP Sales Closing (.42)	
NEO Neuroticism (-.41)	
Neo Extraversion (.44)	
EQi Interpersonal Relationships (.40)	
EQi Happiness (.42)	
EQi Optimism (.52)	
EQi Total (.53)	
EQi Intrapersonal Total (.47)	

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Initiative	Innovation
MBTI Step I Thinking-Feeling (-.2)	MBTI Step I Sensing-Intuition (.65)
MBTI Step II Enthusiastic-Quiet (-.25)	MBTI Step I Judging-Perception (.38)
MBTI Step II Concrete-Abstract (.2)	MBTI Step II Concrete-Abstract (-.22)
MBTI Step II Realistic-Imaginative (.2)	MBTI Step II Realistic-Imaginative (-.21)
MBTI Step II Traditional-Original (.28)	MBTI Step II Experimental-Theoretical (.24)
MBTI Step II Logical-Empathetic (.24)	MBTI Step II Questioning-Accommodating (-.26)
MBTI Step II Reasonable-Compassionate (-.22)	MBTI Step II Systematic-Casual (.33)
MBTI Step II Questioning-Accommodating (-.24)	MBTI Step II Planful-Open Ended (.34)
MBTI Step II Tough-Tender (-.28)	MBTI Step II Early Starting-Pressure Prompted (.27)
CVS Service Orientation (.34)	MBTI Step II Scheduled-Spontaneous (.34)
CVS Team Orientation (.23)	MBTI Step II Methodical-Emergent (.22)
CVS Influence (.46)	CVS Influence (.32)
CVS Creativity (.31)	CVS Creativity (.64)
CVS Excitement (.30)	CVS Independence (.25)
CVS Development (.46)	CVS Excitement (.28)
LSI Abstract-Theoretical (0.39)	CVS Development (.33)
SalesAP Sales Disposition (.45)	CIP Artistic (.38)
SalesAP Cold Calling (.52)	LSI Analytical Logical (.25)
SalesAP Sales Closing (.38)	LSI Abstract Theoretical (.48)
NEO Extraversion (.58)	SalesAP Sales Disposition (.33)
EQi Assertiveness (.39)	SalesAP Cold Calling (.36)
EQi Self-Regard (.45)	SalesAP Sales Closing (.28)
EQi Self-Actualization (.57)	NEO Extraversion (.46)
EQi Interpersonal Relationships (.42)	NEO Openness (.57)
EQi Happiness (.44)	
EQi Optimism (.60)	
EQi Flexibility (.59)	
EQi Stress Tolerance (.56)	
EQi Impulse Control (.42)	
EQi Total (.51)	
EQi Intrapersonal Total (.47)	

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Leadership	Multi-Tasking
MBTI Step I Extraversion-Introversion (-.23)	MBTI Step I Extraversion-Introversion (-.24)
MBTI Step I Thinking-Feeling (-.33)	MBTI Step I Sensing-Intuition (.23)
MBTI Step II Gregarious-Intimate (-.24)	MBTI Step I Judging-Perception (.37)
MBTI Step II Enthusiastic-Quiet (-.26)	MBTI Step II Gregarious-Intimate (-.24)
MBTI Step II Traditional-Original (.29)	MBTI Step II Initiating-Receiving (-.22)
MBTI Step II Logical-Empathetic (-.25)	MBTI Step II Expressive-Contained (-.20)
MBTI Step II Reasonable-Compassionate (-.30)	MBTI Step II Gregarious-Intimate (-.26)
MBTI Step II Questioning-Accommodating (-.21)	MBTI Step II Systematic-Casual (.30)
MBTI Step II Critical-Accepting (-.21)	MBTI Step II Planful-Open Ended (.32)
MBTI Step II Tough-Tender (-.36)	MBTI Step II Early Starting-Pressure Prompted (.42)
CVS Team Orientation (.26)	MBTI Step II Scheduled-Spontaneous (.35)
CVS Influence (.69)	MBTI Step II Methodical-Emergent (.33)
CVS Creativity (.27)	CVS Influence (.26)
CVS Excitement (.33)	CVS Excitement (.28)
CVS Development (.24)	CVS Excitement (.24)
CVS Finance (.34)	LSI Abstract-Theoretical (.32)
CVS Prestige (.37)	LSI Organized-Planful (-.51)
CIP Enterprising (.30)	LSI Open-Ended (.42)
LSI Analytical Logical (.36)	SalesAP Sales Disposition (.32)
SalesAP Sales Disposition (.50)	SalesAP Cold Calling (.40)
SalesAP Cold Calling (.45)	SalesAP Sales Closing (.45)
SalesAP Sales Closing (.57)	
NEO Extraversion (.45)	
EQi Assertiveness (.53)	

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Outgoing	Persistence
MBTI Step I Extraversion-Introversion (-.79)	MBTI Step I Sensing-Intuition (-.25)
MBTI Step I Sensing-Intuition (.2)	MBTI Step I Thinking-Feeling (-.27)
MBTI Step II Initiating-Receiving (-.7)	MBTI Step I Judging-Perception (-.35)
MBTI Step II Expressive-Contained (-.66)	MBTI Step II Logical-Empathetic (-.27)
MBTI Step II Gregarious-Intimate (-.70)	MBTI Step II Reasonable-Compassionate (-.28)
MBTI Step II Active-Reflective (-.67)	MBTI Step II Tough-Tender (-.29)
MBTI Step II Enthusiastic-Quiet (-.71)	MBTI Step II Systematic-Casual (-.34)
MBTI Step II Concrete-Abstract (.47)	MBTI Step II Planful-Open Ended (-.27)
MBTI Step II Realistic-Imaginative (.44)	MBTI Step II Early Starting-Pressure Prompted (-.39)
MBTI Step II Practical-Conceptual (.29)	MBTI Step II Scheduled-Spontaneous (-.29)
MBTI Step II Experimental-Theoretical (.39)	MBTI Step II Methodical-Emergent (-.33)
MBTI Step II Traditional-Original (.58)	CVS Service Orientation (.32)
MBTI Step II Logical-Empathetic (.24)	CVS Team Orientation (.23)
MBTI Step II Critical-Accepting (.27)	CVS Influence (.40)
CVS Service Orientation (.33)	CVS Independence (-.20)
CVS Team Orientation (.51)	CVS Development (.34)
CVS Influence (.33)	CIP Conventional (.20)
CVS Independence (-.31)	LSI Analytical Logical (.25)
CIP Social (.20)	LSI Factual-Practical (.42)
CIP Enterprising (.26)	LSI Organized Planful (.47)
LSI Environmentally Interactive (.49)	LSI (Open Ended (-.5)
LSI Environmentally Reflective (-.35)	SalesAP Sales Disposition (.39)
SalesAP Sales Disposition (.29)	SalesAP Cold Calling (.42)
SalesAP Cold Calling (.50)	SalesAP Sales Closing (.33)
SalesAP Sales Closing (.29)	NEO Conscientiousness (.48)
NEO Extraversion (.84)	EQi Self-Actualization (.52)
EQi Empathy (.36)	EQi Optimism (.54)
EQi Interpersonal Relationships (.56)	EQi Problem Solving (.61)
EQi Happiness (.40)	EQi Reality Testing (.55)
	EQi Stress Tolerance (.53)
	EQi Impulse Control (.50)
	EQi Total (.53)
	EQi Intrapersonal Total (.45)

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Persuasion	Planning
MBTI Step II Initiating-Receiving (-.41)	MBTI Step I Sensing-Intuition (-.35)
MBTI Step II Expressive-Contained (-.28)	MBTI Step I Thinking-Feeling (-.26)
MBTI Step II Gregarious-Intimate (-.36)	MBTI Step I Judging-Perception (-.72)
MBTI Step II Active-Reflective (-.35)	MBTI Step II Concrete-Abstract (-.46)
MBTI Step II Enthusiastic-Quiet (-.40)	MBTI Step II Realistic-Imaginative (-.42)
MBTI Step II Concrete-Abstract (.47)	MBTI Step II Practical-Conceptual (-.29)
MBTI Step II Practical-Conceptual (.29)	MBTI Step II Experimental-Theoretical (-.42)
MBTI Step II Experimental-Theoretical (.30)	MBTI Step II Traditional-Original (-.42)
MBTI Step II Traditional-Original (.30)	MBTI Step II Logical-Empathetic (-.24)
MBTI Step II Questioning-Accommodating (-.23)	MBTI Step II Reasonable-Compassionate (-.23)
MBTI Step II Tough-Tender (-.2)	MBTI Step II Critical-Accepting (-.22)
CVS Service Orientation (.30)	MBTI Step II Tough-Tender (-.2)
CVS Team Orientation (.33)	MBTI Step II Systematic-Casual (-.62)
CVS Influence (.53)	MBTI Step II Planful-Open Ended (-.64)
CVS Creativity (.32)	MBTI Step II Early Starting-Pressure Prompted (-.54)
CVS Excitement (.32)	MBTI Step II Schedules-Spontaneous (-.64)
CVS Finance (.33)	MBTI Step II Methodical-Emergent (-.61)
CVS Prestige (.35)	CVS Influence (.25)
CIP Enterprising (.53)	CVS Excitement (-.23)
LSI Environmentally Interactive (.28)	CIP Conventional (.20)
LSI Abstract Theoretical (.42)	LSI Analytical Logical (.35)
SalesAP Sales Disposition (.75)	LSI Factual Practical (.45)
SalesAP Cold Calling (.69)	LSI Organized Planful (.59)
SalesAP Sales Closing (.74)	LSI Open-Ended (-.64)
	SalesAP Sales Disposition (.26)
	SalesAP Cold Calling (.31)
	SalesAP Sales Closing (.45)

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Rule-Following	Self-Control
MBTI Step I Judging-Perception (-.51)	CVS Service Orientation (.22)
MBTI Step II Concrete-Abstract (-.33)	LSI Organized Planful (-.22)
MBTI Step II Realistic-Imaginative (-.32)	SalesAP Sales Disposition (.25)
MBTI Step II Practical-Conceptual (-.23)	SalesAP Cold Calling (.28)
MBTI Step II Experimental-Theoretical (-.30)	NEO Neuroticism (-.42)
MBTI Step II Traditional-Original (-.34)	NEO Agreeableness (.55)
MBTI Step II Questioning-Accommodating (.23)	EQi Self-Regard (.45)
MBTI Step II Systematic-Casual (-.48)	EQi Happiness (.41)
MBTI Step II Planful-Open Ended (-.42)	EQi Optimism (.52)
MBTI Step II Early Starting-Pressure Prompted (-.40)	EQi Reality Testing (.47)
MBTI Step II Schedules-Spontaneous (-.47)	EQi Stress Tolerance (.64)
MBTI Step II Methodical-Emergent (-.39)	EQi Impulse Control (.49)
CVS Service Orientation (.27)	EQi Total (.47)
CVS Creativity (-.26)	
CVS Independence (-.26)	Social Confidence
CVS Excitement (-.24)	MBTI Step I Extraversion-Introversion (-.67)
CVS Security (.30)	MBTI Step II Initiating-Receiving (-.65)
CIP Rule Following (.30)	MBTI Step II Expressive-Contained (-.49)
LSI Abstract-Theoretical (-.25)	MBTI Step II Gregarious-Intimate (-.53)
LSI Factual Practical (.42)	MBTI Step II Active-Reflective (-.56)
LSI Organized Planful (.41)	MBTI Step II Enthusiastic-Quiet (-.49)
LSI Open-Ended (-.55)	CVS Service Orientation (.35)
NEO Openness (-.47)	CVS Team Orientation (.43)
	CVS Influence (.40)
	CVS Excitement (.25)
	CVS Prestige (.22)
	CIP Social (.20)
	CIP Enterprising (.31)
	LSI Environmentally Interactive (.37)
	LSI Environmentally Reflective (-.34)
	SalesAP Sales Disposition (.52)
	SalesAP Cold Calling (.73)
	SalesAP Sales Closing (.55)

TABLE 6.25 SUMMARY OF KEY CORRELATIONS OF THE WPI AND OTHER MEASURES (CONTINUED)

Stress Tolerance	Teamwork
MBTI Step I Thinking-Feeling (-.2)	MBTI Step I Extraversion-Introversion (-.57)
MBTI Step II Tough-Tender (-.2)	MBTI Step II Initiating-Receiving (-.5)
CVS Influence (.28)	MBTI Step II Expressive-Contained (-.45)
CVS Development (.23)	MBTI Step II Gregarious-Intimate (-.52)
CIP Enterprising (.20)	MBTI Step II Active-Reflective (-.45)
LSI Analytical Logical (.24)	MBTI Step II Enthusiastic-Quiet (-.52)
LSI Abstract Theoretical (.28)	MBTI Step II Logical-Empathetic (.24)
LSI Organized Planful (-.26)	MBTI Step II Critical-Accepting (.28)
SalesAP Sales Disposition (.38)	CVS Service Orientation (.37)
SalesAP Cold Calling (.37)	CVS Team Orientation (.49)
SalesAP Sales Closing (.24)	CVS Influence (.31)
NEO Neuroticism (-.51)	CVS Independence (-.33)
EQi Assertiveness (.42)	CVS Development (.24)
EQi Self-Regard (.52)	CIP Social (.21)
EQi Happiness (.43)	CIP Enterprising (.24)
EQi Optimism (.54)	LSI Environmentally Interactive (.43)
EQi Flexibility (.54)	LSI Environmentally Reflective (-.52)
EQi Stress Tolerance (.72)	SalesAP Sales Disposition (.26)
EQi Impulse Control (.40)	SalesAP Cold Calling (.46)
EQi Total (.57)	SalesAP Sales Closing (.23)
EQi Intrapersonal Total (.51)	NEO Extraversion (.64)
	EQi Emotional Self Awareness (.33)
	EQi Empathy (.41)
	EQi Interpersonal Relationships (.54)
	EQi Social Responsibility (.40)

CRITERION VALIDITY OF THE WPI

CRITERION VALIDITY FOR TAX COLLECTION OFFICERS

The following statistical analyses were conducted to explore the relationships between the personality traits measured by the WPI and job performance ratings for 24 collection officers from a government tax collection agency. These employees were rated on 4 scales: Investigation Skills, Timeliness of Actions, Use of Collection Tools, Maintenance and Control. Given the small sample size, the relationships should be viewed as general trends or hypotheses. There are a number of significant correlations, indicating a strong relationship between the WPI and job performance for this sample. Investigations Skills correlates with Dependability (.65), Rule-Following (.61) and Persistence (.45). Timeliness of Action correlates with Dependability (.66), Ambition (.60), Energy (.59), Persistence (.54), Stress Tolerance (.47) and Initiative (.44). Use of Collection Tools correlates with Dependability (.71), Persistence (.60), Ambition (.59), and Rule-Following (.49). Maintenance and Control correlates with Rule-Following (.63), Dependability (.59), Persistence (.49) and Attention to Detail (.41). The strength of these correlation coefficients indicate that the WPI scales of Ambition, Initiative, Energy, Persistence, Rule-Following, and Dependability show promise in being able to predict aspects of job success for this occupation.

SELECTING TRAINEES FOR TECHNICAL MANAGERIAL POSITIONS

In a large national organization, 30 trainees and 17 employees completed the Work Personality Index and their job performance was rated by supervisors. The participants were rated for Safety, Attention, Prioritizing, Communication, Multi-Tasking, Dealing with Stress, Flexibility, Technical Knowledge, Teamwork and Overall Effectiveness. WPI Job Match scores were calculated from the score ranges and importance rating provided by the expert raters. The WPI Job Match score is based on subject-matter expert defined score ranges and importance rating for each scale. This information is used in a scoring algorithm that provides a score for an individual that ranges between 0% and 100%. A candidate who receives a Job Match Score of 100% has trait scores that fall within the benchmark for all of the traits. In essence, the Job Match Score shows how well an individual's personality results fit with the benchmarks.

THE JOB MATCH SCORE WAS THEN CORRELATED WITH THE PERFORMANCE RATINGS FOR THE TRAINEE GROUP.

Table 6.26 shows the correlations between the Job Match Score and performance ratings. These range from .085 for Technical Knowledge to .542 for Overall Effectiveness. It is expected that the WPI would have no relationship with measures of Technical Knowledge, as knowledge and personality have shown little to no relationship in previous research. Areas of significant correlation, such as Communication, and Multi-Tasking relate more to aspects of personality which are measured by the WPI. A correlation of .542 with Overall Effectiveness accounts for 29% of the variance in ratings of trainees overall job performance, a statistically significant result that can indicate that the WPI may be useful for making hiring decisions.

In addition to correlation data, we can illustrate how the Job Match Score fits with classifications of job effectiveness. The trainees were split into three groups based on their overall effectiveness ratings. Trainees with ratings from 5 to 7 were assigned to a high group, trainees with ratings of 4 to a middle group, and those with ratings of 1 to 3 to a low group. The Table 6.27 shows the mean Job Match Scores and percentage who reached the established cut-score (85% Job Match Score) for participants in each groups.

TABLE 6.26 CORRELATIONS OF PERFORMANCE RATINGS AND WPI JOB MATCH SCORES FOR TRAINEES (N=30)

Job Performance	Dimensions
Safety	0.32
Attention	0.35
Prioritizing	0.21
Communication	0.41
Coordinating	0.34
Multi-tasking	0.45
Dealing with Stress	0.17
Flexibility	0.31
Technical Knowledge	0.09
Teamwork	0.23
Overall Effectiveness	0.54

Correlations >0.30 are significant at 0.01 level.

TABLE 6.27 MEAN WPI JOB MATCH SCORES FOR PERFORMANCE GROUPS

Performance Group	Mean Job Match Score	Percentage reaching Cut-score
High (n=9)	88%	78%
Mid (n=12)	80%	33%
Low (n=9)	75%	22%

SELECTING EMPLOYEES IN A LARGE RETAIL ORGANIZATION

A large retail organization was interested in creating a method for identifying effective customer service agents and refining their intake procedures so that the number of poor performers hired could be reduced. 228 incumbents completed the WPI and were rated by their managers on 12 specific areas of performance, and 2 global performance categories. These areas included job knowledge, attitude, reliability, sales skills and overall performance. The number of employees whose performance was unacceptable or requires improvement ranged from 2.2% for Safety to 13.9% for Selling Skills. The Managers ratings indicated that the majority of candidates hired were performing at levels rated good or better. The number of good or better employees ranges from 52.9% on Selling Skills to 77.7% on Teamwork. Managers also responded that they would likely rehire 73% of the rated individuals if these employees ever left the organization.

Table 6.28 shows the correlations between the WPI Job Match Score and performance ratings. These range from .114 for Selling Skills to .322 for Reliability. All correlations are significant except for Selling Skills.

TABLE 6.28 CORRELATIONS BETWEEN PERFORMANCE RATINGS WPI JOB MATCH SCORE (N = 227)

Performance Area	Job Match Score
Job Knowledge	.203
Attitude	.245
Managing Change	.257
Interpersonal Skills	.219
Teamwork	.297
Selling Skills	.114
Dependability	.283
Task Focus	.289
Organization/Planning	.259
Safety	.251
Customer Service	.189
Reliability	.322
Overall Rating	.286
Rehire	.317

Correlations >0.20 are statistically significant at 0.01 level.

In addition, employees were categorized based on their job performance into three areas: high, average and poor. Using information from subject-matter experts a WPI cut-off score was established. The percentage of employees in each performance category that would be screened out if the WPI Job Match cut-off score was used would be: 6.5% of High Performers; 12.1% of Average Performers; 50.0% of Poor Performers

The cut-off score was also used to evaluate its impact on voluntary and involuntary turnover. The cut-off would eliminate 51% of employees whose turnover fell in the voluntary category, and 60% of those employees whose turnover was classified as involuntary (poor performance, failed training, breach of conditions etc.). As a result, the cut-off score could also have an impact on the prediction of those candidates who are likely to leave either in an involuntary or a voluntary manner.

Upon investigation of historical job candidate performance, 36% of job applicants did not meet the job fit cut-offs. If the cut-off score had been used as a yardstick with current employees, it would have eliminated 69% of employees whose performance was rated as Unacceptable or Requires Improvement, while only eliminating 14% of current employees whose performance was rated as Very Good or Excellent.

SELECTING SALES AND CUSTOMER SERVICE EMPLOYEES IN A LARGE RETAIL ORGANIZATION

Correlations between the employees' assessment results and managers' ratings of the selling skills of 109 Sales and Service employees' performance in a large retail organization showed that there was a significant relationship between performance ratings and WPI Job Match scores. The Job Match score, which incorporates the personality benchmarks, correlated significantly with managers' ratings of Selling Skills. This indicates that employees with higher Job Match scores are rated as having better Selling Skills.

Similar results were found among the performance ratings and WPI Job Match scores for 118 Customer Service employees. The Job Match score was significantly correlated with Customer Service performance ratings, demonstrating that Customer Service Employees with higher Job Match scores were rated as providing better customer service.

WPI AND SALES ABILITY

Correlations between the employees' assessment results and managers' ratings of the sales ability of 81 sales staff in a large retail organization showed that there was a significant relationship between performance ratings and several WPI scales. The scales with the highest relationship were Energy (0.34), Multi-Tasking (.30), and Initiative (0.28). It should be noted that the scales normally associated with sales performance – Persuasion and Social Confidence were not highly correlated with performance. The reason for this is that all of the sales people scored high on both these scales in comparison to the norming sample leading to the lack of variation in scores and non-significant correlations.

WPI – SALESAP CONCURRENT VALIDITY STUDY

The Work Personality Index assessment measures many components that are highly correlated with sales ability and other sales characteristics. The SalesAP assessment classifies candidates into different categories: Highly Recommended for Sales, Basically Recommended for Sales, and Not Recommended for Sales. Individuals with an outcome score greater than the 80th percentile are categorized as Highly Recommended; those with scores under the 50th percentile are classified as Not Recommended. This analysis looked at the ability of the WPI to predict the correct SalesAP groups to further establish its criterion validity.

For this study a discriminant function analysis was performed. All WPI variables were entered into the analysis and the discriminant functions were based on all variables for the scale. Canonical structure matrices were calculated. This involves the calculation of the correlation of each individual variable with the discriminant function. This process gives a measure of how well each of the variables independently relates to the discriminant function. These correlations will be used to interpret the substantive nature of the discriminant functions (Bray and Maxwell, 1982). Classification matrices were produced for an estimation sample and leave-out-one sample (for cross-validation purposes) for

each of the analyses. These classification matrices provide a convenient summary of the number of correct and incorrect classifications made by the discriminant procedure, and provide an index of the concurrent validity for a cross-validation sample.

The Highly Recommended group consisted on 609 individuals; the Not Recommended group consisted of 581 individuals. One significant discriminant function was generated; the eigenvalues, canonical correlations and other related information are presented in Table 6.30.

Table 6.29 presents the Structure Matrix (canonical variate correlations) for the discriminant function. The variables are rank ordered by absolute size of the correlation within the function. Inspection of the canonical variate correlations indicates that Persuasion, Social Confidence, Leadership, Energy, and Initiative have the highest correlations and best described the discriminant function.

TABLE 6.29 CANONICAL VARIATE CORRELATION FOR THE WPI SCALES AND SALESAP CATEGORIES

WPI Scale	Canonical Variate Correlation
Persuasion	.82
Social Confidence	.68
Leadership	.48
Energy	.46
Initiative	.42
Ambition	.38
Persistence	.36
Outgoing	.34
Stress Tolerance	.30
Innovation	.30
Flexibility	.29
Teamwork	.28
Dependability	.28
Attention to Detail	.19
Analytical Thinking	.18
Self-Control	.17
Concern for Others	.12
Rule-Following	-.02
Democratic	-.10

TABLE 6.30 CANONICAL DISCRIMINANT FUNCTION FOR SALESAP CATEGORIES

Eigenvalues				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	3.78	100	100	0.89
Wilks' Lambda				
Test of Function	Wilks' Lambda	Chi-square	df	Sig.
1	.209	1843.1	19	0.000

Classification matrices were produced for both the estimation sample and the holdout sample. These classification or confusion matrices provide a convenient summary of the number of correct and incorrect classifications made by the discriminant procedure, and provide an index of the concurrent validity for the cross-validation holdout sample. Table 6.31 summarizes the results of the classification analysis. The first part of the table shows the percentage of correct and incorrect classifications based on the classification equation for the Estimation sample. As the table indicates, 98.0% of the original grouped cases were correctly classified. When the function was applied to the validation sample the overall correct classification was 97.9% indicating that the WPI is extremely good at predicting membership in different sales groups.

TABLE 6.31 CLASSIFICATION RESULTS FOR WPI AND SALESAP CATEGORIES

		Predicted Group Membership	
		Highly Recommended	Not Recommended
Original	Highly Recommended	98.0%	2.0%
	Not Recommended	2.1%	97.9%
Cross-Validated	Highly Recommended	98.0%	2.0%
	Not Recommended	2.2%	97.8%

STRUCTURE OF THE WPI

INTER-CORRELATION BETWEEN WPI SCALES

The correlations in Table 6.32 show the relationships between the 21 WPI scales. Reviewing the table shows there are significant relationships among some of the scales. This suggests that scores on some of the scales could be combined to form a broader level of analysis. In general, the scales that correlate highly together can be grouped into five global areas that closely represent the Big Five personality actors. For more information on how these scales relate to each other, read the following section on Factor Analysis.

FACTOR ANALYSIS

Factor Analysis is a statistical process used to examine the WPI's subscale structure and assess the extent to which the WPI Personality Model outlined in Chapter 2 is justified. In simple terms, factor analysis helps determine how the 21 WPI scales relate to each other. Principal components analysis was used to assess the factor patterns underlying the Work Personality Index. Factors were extracted on the basis of having eigenvalues greater than 1.0. These were rotated to orthogonal simple structure by the Varimax procedure. The results of the principal components analysis for the WPI are presented in Table 6.33. Five factors were extracted and rotated, accounting for 66% of the total variance. The eigenvalues and percentage of variance accounted for are presented at the bottom of Table 6.33. The rotated factor loadings are presented in the top part of Table 6.33. The factors are described below in terms of their highest loadings and by comparison to previous studies.

The five factors identified are quite similar to the Big Five personality traits that are best represented by the work of Barrick and Mount (1991) and by Macnab and Bakker (2001). Factor 1 – the Energy and Drive factor - is characterized by high positive loading on Leadership, Energy, Persuasion, Initiative, Social Confidence, Outgoing, Ambition, and Multi-Tasking. This factor is similar to the Achievement Orientation factor reported by Macnab and Bakker (2001) with the first edition of the Work Personality Index. Factor 2 – Work Style – is characterized by high positive loadings on Attention to Detail, Planning, Rule-Following, Dependability, and Persistence and high negative loadings on Flexibility. This factor is similar to the Conscientiousness factor reported by Macnab and Bakker (2001). Factor 3 – Dealing with Pressure and Stress – is characterized by high positive loadings on Self-Control and Stress Tolerance. This factor is similar to the Adjustment factor found by Macnab and Bakker (2001) in an earlier edition of the WPI. Factor 4 – Working with Others – is characterized by high positive loadings on Teamwork, Outgoing, Concern for Others and Democratic. This is similar to the Social Orientation factor found by Macnab and Bakker (2001) with the first edition of the WPI. Factor 5 – Problem Solving Style – is characterized by high positive loading on Analytical Thinking and Innovation. This is similar to the Practical Intelligence factor reported by Macnab and Bakker (2001) with the first edition of the WPI.

TABLE 6.32 WORK PERSONALITY INDEX SCALE INTER-CORRELATIONS

WPI Scale	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1-Ambition	0.37	0.30	0.03	-0.21		0.47	0.14	0.53	0.31	0.52	0.23	0.21	0.45	0.39	0.32	0.09	0.03	0.20	0.27	0.14
2-Analytical Thinking		0.27	0.10	-0.19	0.15	0.14	0.14	0.36	0.42	0.27	0.10	0.00	0.22	0.18	0.28	-0.04	0.14	0.19	0.10	0.03
3-Attention to Detail			0.02	-0.05	0.40	0.09	-0.38	0.13	-0.01	0.13	-0.13	-0.07	0.39	0.02	0.59	0.46	0.04	0.03	-0.02	-0.03
4-Concern for Others				0.11	0.17	0.16	0.09	0.27	0.23	0.01	0.09	0.33	0.15	0.09	0.08	0.05	0.30	0.10	0.26	0.36
5-Democratic					-0.21	-0.18	-0.15	-0.32	-0.21	-0.35	-0.14	0.10	-0.23	-0.19	-0.02	0.07	-0.11	-0.27	-0.15	0.22
6-Dependability						0.37	-0.20	0.37	0.03	0.25	0.05	0.11	0.78	0.15	0.41	0.41	0.27	0.29	0.18	0.15
7-Energy							0.28	0.64	0.28	0.49	0.51	0.51	0.46	0.43	0.10	0.11	0.22	0.44	0.49	0.44
8-Flexibility								0.36	0.45	0.20	0.40	0.24	-0.08	0.23	-0.34	-0.47	0.08	0.19	0.25	0.18
9-Initiative									0.45	0.56	0.45	0.39	0.47	0.40	0.16	0.03	0.24	0.39	0.45	0.34
10-Innovation										0.32	0.22	0.24	0.12	0.36	0.03	-0.21	0.12	0.18	0.30	0.19
11-Leadership											0.28	0.36	0.34	0.59	0.17	0.02	0.03	0.30	0.44	0.25
12-Multi-Tasking												0.27	0.12	0.25	-0.12	-0.10	0.12	0.28	0.24	0.25
13-Outgoing													0.18	0.45	-0.03	0.00	0.19	0.27	0.72	0.72
14-Persistence														0.23	0.38	0.36	0.28	0.36	0.25	0.21
15-Persuasion															0.09	-0.04	0.11	0.31	0.52	0.35
16-Planning																0.39	0.07	0.06	0.03	0.05
17-Rule-Following																	0.17	0.13	0.00	0.11
18-Self-Control																		0.71	0.24	0.32
19-Stress Tolerance																				0.37
20-Social Confidence																				0.33
21-Teamwork																				0.48

TABLE 6.33 PRINCIPAL COMPONENTS ANALYSIS WITH VARIMAX ROTATION FOR THE WPI (N=8360)

WPI Scales	F1	F2	F3	F4	F5
Ambition	0.59	0.35	-0.07	-0.13	0.36
Analytical Thinking	0.10	0.20	0.08	-0.06	0.79
Attention to Detail	0.00	0.79	-0.08	-0.03	0.20
Concern for Others	-0.01	0.06	0.26	0.63	0.32
Democratic	-0.31	0.01	-0.30	0.62	-0.19
Dependability	0.28	0.67	0.38	-0.07	-0.01
Energy	0.76	0.11	0.28	0.10	0.02
Flexibility	0.36	-0.62	0.15	0.01	0.36
Initiative	0.67	0.11	0.28	0.03	0.38
Innovation	0.33	-0.17	0.07	0.11	0.72
Leadership	0.78	0.14	-0.04	-0.13	0.18
Multi-Tasking	0.52	-0.25	0.24	-0.04	0.06
Outgoing	0.53	-0.07	0.07	0.64	-0.08
Persistence	0.40	0.61	0.37	-0.07	0.07
Persuasion	0.71	0.00	-0.02	0.12	0.14
Planning	0.03	0.76	-0.08	0.06	0.25
Rule Following	-0.03	0.71	0.16	0.10	-0.28
Self-Control	-0.02	0.08	0.87	0.22	0.10
Social Confidence	0.66	-0.03	0.16	0.39	0.02
Stress Tolerance	0.33	0.04	0.80	0.01	0.05
Teamwork	0.44	0.01	0.22	0.71	-0.05
Eigenvalue	5.93	3.14	2.03	1.49	1.29
% Variance	28.22	14.95	9.68	7.08	6.16

FACTORIAL INVARIANCE BETWEEN GENDERS

A study was conducted to examine the factor structure of the Work Personality Index assessment across genders. The similarities between male and female samples were examined by means of factor analysis and congruency coefficients. The inter-correlation matrices of the 21 WPI scales for each sample were calculated. Principal components analysis was applied to each correlation matrix with varimax rotation.

Comparison of the factor solutions with varimax rotation for males and females was made using congruence analysis, following the procedures outlined by Bartlett (1986). The congruence coefficient was 0.97 which is typically indicative of showing congruence between factors (Barrett, 1986; Ten Berge, 1986). This demonstrates high similarity for all five factors amongst both males and females.

FACTORIAL INVARIANCE ACROSS COUNTRIES

A study was conducted to examine the factor structure of the Work Personality Index assessment across countries and languages. The similarities between the Norming Sample, Australian, South African, UK, Canadian, US and French samples were examined by means of factor analysis and congruency coefficients. The inter-correlation matrices of the 21 WPI scales for each sample were calculated. Principal components analysis was applied to each correlation matrix with varimax rotation.

Comparison of the factor solutions with varimax rotation for the seven samples was made using congruence analysis, following the procedures outlined by Bartlett (1986). In each analysis the Norming Sample was used as the target matrix with comparisons made to each of the other six samples. All congruence coefficients are above 0.90 which is typically indicative of showing congruence between factors (Barrett, 1986; Ten Berge, 1986). The overall coefficient of congruence for each of the analyses is as follows: Norming Sample and Australian sample - .98, Norming Sample and South African Sample - .93, Norming Sample and UK Sample - .96, Norming Sample and US Sample - 0.98, Norming Sample and Canadian Sample - 0.98 and, Norming Sample and French - .95. This demonstrates high similarity for all five factors across all countries.

All five factors showed near perfect equivalence across countries and genders. The results suggest that the factor structure of the WPI is independent of the gender, country and translation of the inventory and support confidence in the invariance of the instrument across multiple samples. At this level, participants from different countries and different genders responded to the WPI in a highly similar fashion. Overall, this study supports the validity of the WPI factor structure. This provides administrators the first level of confidence that the WPI may be utilized across countries with similar interpretations. In addition, it suggests that the personality structure as measured by the WPI should hold up across gender, cultures and languages.

chapter

SPECIAL PURPOSE SCALES

This section provides information on a number of Special Purpose Scales developed in the process of norming the Work Personality Index Assessment. These include a Managerial and Leadership Potential Scale; a Sales Potential Scale; and WPI Profile Validity Scale.

MANAGERIAL AND LEADERSHIP POTENTIAL SCALE

A close analysis of group differences revealed that there were a number of significant relationships among the Work Personality Index assessment and position level. 2198 people identified themselves as Managers, Executives and Top Executives. The means and standard deviations for this sub-sample are shown in Table 7.1. The table illustrates that this sample is higher than the average sten score (5.5) in a number of scales, specifically Leadership, Initiative, Multi-Tasking, Energy, Flexibility, Persuasion, and Social Confidence and lower on Rule-Following and Democratic scales.

TABLE 7.1 WPI MEANS AND STANDARD DEVIATIONS FOR MANAGEMENT SAMPLE

	Mean	SD
Ambition	5.95	1.87
Analytical Thinking	5.97	1.93
Attention to Detail	5.23	2.05
Concern for Others	5.73	1.92
Democratic	5.04	1.94
Dependability	5.64	1.94
Energy	6.20	1.85
Flexibility	6.18	1.97
Initiative	6.40	1.72
Innovation	5.90	1.86
Leadership	6.42	1.72
Multi-Tasking	6.24	1.95
Outgoing	5.79	1.93
Persistence	5.76	1.87
Persuasion	6.16	1.84
Planning	5.46	2.02
Rule-Following	5.14	1.96
Self-Control	5.58	1.99
Social Confidence	6.03	1.81
Stress Tolerance	5.82	1.95
Teamwork	6.01	1.95

TABLE 7.2 DIFFERENCE BETWEEN MANAGERIAL SAMPLE AND NON-MANAGERIAL SAMPLE

	Non-Management	Management
Ambition	5.40	5.95
Analytical Thinking	5.40	5.97
Attention to Detail	5.73	5.23
Concern for Others	5.44	5.73
Democratic	5.65	5.04
Dependability	5.58	5.64
Energy	5.40	6.20
Flexibility	5.27	6.18
Initiative	5.32	6.40
Innovation	5.21	5.90
Leadership	5.28	6.42
Multi-Tasking	5.31	6.24
Outgoing	5.26	5.79
Persistence	5.53	5.76
Persuasion	5.25	6.16
Planning	5.55	5.46
Rule-Following	5.72	5.14
Self-Control	5.51	5.58
Social Confidence	5.33	6.03
Stress Tolerance	5.51	5.82
Teamwork	5.38	6.01

All means differences are significant at $p < .001$ except Planning, Dependability and Self-Control. The largest differences between the Management group and the Non-Management Group are shown below:

- The Management Group is higher on Leadership, Initiative, Multi-Tasking, Persuasion, Flexibility, Energy, Social Confidence, and Innovation.
- The Non-Management Group is higher on Democratic, Rule-Following, and Attention to Detail.

On the basis of these findings it was decided that a Managerial and Leadership potential scale be developed. An analysis of the item data revealed that a selection of 53 items from 14 of the above WPI scales discriminated well between groups in different position levels. These items showed an internal consistency coefficient of 0.91 and a test-retest coefficient of 0.85. The total score for the Managerial and Leadership Potential scale was calculated. This score was then standardized and ten scores calculated. Tables 7.3 and Table 7.4 in the norming section show the means and standard deviations for the Managerial and Leadership Potential Scale for the norm sample by Position and Occupation. Table 7.3 shows a summary of the scores by position level. It is clear that the higher the position level the higher the Managerial and Leadership Potential scale score. Entry Level and

Non-Supervisory participants are 2 to 3 Stens lower than Executives and Top Executives on the scale. This pattern is similar for males and females. There are no significant differences between males and females within each position level, as indicated by similarities in the means and standard deviations within each group.

TABLE 7.3 MEANS AND STANDARD DEVIATIONS FOR MANAGERIAL AND LEADERSHIP POTENTIAL SCALE BY POSITION

Position	Female			Male			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Entry Level	4.4	2.0	524	4.6	1.6	544	4.5	1.8	1058
Non-Supervisory	5.2	1.9	1261	5.1	1.9	996	5.2	1.9	2257
Supervisor	5.8	1.9	341	5.5	1.7	510	5.6	1.7	851
Manager	6.4	1.8	686	6.4	1.8	800	6.4	1.8	1486
Executive	7.0	1.8	190	6.9	1.7	288	7.0	1.7	478
Top Executive	7.5	1.8	74	7.6	1.7	160	7.6	1.7	234

Further evidence for the validity of the scale may be determined by examining selected group mean scores on the Managerial and Leadership Potential Scale. Table 7.4 shows that means for the Management group has the highest score on the scale, with the Sales Management group also being high on the scale. The lowest mean scores on the scale are for Personal Care and Service, Office and Administrative Support, Customer Service -Technical support and Food Preparation and Serving occupational groups.

TABLE 7.4 MEANS AND STANDARD DEVIATIONS FOR MANAGERIAL AND LEADERSHIP POTENTIAL SCALE BY OCCUPATION

Occupational Group	N	Mean	SD
Management	877	6.40	1.94
Education or Training	1315	6.08	2.04
Sales Management	173	6.01	1.99
Social Science	268	5.76	2.22
Legal Occupations	141	5.64	1.50
Community and Social Services	394	5.63	2.16
Agriculture, Fishing and Forestry	44	5.57	1.86
Business or Financial	785	5.56	2.18
Retail Sales	458	4.99	1.84
Arts or Design	170	4.95	1.99
Food Preparation and Serving	223	4.88	1.70
Customer Service-Technical support	76	4.83	2.02
Office and Administrative Support	531	4.71	1.84
Personal Care and Service	110	4.69	1.72

SALES POTENTIAL SCALE

Our research has found multiple relationships between sales characteristics and the 21 WPI scales. Along with significant correlations between measures of sales personality (SalesAP), the WPI was able to discriminate between individuals who were considered Highly Recommended for sales from those Not Recommended on the SalesAP. Based on these findings, a new scale was calculated – a Sales Potential scale. This scale is based on the discriminant function analysis described earlier. The best indicators for discriminating between the Not Recommended and Recommended groups were the WPI scales of Persuasion, Social Confidence, Leadership, Energy and Initiative. 50 items were selected and represent the Sales Potential Scale. The total raw scores for the scale were standardized and sten scores calculated. These items showed an internal consistency coefficient of 0.94 and a test-retest coefficient of 0.86.

VALIDITY INFORMATION RELATED TO THE WPI SALES POTENTIAL SCALE

In a study that examined perceived competence and the Sales Potential Scale a group of Sales Managers and a group of Retail Sales Workers were examined. The participants were asked to rate themselves on a three item competency scale (I am one of the top performers at work; I am very skillful at what I do at work; I am very good at my job). They were then classified into a Low Competency group and a High Competency group.

22 Sales Managers rated themselves as having low competency in their current occupation and 21 rated themselves as being highly competent. Table 7.5 shows the means and standard deviations for both groups. The high competency group scored significantly higher on the WPI Sales Potential Scale than the low competency group ($t=-4.52$, $df=41$, $p<.001$)

TABLE 7.5 MEANS AND STANDARD DEVIATIONS OF WPI SALES POTENTIAL SCALE AND PERCEIVED COMPETENCE FOR SALES MANAGERS

Competence Level	N	Mean	SD
Low Competence	22	4.5	2.0
High Competence	21	7.2	1.8

39 Retail Sales workers rated themselves as having low competency in their current occupation and 43 rated themselves as being highly competent. Table 7.6 shows the means and standard deviations for both groups. The high competency group scored significantly higher on the WPI Sales Potential Scale than the low competency group ($t=-4.315$, $df=80$, $p<.001$)

TABLE 7.6 MEANS AND STANDARD DEVIATIONS OF WPI SALES POTENTIAL SCALE AND PERCEIVED COMPETENCE FOR RETAIL SALES WORKERS

Competence Level	N	Mean	SD
Low Competence	39	4.5	1.9
High Competence	43	6.4	2.0

CORRELATIONS OF THE WPI SALES POTENTIAL SCALE AND THE SALESAP GLOBAL SCALES

The relationship between the SalesAP global scales and the WPI Sales Potential scale was examined. The WPI Sales Potential Scale correlates 0.69 with SalesAP – Sales Closing; 0.71 with Sales Disposition and 0.76 with Cold Calling (all correlations are significant at a 0.001 level, n=3671).

WPI PROFILE VALIDITY SCALE

The WPI Profile Validity Scale has been adopted from the WorkSafe Predictor (Meen & Macnab, 2012). The WorkSafe Predictor was created to assess patterns of thinking and acting that predict safe behavior and the likelihood of remaining free from workplace safety incidents. It is intended to provide insight into safety behaviours that can be used in a developmental, needs assessment or selection context. The Profile Validity Scale consists of 8 items that are extreme behavioural statements such as: “I never make mistakes”.

The Profile Validity scale was designed to identify candidates who respond to the questionnaire in an overly positive or unusual way. When this occurs, the candidate’s test results may not provide an authentic picture of his/her personal style. While the number of candidates who misrepresent themselves tends to be small, it is not insignificant considering the costly effects of a bad selection decision. The Profile Validity Scale is designed to flag these candidates who may be manipulating their answers in order to come across in a highly socially desirable manner. Identifying people who may be misrepresenting themselves gives the employer the opportunity to confirm the candidate’s results through other assessment methods, and confirm whether or not the candidate’s responses are valid or invalid. The Profile Validity Scale is only reported on the WPI reports related to selection.

RELIABILITY OF THE PROFILE VALIDITY SCORE

The internal consistency coefficients for the Profile Validity Score are shown in Table 7.7 for both an applicant sample and for the norming sample.

TABLE 7.7 RELIABILITY COEFFICIENTS FOR VARIOUS SAMPLES OF THE PROFILE VALIDITY SCALE

	Total	Males	Females
Applicant Sample	0.82	0.83	0.81
Norming Sample	0.75	0.78	0.73

Applicant sample consists of 1967 individuals; 1641 Males and 326 Females.

ITEM ANALYSIS OF THE PROFILE VALIDITY SCALE

The Rasch model is a mathematical formula that indicates the relationship between persons and scores that define a trait. The model is usually referred to as a one-parameter model, but in fact looks at two parameters: people and items. These are usually defined as person logits and item logits. The analysis provides a number of fit statistics that are indices of how well the data fit the model. Detailed explanation of the Rasch model is shown in the chapter on development. The average infit for the Profile Validity Scale is 1.02 and for the outfit is 1.01 displaying that the items fit the model. There are no items that display infit or outfit. In addition, a DIF analysis was carried out comparing males and females – none of the items show DIF that is above the negligible level.

As the Profile Validity Scale is in general meant for use in selection applications, it was decided that data collected from applicants should be used as the basis for the standard scores. Table 7.8 shows the percentage of the groups that fall into each sten. Mean sten score for the norm group is 6.5 for the occupational group 5.5. As expected very few individuals in the norming group display low Profile Validity scores with only 3% of the norm group falling into Stens 1, 2 or 3. For the occupational group 15% fall into low Profile Validity category. 45% of the norm group falls into Stens 4, 5 or 6 as opposed to 54% for the occupational group. 53% of the norm group falls into Stens 7 through 10 as opposed to 31% for the occupational group.

TABLE 7.8 DISTRIBUTIONAL DIFFERENCES ON THE WPI PROFILE VALIDITY SCALE BETWEEN OCCUPATIONAL AND NORMING GROUPS

Sten	Norm (%)	Occupational (%)
1	0.3	2.8
2	0.5	3.1
3	2.1	8.7
4	8.1	17.7
5	11.1	13.7
6	25.2	22.6
7	28.7	16.0
8	16.5	9.2
9	5.0	3.2
10	2.6	3.0

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appendix

MANAGERIAL AND LEADERSHIP NORMATIVE SAMPLE

An analysis of the normative data reveals that there are over 2000 individual who identified themselves as Management, Executive, or Top Executives. Table A.1 below outlines the composition of the group. 43% of the group is Female and 57% Male. Sten scores based on the Managerial and Leadership Sample were developed for use in Leadership and Managerial reports. Below are the demographics related to this sample.

TABLE A.1 MANAGEMENT SAMPLE BY GENDER (N=2198)

Total	Frequency	Percent	%Female	% Male
Management	1486	67.61	72	64
Executive	478	21.75	20	23
Top Executive	234	10.65	8	13
	2198		43	57

TABLE A.2 MANAGEMENT SAMPLE BY ETHNICITY (N=2198)

Ethnicity	Frequency	Percent
African American/Canadian	101	4.60
Asian	63	2.87
Latino/Latina	51	2.32
Middle Eastern	40	1.82
Native American/Canadian	42	1.91
South East Asian	37	1.68
White/Caucasian	1599	72.75
Other	265	12.06
Total	2198	100

TABLE A.3 EDUCATIONAL LEVEL OF MANAGERIAL SAMPLE

Education	N	Percent
Undergraduate	1138	52%
Masters	664	30%
Doctorate	254	12%
Other	142	6%
	2198	

TABLE A.4 EDUCATIONAL LEVEL OF MANAGERIAL SAMPLE

Experience	Frequency	Percent
Less than 1 year	39	1.77
1-2 years	99	4.50
3-5 years	208	9.46
5-10 years	447	20.34
More than 10 years	1405	63.88
Total	2198	100

TABLE A.5 AGE DISTRIBUTION OF MANAGERIAL SAMPLE

Age	Frequency	Percent
21-28	163	7.42
29-34	275	12.51
35-44	659	29.98
45-54	611	27.80
55-65	411	18.70
65+	79	3.59
Total	2198	100.00

TABLE A.6 INDUSTRY FOR MANAGERIAL SAMPLE

Entertainment	24	1.09
Food Preparation and Serving	22	1.00
Healthcare Practitioner	55	2.50
Healthcare Support	44	2.00
Information Systems and Technology	117	5.32
Installation, Maintenance and Repair	2	0.09
Journalism or Media	12	0.55
Legal Occupations	22	1.00
Library Sciences	5	0.23
Life or Physical Science	14	0.64
Management	595	27.07
Manufacturing	25	1.14
Mathematics	3	0.14
Military	75	3.41
Mining	8	0.36
Office and Administrative Support	34	1.55
Personal Care and Service	13	0.59
Protective Services	23	1.05
Retail Sales	80	3.64
Sales Management	86	3.91
Social Science	54	2.46
Sports	13	0.59
Transportation	14	0.64
Wholesale Sales	10	0.45
Total	2198	100

