


Workplace Personality Inventory

Development



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Development of the Workplace Personality Inventory

Test Description

The *Workplace Personality Inventory (WPI)* assesses sixteen work styles, or work-related personality traits, shown to be important to job success in a wide range of occupations. The work styles assessed by the *WPI* are based on the Work Styles personality taxonomy (Borman, Kubisiak, & Schneider, 1999) endorsed by the U.S. Department of Labor, and included in the Occupational Information Network (O*NET) online database. The Work Styles model was developed by considering the best features of several existing work-related personality taxonomies, with emphasis on traits that have been shown to correlate with important job behaviors or related criteria. The sixteen work styles, organized within their seven broader domains, are shown in the Appendix. In addition to the sixteen work styles, the *WPI* contains an “Unlikely Virtues” scale designed to identify individuals who present an overly favorable image of themselves in responding to questions.

Specific Design Goals

Development of the *WPI* was driven by customer needs as evaluated through interactions and surveys. In alignment with identified customer needs, the *WPI* was designed to have the following characteristics.

- ✓ **Work-relevant.** Efforts were made to ensure that the *WPI*
 - Contains questions that are clearly related to the workplace and seen as “face valid” by candidates.
 - Contains scales that can be easily mapped to job requirements and competencies for a wide range of occupations.
 - Is consistent with regulations established by the *Americans with Disabilities Act of 1990*, which emphasize the need for clear delineation between work-related personality tests and mental health exams.
- ✓ **Short.** Administration time for the full 175-item instrument is approximately 20 minutes. Individual scales are 8 to 12 items each.
- ✓ **Easy to interpret.** The *WPI* provides results on work styles in easily understood terms, without reference to obscure psychological or clinical terminology.
- ✓ **Resistant to faking.** Many *WPI* test items were written with the objective of making an appropriate response difficult to guess. In addition, the *WPI* contains a warning against faking that

has been shown to reduce faking in studies on personality tests (Hough, 1998). As a final buffer against faking, the WPI contains an “Unlikely Virtues” scale designed to identify candidates who likely described themselves in an overly (i.e., excessively) positive light when responding to questions.

- ✓ **Reliable, valid, and fair.** The WPI was designed to produce consistent, accurate, and job-relevant results for individuals from a wide range of backgrounds.

Background on Work Styles

The model for the WPI is the O*NET Work Styles personality taxonomy (Borman et al., 1999). Our experience working with this model has shown it to be comprehensive and flexible enough to describe personality requirements for a wide range of jobs, in understandable, everyday language. In addition, the model is linked to a regularly updated database (<http://online.onetcenter.org>) containing job descriptions, work styles and abilities requirements for hundreds of jobs. Additional details on the development of the O*NET Work Styles taxonomy can be found in Borman et al. (1999).

The goal of building the Work Styles taxonomy (presented in Table 1) was “to identify a comprehensive yet reasonably small number of personal characteristics that describe the important interpersonal and work style requirements in jobs and occupations in the U.S. economy (Borman et al., 1999, p.213).”

To achieve this goal, several taxonomies used in the area of personnel selection were first reviewed. These taxonomies included the:

- ✓ five-factor model (e.g., Barrick & Mount, 1991; Goldberg, 1993),
- ✓ *Hogan Personality Inventory* (Hogan & Hogan, 1992),
- ✓ *Occupational Personality Questionnaire* (Saville & Holdsworth, 1990), and
- ✓ *Assessment of Background and Life Experiences* (Hough, 1997).

In addition, the taxonomy developed by Guion and colleagues (e.g., Raymark, et al., 1997) to measure personality requirements of jobs was reviewed, as well as the *California Personality Inventory* (Gough, 1987), *Multidimensional Personality Questionnaire* (Tellegen, 1982), and several additional studies on personality structure (e.g., Costa, McCrae, & Dye, 1991).

In choosing the work styles to include, the authors of the taxonomy focused on those that had been shown to correlate with important job behaviors or work-related criteria (Borman, et al., 1999). Identifying these work styles included examination of literature reviews (e.g., Hogan, 1991), meta-analyses (e.g., Barrick & Mount, 1991), and criterion-related validity studies (e.g., Bentz, 1985).

After the final work styles model was developed, research was undertaken to evaluate its effectiveness at differentiating personality-related job requirements for different occupations. The occupations forming the focus of this research, selected to reflect very different types of employment, included general managers and top executives, computer programmers, registered nurses, police patrol officers, janitors and cleaners, and maintenance repairers/general utility. Each of these jobs was rated on the level of each work style required for successful job performance by subject matter experts familiar with the jobs. The research showed that the work styles scales provided a meaningful description of the similarities and differences between jobs. For example, nurses, computer programmers, and police patrol officers were the occupations with the highest Attention to Detail ratings and nurses and police patrol officers were the occupations with the highest Dependability ratings (Borman et al., 1999).

Source of Items for Pilot Test

With the Work Styles taxonomy as the model for the aspects of personality we wanted to assess, we began building preliminary scales for the **WPI**, using items from three sources. The first source of **WPI** items was an item bank containing 420 items drawn from more than 12 customized assessments carried out over a 10 year period. Many of these were broad spectrum assessments that sampled over a wide variety of work-related personality domains. Several different models and approaches were used in these assessments, depending on the specific purpose of each. All candidate items in the item bank had been pre-piloted and many had received earlier modifications as a result, so that the entire bank conformed to acceptable item-analytic criteria. Ninety-nine of the initial 246 (40%) **WPI** pilot items were selected from this item pool.

The second source of items was an item bank containing 169 items designed to measure conative factors, or mental processes directed toward action (e.g., determination, drive, resolve). These items had been pre-piloted using working adults and therefore had known item characteristics. Fourteen of the initial 246 (6%) **WPI** pilot items were selected from this item pool.

The third source of items was an experimental item bank containing 182 experimental items written by a cross functional team of personality researchers. The experimental items were written to address gaps in coverage of the 16 Work Styles, based on areas not covered by the pre-existing item banks. Items were also written to measure “Unlikely Virtues,” or the extent to which candidates present an overly favorable image of themselves in responding to items. All experimental items were written to conform closely to the item-selection criteria listed in the following section. Item writers included four Pearson research directors, three with backgrounds in industrial/organizational psychology, and one with a background in

vocational/career counseling psychology. Each of the research directors had a minimum of eleven years of test (including personality) development experience. One hundred thirty-three of the initial 246 (54%) WPI pilot items came from this experimental item bank.

Item Selection Criteria – WPI Pilot

Several criteria were used to choose items for the WPI pilot study. Minimal criteria applied at the item level included:

- ✓ Alignment (conceptually and/or empirically) with one of the sixteen work styles; items that were linked to more than one work style were generally avoided to help maximize the independence and therefore overall predictiveness of the work styles as a set
- ✓ Avoidance of the use of colloquial expressions (to ease adaptation to other cultures)
- ✓ A reading level of approximately 8th grade

In addition, all else being equal, items that had been tested previously were favored over untested items, and items that were more subtle were favored over less subtle items. Ratings of item subtlety were made prior to item selection by the lead Research Director, and subsequently reviewed and revised through consensus discussion with three other Research Directors working on the project. Subtlety was rated on a 5-point scale from 1 = *Item is Extremely Subtle*, to 5 = *Item is Extremely Obvious*.

Scale-level criteria (i.e., for the set of items hypothesized to comprise a scale) were also applied in choosing items, including:

- ✓ Coverage of the full definition of the work style
- ✓ Ensuring a relatively high proportion of subtle items, with a target of 20% per scale
- ✓ Ensuring a mix of items tapping high and low levels of each trait, and similarly, of negatively and positively worded items

Trait level ratings were made using the same procedure used for making subtlety ratings described previously. Trait level was rated on a 6-point scale from 1 = *Very Low – Item taps a very low level of the trait of interest*, to 5 = *Very High – Item taps a very high level of the trait of interest*, to 6 = *Problematically High – Item taps a problematically high level of the trait of interest*.

Item selection was carried out by the three primary research directors, who were instructed to independently choose the 12 to 15 items per work style scale that best met the selection criteria. Final items for the pilot test were then selected through consensus discussion.

Following item selection, all items were reviewed by a separate team of four personality researchers, all of whom had PhDs in Clinical Psychology. These revisions were discussed and incorporated as appropriate.

WPI Pilot Sample

Six hundred eighty seven individuals, from a cross section of jobs and organizational levels, participated in the WPI pilot study. All participants completed a questionnaire that included 246 WPI items, 13 *Marlowe-Crowne Social Desirability* scale items (based on Reynolds, 1982), and 10 demographic items. Some participants also completed the *Hogan Personality Inventory* ($n = 99$) or the *Occupational Personality Questionnaire* ($n = 74$), and/or had supervisors who completed ratings on their job performance ($n = 417$). Table 2 shows the distribution of the sample across specific occupations, and Table 3 shows the distribution of the sample across specific organizational levels.

Table 2 Percentage of Participants by Occupation (N = 687)

Occupation	Percentage of Total Sample
Customer Service Representative	16.2
Project Manager	9.9
Manufacturing and Operations Occupations	9.0
Information Technology Occupations	6.4
Sales Representative/Non-Retail	6.1
Administrative Assistant	6.0
Researcher	4.7
Human Resources Occupations	3.1
Consultant	2.8
Teaching Occupations	2.8
Accountant	1.9
Financial Analyst	1.2
Other	29.9

Table 3 Percentage of Participants by Organizational Level (N = 687)

Organizational Level	Percentage of Total Sample
Professionals/Individual Contributors	31.3
Managers	14.4
Customer Service/Retail Sales	13.7
Executives and Directors	12.6
Administrative/Clerical	9.8
First-line Supervisors	5.2
Other	13.0

Of the participants reporting gender, 251 (36.6%) were males and 434 (63.4%) were females. Out of the participants who provided information regarding their highest educational qualifications, 185 (27.5%) reported having a master's degree or higher qualification, 48 (7.1%) reported having done some post-graduate work, 182 (27.0%) reported having a bachelor's degree, 170 (25.3%) reported having some college, 86 (12.8%) reported having a high school diploma or GED, and 2 (0.3%) reported having some high school. Participants reported race/ethnic group information as follows: 457 (66.7%) White (non-Hispanic), 42 (6.1%) Black/African American, 159 (23.2%) Hispanic/Latino(a), 10 (1.5%) Asian/Pacific Islander, 3 (0.4%) Native American, and 14 (2.0%) Other. Of the participants reporting age, 289 (42.6%) were below 40 years of age and 390 (57.4%) were 40 years of age and above.

Selection of Final Items for the WPI

Several types of analyses were used to determine which WPI items to use in constructing the final scales for the 16 work styles, including:

- ✓ Item Response Theory (IRT) analyses using Samejima's (1969) two-parameter polytomous Graded Response Model (GRM). Psychometric properties of the items were examined by reviewing their item parameter estimates, item characteristic curves (ICCs), and item information curves. In general, items with steeper item characteristic curves and higher information curves were retained based on their ability to better discriminate among individuals on the respective work style.
- ✓ Differential item functioning (DIF) analyses for age, gender, and race/ethnicity, using the Mantel-Haenszel (Mantel & Haenszel, 1959) technique. The Mantel-Haenszel statistic indicates whether test takers with equal ability have a different chance of endorsing a given statement based on their group membership. Mantel-Haenszel analyses were computed for "under 40 years of age" versus "40 years of age and above," "Females" versus "Males," and "Other" race/ethnicity versus "White." With few exceptions, items showing differential performance by group were not used. In cases where items with differential performance in favor of one group were used, every effort was made to ensure that differential functioning at the scale level (i.e., differential test functioning, DTF) was minimized or eliminated.
- ✓ More traditional Classical Test Theory analyses focused on reliability and validity. These analyses focused on item difficulty, item discrimination, item-total correlations, and coefficient alpha (Cronbach, 1970), as well as item-level correlations with job performance.
- ✓ The value of a personality inventory resides in its ability to predict what people will say and do in specified contexts (Gough, 1987, p.4). The extent to which a personality inventory measures dimensions or traits that exist inside of people must be considered secondary or even irrelevant in comparison to its ability to predict important job-related behaviors. Items were therefore evaluated by examining both their corrected correlation with the total scale score *and* their correlation with supervisory ratings of a corresponding criterion. Items that had unexpected relationships with the criterion (e.g., significant negative correlation when a significant positive correlation was expected) were not selected even if their corrected correlation with the total scale score was high. In general however, items with higher scale correlations were selected. In addition, every effort was made to ensure that each work style scale had an appropriate spread of difficulty.

Standardization

Information on the reliability and validity of **WPI** scales, as well as procedures for norms development, can be found in the technical report on **WPI** Reliability and Validity available on the Pearson website.

Appendix Work Styles Assessed by the Workplace Personality Inventory

WORK STYLE DOMAIN	WORK STYLE	RELEVANT BEHAVIORS
Achievement Orientation	Achievement/Effort	<ol style="list-style-type: none"> 1. Establishes challenging goals 2. Maintains goals 3. Exerts effort toward task mastery
	Persistence	<ol style="list-style-type: none"> 1. Persists in the face of obstacles on the job
	Initiative	<ol style="list-style-type: none"> 1. Takes on job responsibilities without being told to do so 2. Volunteers for new job responsibilities 3. Volunteers for new job challenges
Social Influence	Leadership Orientation	<ol style="list-style-type: none"> 1. Demonstrates a willingness to lead/take charge 2. Demonstrates a willingness to offer opinions
Interpersonal Orientation	Cooperation	<ol style="list-style-type: none"> 1. Is pleasant/good-natured with others on the job 2. Encourages people to work together 3. Helps others with tasks
	Concern for Others	<ol style="list-style-type: none"> 1. Demonstrates sensitivity to the needs and feelings of others 2. Demonstrates understanding of others/empathy
	Social Orientation	<ol style="list-style-type: none"> 1. Shows a preference for working with others 2. Develops personal connections with work colleagues
Adjustment	Self-Control	<ol style="list-style-type: none"> 1. Keeps emotions in check even in very difficult situations
	Stress Tolerance	<ol style="list-style-type: none"> 1. Accepts criticism 2. Shows tolerance of stress caused by other people or situations
	Adaptability/Flexibility	<ol style="list-style-type: none"> 1. Adapts to change in the workplace 2. Deals effectively with ambiguity 3. Demonstrates openness to considerable variety in the workplace
Conscientiousness	Dependability	<ol style="list-style-type: none"> 1. Fulfills obligations reliably
	Attention to Detail	<ol style="list-style-type: none"> 1. Completes work tasks thoroughly 2. Is careful about details
	Integrity/Dutifulness	<ol style="list-style-type: none"> 1. Avoids unethical behavior 2. Follows rules and regulations
Independence	Independence	<ol style="list-style-type: none"> 1. Relies mainly on self to get things done 2. Develops own way of doing things
Practical Intelligence	Innovation	<ol style="list-style-type: none"> 1. Generates new ideas to address work issues and problems
	Analytical Thinking	<ol style="list-style-type: none"> 1. Uses logic to address work-related issues 2. Produces high quality, useful information.

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