

# WORK PERSONALITY INDEX

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## Work Personality Index®

### Reliability

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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.

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 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 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 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 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

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 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 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 3 Test-retest correlations of the Work Personality Index**

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

**Table 4 Test-retest correlations of the Work Personality Index 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