

High Potential Trait Indicator (HPTI) North American Technical Summary

Introduction

This Technical Summary serves as a user-friendly, hands-on reference guide for all High Potential Trait Indicator (HPTI) practitioners. It is a stepping stone in becoming conversant in the HPTI. While this Technical Summary is written from a need-to-know premise, it is not intended to be a replacement for other documentation available for the HPTI. For those who need more detailed information on the development and validation of the HPTI, the complete Technical Manual is a valuable complement. Hard copies of the complete HPTI Technical Manual by Ian MacRae and Adrian Furnham are available upon request, and review by Thomas' global psychology team.

Development

The HPTI was developed by Ian MacRae and Adrian Furnham at University College London (UCL) and High Potential Psychology Ltd.

Adrian Furnham was educated at the London School of Economics where he obtained a distinction in an MSc Econ., and at Oxford University where he completed a doctorate (D.Phil) in 1981. He has subsequently earned a D.Sc (1991) and D.Litt (1995) degree. Previously a lecturer in Psychology at Pembroke College, Oxford, he has been Professor of Psychology at University College London since 1992. He has lectured widely abroad and held scholarships and visiting professorships at the University of New South Wales, the University of the West Indies, the University of Hong Kong and the University of KwaZulu-Natal, amongst others. He has also been a Visiting Professor of Management at Henley Management College. He has recently been made Adjunct Professor of Management at the Norwegian School of Management (2009). Professor Furnham has written over 1000 scientific papers and 70 books. He is on the editorial board of a number of international journals, as well as the past elected President of the International Society for the Study of Individual Differences. He is also a founder director of Applied Behavioural Research Associates (ABRA), a psychological consultancy and High Potential Psychology Ltd.

Ian MacRae obtained a BA (Hons.) in Psychology with a minor in Human Geography from the University of British Columbia (2011) and an MSc Research Methods in Psychology from University College London in 2012. He is a member of the British Psychological Society (MBPsS) and he wrote his first book High Potential: How to Spot Manage and Develop Talented People at Work (Bloomsbury Publishing) with Adrian Furnham in 2014. He has spent nearly a decade as organizational consultant and psychological researcher. He has worked in a wide variety of sectors in a range of responsibilities including labour market research, strategic planning, program evaluation communications planning and operational planning, training systems assessments, training program development and evaluation, business intelligence and analytics and many more. Ian has conducted academic and applied research in a wide range of industries and sectors including oil and gas, agriculture, post-secondary education, services industries, employment services, construction, transportation trades, tourism and hospitality and various others.

Construct

The High Potential Trait Indicator measures the following personality traits:

- **Conscientiousness**
 - Those who rate themselves as being highly conscientious tend to be focused on goals and how to reach them. They will usually be self-motivated. Those who score lower on this trait tend to be more easy-going, spontaneous and open to new insight.
- **Adjustment**
 - High adjustment scores suggest calmness under pressure and fewer feelings of stress. Those who report lower adjustment tend to experience more stress and worry.
- **Curiosity**
 - Those with high curiosity scores often like novelty, learning and variety. By contrast, lower curiosity suggests a liking for tried and tested methods and consistency.
- **Risk Approach**
 - Those who score high on risk approach tend to bring a reasoned and rational approach to difficult situations and conversations. A lower risk approach characteristically indicates more instinctive or emotional decisions.
- **Ambiguity Acceptance**
 - Those with high ambiguity acceptance usually thrive on uncertainty and complexity. Those who find it more difficult to cope with ambiguity may like situations where there are clear-cut answers and solutions.
- **Competitiveness**
 - High competitiveness scores are typical of people who enjoy positions of power, influence and recognition. Less competitive people prefer cooperation and collaboration; they may dislike the spotlight.

Optimality Model:

The HPTI has been designed based on an 'optimality' model; this model assumes that a person's personality traits can be considered 'optimal' based on the requirements of a particular job role or position, such as senior executive leadership. A person's responses on the HPTI will be reflected back as a position on a continuum for each of the 6 traits, falling into one of four bandings: Low, Moderate, Optimal or Excessive. Too much or too little of a trait will have advantages as well as disadvantages. Certain trait levels can indicate a high potential to succeed, or potentially indicate characteristics that could derail an otherwise successful person.

Test Administration Method:

- Self-report and electronic/web-based
- Individuals indicate their level of agreement on a 1-7 Likert scale (1 'disagree completely' to 7 'agree completely') with 78 unique items.

Administration time: 10 minutes

Standardized Population for North America

Norm Group

The general population norm creation process surveyed 936 individuals in Canada and the USA. 54% were female, 44% were male, and 2% other. Before analysis, rigorous data analytics were conducted to remove any random or careless responding that would skew the data to ensure the high quality of the data set. The data set was purposefully and statistically stratified to align with demographic representations seen in Canada and the USA. The sample was geographically split 38% USA (n = 352) and 62% Canadian (n = 584) with an average age of 37.95 years (ranging from 16 to 82).

Most participants were in some form of full time employment (n= 705; 75%), including private sector (n = 377; 40%), public or not-for-profit sector (n = 278; 30%), self-employed (n = 44; 5%), and voluntary or charity work (n = 6; 1%).

96 (10%) of the norm sample were in part-time employment, working in the private sector (n = 26; 3%), public or not-for-profit sector (n = 35; 4%), self-employed (n = 24; 3%), and voluntary or charity work (n = 11; 1%). A small portion of the sample were currently unemployed (n = 17; 2%) and students (n = 60; 6%). These participants were left in the sample as these levels are representative (or lower in the case of unemployment) of the general Canadian and USA populations.

There was a range of educational certification in the sample as well, with 19% (n= 182) having a High School Certificate or equivalent, 25% (n = 230) having a college or other non-university diploma, 6% (n = 59) having below a Bachelor level degree, 25% (n = 236) having a Bachelor level degree, 10% (n = 90) having an Honors level degree, 5% (n = 44) having a Masters level degree, and 2% (n = 15) having a Doctorate level degree.

Leadership Group (Optimality Band)

The HPTI has four main bandings for each trait: Low, Moderate, Optimal, and Excessive. The bandings were decided based on: i) the level of traits that are seen in the leadership sample; and ii) the comparative number of leaders versus general population who would fall within the banding for each trait. The optimal bandings were calculated from the response patterns and scores of the leadership sample on each trait. The leadership sample was collected within an executive leadership study conducted in Canada and the USA. Three hundred and eighty-four leaders signed up for participation and of those, 253 fully completed all components of the study. 'Success filters' were applied to the group including i) EBITDA and Revenue Growth for the Organization, ii) Personal Performance Targets, and iii) Size of the Organization by Revenue.

Based on these filters, 198 leaders were determined to be the most successful leaders in the total sample, with the largest scope of operation and responsibility. With an average annual EBITDA growth of 11%, an average revenue growth of 12%, an average employee turnover of 11%, and with 73% of leaders having an organization employee engagement score of 71% or above, this group of 198 executive leaders delivered on both hard and soft performance outcomes within their organizations.

These 198 leaders represented 151 organizations, with 71% based in Canada and 29% based in the USA. They held mainly senior executive roles in their organizations with the following distribution: C-Level (56%), Vice President (34%) and Director (10%). The majority of the leaders work for midsize and large organizations, with organizational revenues ranging from \$10 million to \$100 million (19%), and \$101 million to \$1 billion (39%), and \$1 billion to \$5+ billion (39%).

Most leaders were from three different generational cohorts, namely Baby-Boomers (born 1946 to 1965; 33%), Gen-X (born 1966 to 1979; 54%), and Gen-Y (born 1980 to 1995; 11%). Sixty-four percent of leaders were male, and 36% were female; with regard to education, 48% of leaders held a degree at Masters level or above, and 43% held a degree at a Bachelor level.

The leaders were from a diverse range of industries, the three most common being: Manufacturing (16%), Information Technology (9%), and the Financial Sector (8%). The leaders in this sample had been with their organizations for anywhere from under a year (5%) to over 20 years (14%), with 51% of leaders with their organizations for more than 6 years. However, most leaders had been in their role for less than 3 years (53%) and nearly half (49%) had been promoted within the last 2 years, with 12% having received their last promotion more than 6 years ago.

Country Differences

As this sample was comprised of both US and Canadian leaders, it was important to investigate any differences in HPTI between the two countries. Additionally, differences were tested in the general population sample. Analyses of Variance (ANOVAs) were conducted to test for these differences and eta-squared statistics used to assess the magnitude of these differences.

The results found no statistically significant differences in any of the HPTI traits between Canada and US leaders. The tests also found no statistically significant and practically meaningful differences between US and Canada in the general population. For instance, the US had significantly higher scores than Canada on Adjustment and Risk Approach, but the effect size of these differences were statistically negligible ($\eta^2 = .006$ for both). Curiosity was found to show a small difference ($\eta^2 = .011$), but this small effect is translatable to an average score difference of 2.98 between Canada and the US, highlighting that the differences were not practically meaningful and would not result in adverse impact.

These results indicate that US and Canadian samples are representative both at the leadership level and general population, meaning the optimal bandings and research findings are transferable across the groups.

Assessing the Reliability of the HPTI

Internal consistency (Cronbach's Alphas) definition:

This form of reliability is used to judge the consistency of results across items on the same test. Essentially, you are comparing test items that measure the same construct to determine the test internal consistency. When you see a question that seems very similar to another test question, it may indicate that the two questions are being used to gauge reliability. Because the two questions are similar and designed to measure the same thing, the test taker should answer both questions the same, which would indicate that the test has internal consistency. A very popular indicator of internal consistency is Cronbach's alpha (α) – an alpha value of 1 signifies perfect consistency. However, such a coefficient value rarely exists and may indicate that items are too repetitive, so it has been established that a test is highly consistent and accurate if its reliability alpha coefficient is over .7.

Internal consistency:

The internal consistency of the HPTI was measured for a North American sample to reaffirm that it was robust. Each trait demonstrated strong internal reliability that are comparable to the UK sample:

HPTI Traits	English USA and Canada	French Canada	English UK
Conscientiousness	.74	.71	.77
Adjustment	.81	.80	.78
Curiosity	.82	.82	.80
Risk Approach	.72	.74	.74
Ambiguity Acceptance	.75	.72	.72
Competitiveness	.77	.79	.74

Assessing the Validity of the HPTI

Construct validity definition:

In general, construct validity is established by setting up a number of hypotheses, derived from the nature of the variable, and putting them to the test. As part of the construct validity exercise it is also important to demonstrate what the test does not measure. The problem with this approach is that there is a subjective element in the judgement. Nevertheless, if the rationale for the hypotheses is made clear, construct validity can be very strong evidence that the test does measure what it claims.

Construct validity:

Similarities between the “Big Five” Five Factor Model (FFM) show high correlations between traits that are theoretically the most similar. The FFM is one of the most regularly used academic models of personality, however it has not been developed or optimized for use in the workplace. The following convergent validity correlations were found:

- ✓ FFM Neuroticism significantly negatively correlated with HPTI Adjustment
- ✓ FFM Openness significantly positively correlated with HPTI Curiosity
- ✓ FFM Conscientiousness significantly positively correlated with HPTI Conscientiousness
- ✓ FFM Extraversion was significantly positively correlated with HPTI Risk Approach

Relationships have also been found between HPTI and the Trait Emotional Intelligence Questionnaire (TEIQue) which suggest the majority of variation in emotional intelligence can be predicted using the HPTI.

Criterion-related validity definition:

Investigating criterion-related validity means to compare the questionnaire with another external variable or independent measure which is known or believed to be a measure of the same attribute. There are two different types of criterion validity: concurrent and predictive. Predictive validity occurs when the criterion measures are obtained at a time after the test. Concurrent, on the other hand, occurs when the criterion measures are obtained at the same time as the test scores.

All HPTI traits show strong correlations with measures of success and the strength of correlations vary depending on the trait and type of success being measured. Conscientiousness ($r=.34$, $p<0.01$), Risk Approach ($r=.28$, $p<0.01$) and Adjustment ($r=.25$, $p<0.01$) have the greatest correlations with success at work. Conscientiousness ($r=.43$, $p<0.01$) and Curiosity ($r=.53$, $p<0.01$) have the greatest correlations with success in education. Adjustment ($r=.33$, $p<0.01$), Ambiguity Acceptance ($r=.26$, $p<0.01$) and Curiosity ($r=.26$, $p<0.01$) have the greatest correlations with general life success.

A Leadership study with the sample outlined in the Leadership Group (see Standardized Population of North America) assessed the role of HPTI in accounting for leadership competencies and organisational performance. The results found the following leadership strengths were related to the HPTI: *Strategic Visionary* was significantly correlated with Adjustment ($r=.14$, $p<.05$), Curiosity ($r=.15$, $p<.05$), and Risk Approach ($r=.21$, $p<.01$); *Innovator* was correlated with Curiosity ($r=.15$, $p<.05$); *Leads with Integrity* was correlated with lower Curiosity ($r= -.14$, $p<.05$) and higher Competitiveness ($r=.19$, $p<.01$); *Collaborator* was correlated with lower Competitiveness ($r= -.16$, $p<.05$); *Customer Acumen* was correlation with lower Conscientiousness ($r= -.15$, $p<.05$); and being a *Proactive Conflict Manager* was correlated with lower Adjustment ($r= -.15$, $p<.05$). Additionally, this study used Structural Equation Modelling to examine how leader HPTI scores explained both strengths with leadership competencies and organizational performance. The results found that: Integrity was predicted by lower Curiosity ($\beta = -.21$; $p < .05$); Proactive Conflict Management was predicted by lower Adjustment ($\beta = -.22$; $p < .01$); Empower Others was predicted by higher Curiosity ($\beta = .18$; $p < .05$); Innovator was predicted by higher Curiosity ($\beta = .18$; $p < .05$); Collaborator was predicted by lower Competitiveness ($\beta = -.19$; $p < .05$); higher Organizational Revenue was predicted by higher Ambiguity Acceptance ($\beta = .23$; $p < .05$); higher Percentage of Internal Promotions was predicted by having Strategic Vision ($\beta = .19$; $p < .05$) and Effective Communicator ($\beta = .18$; $p < .05$) as strengths; higher percentage of Performance Targets being met was predicted by higher Adjustment ($\beta = .17$; $p < .05$) and Risk Approach ($\beta = .24$; $p < .05$) but lower Curiosity ($\beta = -.23$; $p < .05$); higher Sales Growth was predicted by Curiosity ($\beta = .13$; $p < .05$); and higher Adjustment was predictive of higher Sales Growth ($\beta = .13$; $p < .05$), Net Profit Margin Growth ($\beta = .17$; $p < .05$), Customer Satisfaction ($\beta = .27$; $p < .05$), Talent Retention ($\beta = .24$; $p < .05$), Innovation ($\beta = .25$; $p < .05$) and higher Overall Performance ($\beta = .22$; $p < .05$).

Adverse Impact

Gender:

Gender differences were analyzed to test for the presence of adverse impact in the HPTI. This was done in two ways: firstly, assessing trait differences in the leadership sample (from which the optimal bandings were calculated); and secondly, trait differences in a general population sample. In both cases, ANOVAs were used to test for significant differences and eta-squared statistics used to assess the magnitude of these differences.

For the leadership sample, 64% were male and 36% were female. Whilst the gender ratio is skewed, it is more balanced than what is seen currently in North America: e.g. in 2017, 29% of senior management positions were held by women in Canada. The tests found no significant differences between gender for any of the HPTI traits. The results indicate that there is no adverse impact of the HPTI at the senior level as men and women have a similar range in scores.

The general population sample contained 936 people, 38% from USA and 62% from Canada, as well as being 46% male and 54% female. The tests found that none of the traits both statistically significant and practically meaningful differences between genders. For instance, men were found to score higher than women on Risk Approach and Competitiveness, but the effect size of these differences was small ($\eta^2 = .013$ and $.019$ respectively). This small effect is translatable to an average score difference of 3.96 and 3.02 between men and women for Risk Approach and Competitiveness respectively, highlighting that the differences were not practically meaningful and would not result in adverse impact.

Age:

To test the potential adverse impact of age on HPTI, age was coded into the following factors: 18-25 years, 25-35 years, 35-45 years, 45-55 years, 55-65 years, and 65 years and over. ANOVAs were run for each of the HPTI traits with these codes to assess whether any age group scores significantly differently to others, indicating potential disadvantage. The tests revealed no significant and practically meaningful differences between the age groups for Conscientiousness, Adjustment, Curiosity, Risk Approach, and Ambiguity Acceptance. This indicates that, for these traits, no age group is seen to score any higher or lower than another. Differences were noted in Competitiveness, where it was seen that older groups score lower than younger. However, analysis of the standard residuals of a Chi-squared tests revealed that there was no significant difference in falling within the optimal banding within the working population. The results of these analysis indicated that there is no adverse impact for the HPTI for the working population.

Ethnicity and First Language:

In addition to Gender and Age, adverse impact on ethnicity and first language was tested for. It was found that no significant differences were noted in any HPTI scores across ethnicity and first language.

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