Saville Consulting
Wave Strengths Handbook

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Acknowledgments

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Saville Consulting
Wave Strengths Handbook

PART 1: OVERVIEW

1.0 Introducing Saville Consulting Wave® Strengths

Saville Consulting Wave Strengths is a suite of short but highly valid assessments designed for use in volume recruitment across a wide range of different job roles. Strengths tools provide a highly positive approach to the selection of staff, with feedback focusing on candidates' strengths.

The Strengths suite consists of the following assessments:

Work Strengths: suitable for use with graduates, management trainees, managers & professionals

Operational Strengths: suitable for use with technical apprentices and operational staff in manufacturing, engineering, construction and transport

Commercial Strengths: suitable for use with sales, marketing, business development & financial service roles

Customer Strengths: suitable for use with contact center, customer service, hospitality & leisure roles

Administrative Strengths: suitable for use with clerical and office roles

The Work Strengths assessment is a subset of Wave Professional Styles and more extensive information about it can be found in the Wave Professional Styles Handbook. For more extensive information about the other assessments from the Wave Strengths suite, please refer to the relevant Wave Strengths Summary Handbook.

The Strengths suite has been developed from first principles as work-relevant, highly valid international tools available in many languages and suitable for a range of job roles across different industry sectors.

Saville Consulting Wave Strengths are based upon research integrating personality, competency and overall effectiveness at work. These assessments are aligned to both the Big Five personality factor model and the Great Eight competencies, and are designed to provide more information than either model.

The development of the Strengths assessments has benefited from a performance-driven methodology we call "validation-centric". The methodology maximizes the validity of the questionnaires by selecting the most valid items from our item pools so only the best predictors were included in the final questionnaires.

Strengths assessments are administered in an unsupervised setting (Invited Access) via the secure Oasys platform or through integration with Human Resource Information Systems and Applicant Tracking Systems. The dynamic response format (rate-rank or "ra-ra") allows for control of distortion, in addition to offering the candidate an interactive online experience.

Strengths outputs are simple and use straightforward language, thus enabling managers across all organizational levels to interpret profiles easily and accurately. They provide feedback on work, culture and the environments to which a candidate is likely to be most and least suited.

Work Strengths, developed from the Saville Consulting Performance Culture Framework, encompasses the 108 talent items from the Wave Professional Styles instrument, honing in on talent to provide a short, powerful, 20-minute assessment that retains 90% of the validity of Wave Professional Styles.

Saville Consulting Wave Strengths Approach

Saville Consulting Strengths are based on a unique perspective which makes it different from many other popular assessments. Some of these unique properties and features of the Strengths tools are outlined below.

1.1 Performance Driven

Saville Consulting Wave Strengths have been developed using a variety of strategies, but at the core is a performance-driven, validation-centric strategy.

This strategy is based on starting with what a questionnaire is designed to predict, i.e., the criteria. This is to take a criterion-centric rather than predictor-centric perspective on measurement. To be performance-driven is to adopt a validation-centric strategy which selects items with the best criterion-related validity into the questionnaire (i.e., selects the best predictors of the criteria and removes the weaker predictors in order to maximize prediction of the criteria).

Critically, Saville Consulting Wave Strengths are composed of items chosen because of their strong association with overall effectiveness at work, both in terms of proficiency and potential. While overall performance is sometimes dismissed as a criterion in personality assessment in favor of individual behavior criteria, the Saville Consulting Strengths approach seeks to maximize validity and achieve the best of both worlds in producing a questionnaire with enhanced validity in forecasting overall effectiveness and individual behavioral effectiveness criteria.

For the initial development of the Professional Styles and Work Strengths questionnaires, 214 work constructs were written (each with separate motive and talent components, 428 work constructs in total). Of these 214 constructs (facets), 108 made it into the final questionnaires, with facet selection based first and foremost on criterion validity. For Professional Styles, each of the 108 facets comprised one talent and one motive item. For Work Strengths, each of the 108 facets comprised the talent item only. Items were correlated with external ratings on relevant work behavior competencies as well as overall job proficiency and potential for promotion.

Saville Consulting Wave Strengths are therefore based on the work constructs which are the best indicators of performance and underpin not only effectiveness in terms of key behaviors but also in terms of overall performance. The Criterion-Centric and Performance-Driven foundation is a central feature of the Strengths model. Strengths are not like other questionnaires that are based on parsimonious factor structures of self-report variables or solely measuring a particular deductive or theoretical model. This approach is designed to have the impact of not only making the validity clearer and more transparent to the assessment user but also maximizing the validity and the return on investment from Strengths assessments.

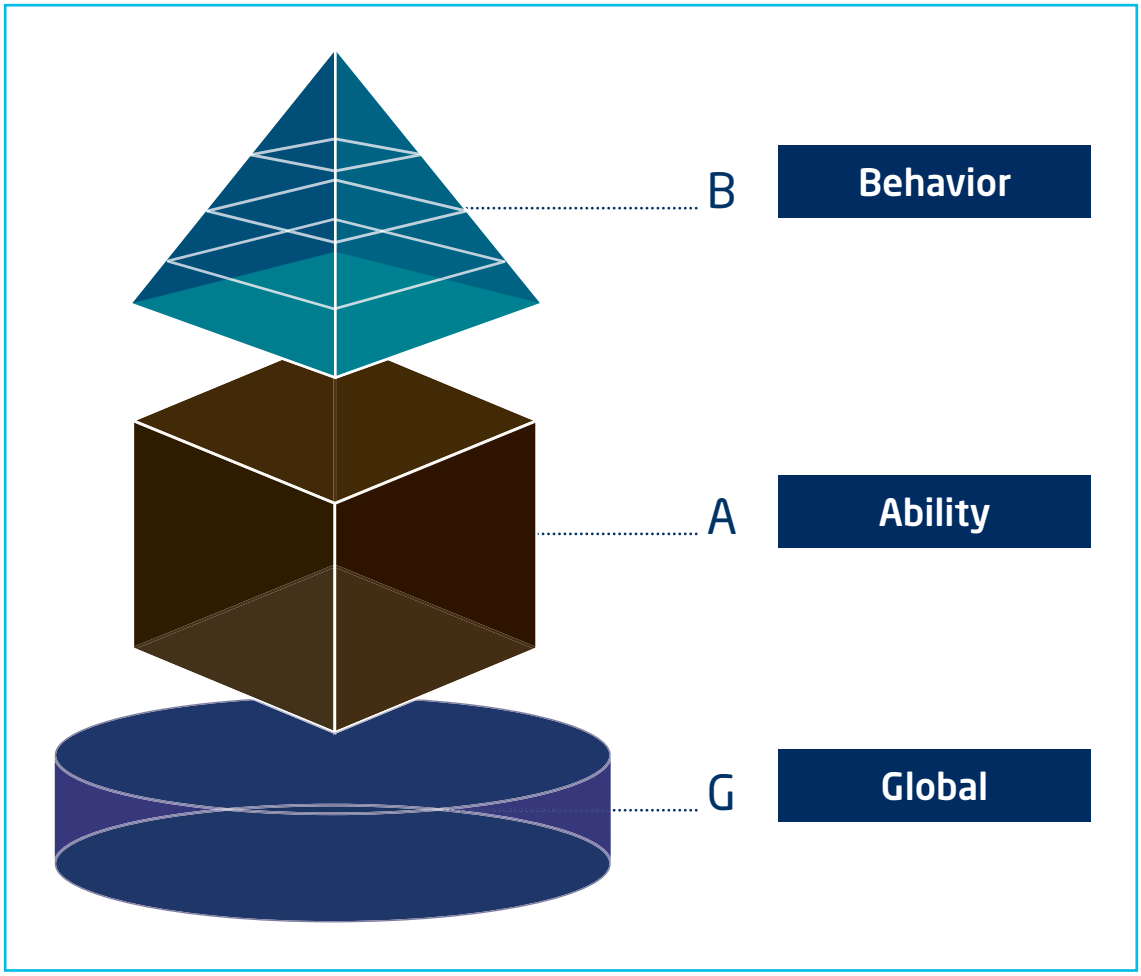
Further discussion on the rationale for performance-driven, criterion-centric development is given in the 'Validity' chapter of the Saville Consulting Wave Professional Styles Handbook.

1.2 The Saville Consulting Wave® Performance Culture Framework

At the heart of the Saville Consulting Wave Strengths assessment tools is the Saville Consulting Wave Performance Culture Framework model. The Saville Consulting Wave Performance Culture Framework is an extensively researched model of the key characteristics that underpin success at work across different occupations. It is the starting point for Saville Consulting's new product development, because validation evidence has demonstrated its elements are important correlates of work performance.

The Saville Consulting Wave Performance Culture Framework is made up of Behavior, Ability and Global areas (see Figure 1.1). Saville Consulting Wave Strengths are part of this framework, contributing to the behavior aspect of the framework whilst also underpinning global performance. Ability areas are best measured separately through the use of Saville Consulting Aptitude Assessments.

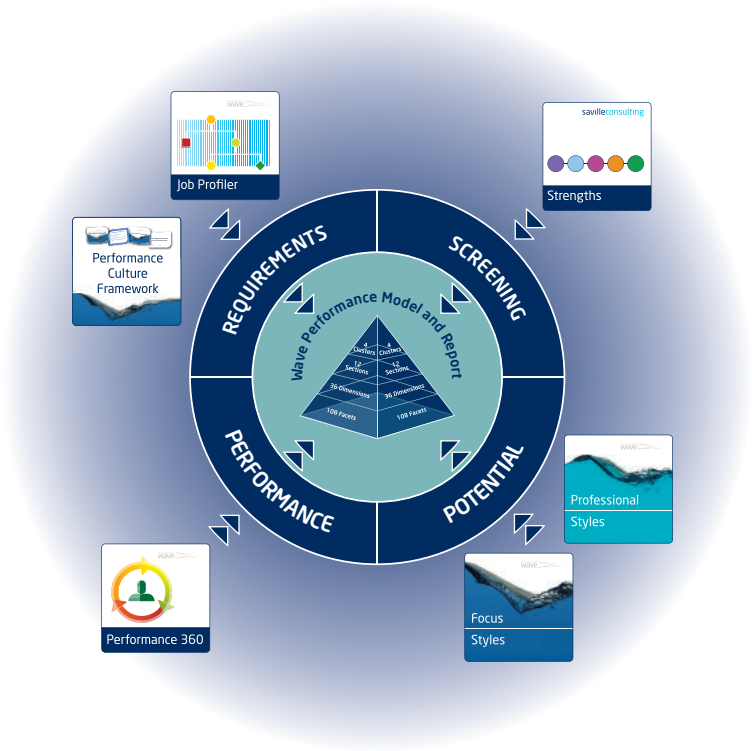
Figure 1.1 An Overview of the Structure of the Wave Performance Culture Framework



1.3 Integrated Model and Application

The Saville Consulting Wave Performance Culture Framework is assessed using a variety of tools for a range of human resource applications. Figure 1.2 gives an overview of what is measured by each of the assessment tools.

Figure 1.2 Integrated Saville Consulting Assessments



This handbook will focus on the Behavior segment of the Saville Consulting Wave Performance Culture Framework as predicted by Strengths. The 'Applications' chapter of the Saville Consulting Wave Professional Styles Handbook and the Saville Consulting Wave Performance Culture Framework User Guide give more information on the integrated model and its application.

1.4 New Levels – New Insights

The Work Strengths Behavioral Model is hierarchical in that there are four levels that, starting from the highest level, include: Clusters (4), Sections (12) and Dimensions (36). These dimensions profiled in Work Strengths are underpinned by the 108 facet items. Users can focus on the section level for a quick and simple view of a profile or dig for deeper insights by focusing on the dimension level of a profile.

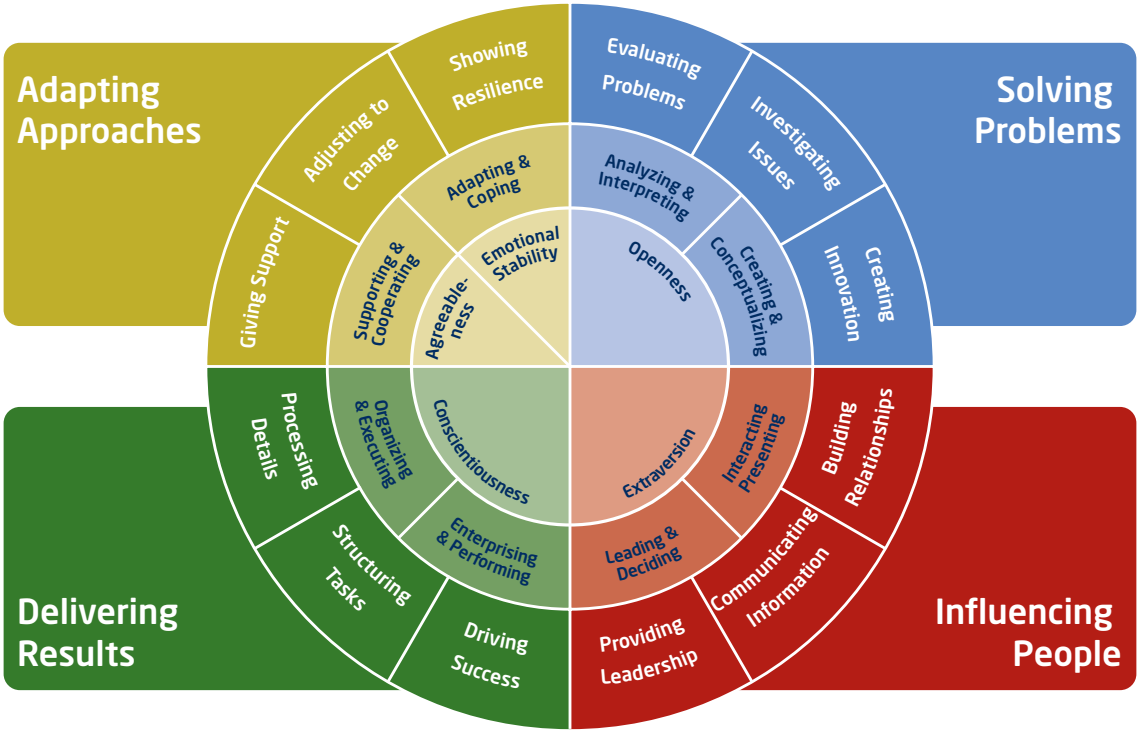
The hierarchical approach allows for a broad measurement and understanding of the criterion domain. Colors are associated with the four clusters to aid differentiation and ease interpretation.

Strengths Cluster	Associated Color
Solving Problems	Blue
Influencing People	Red
Adapting Approaches	Gold
Delivery Results	Green

The hierarchy allows the user the opportunity to have a broad overview of an individual. It may indicate, for example, that the person profiled is strong on 'Delivering Results' (Green) and 'Influencing People' (Red), but less strong on 'Solving Problems' (Blue) and 'Adapting Approaches' (Gold). These four clusters provide a simple overview of an individual that relies on the aggregated validity of the Strengths scales.

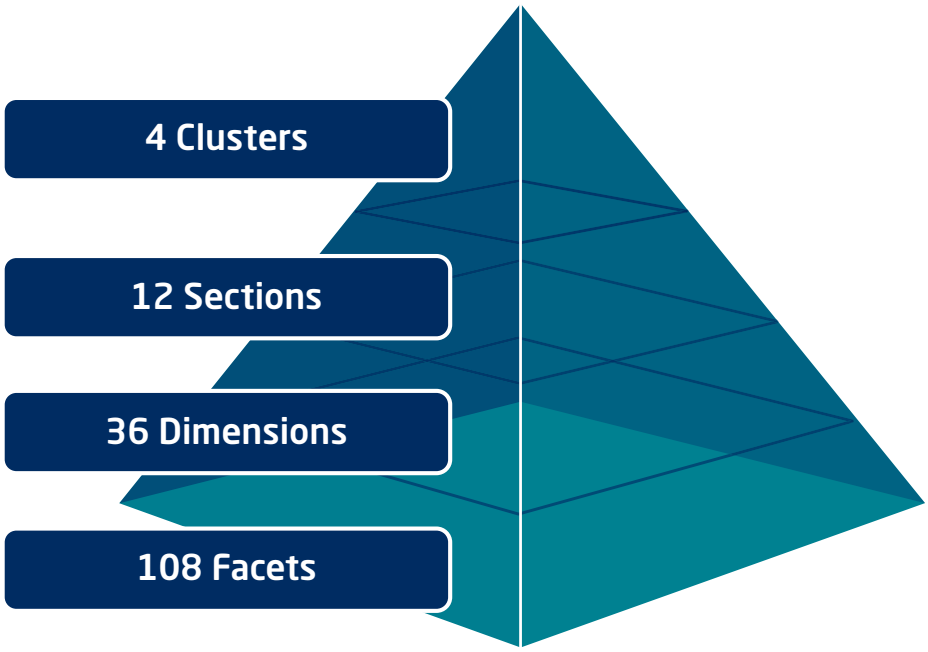
The next level in the hierarchy comprises the 12 sections which provide more detail and form the basis of the Saville Consulting Strengths Wheel.

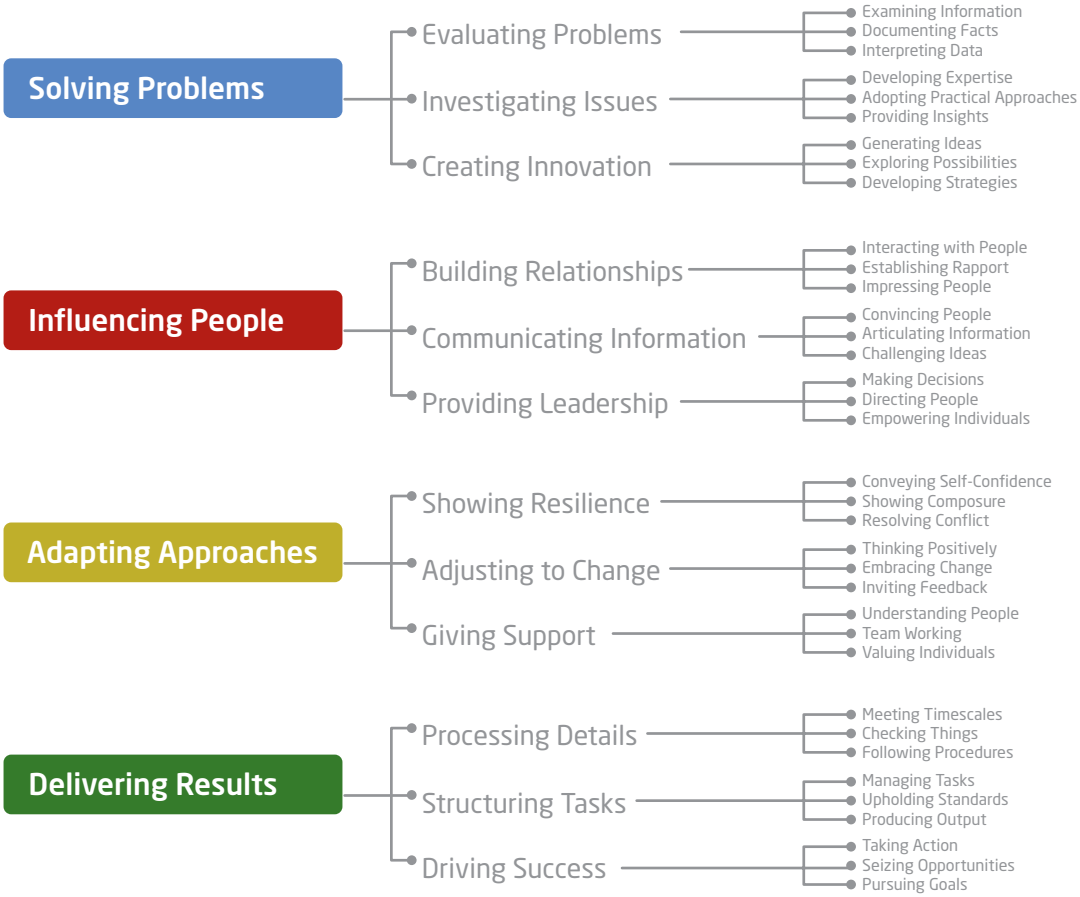
Figure 1.3 The Strengths Wheel



The "Strengths Wheel" provides a mechanism for understanding how Work Strengths compares with other major models of personality and performance in its structure (Musek's Big One, Digman's Alpha and Beta, The Great Eight Competencies, The Big Five).

Figure 1.4 The Work Strengths Hierarchy



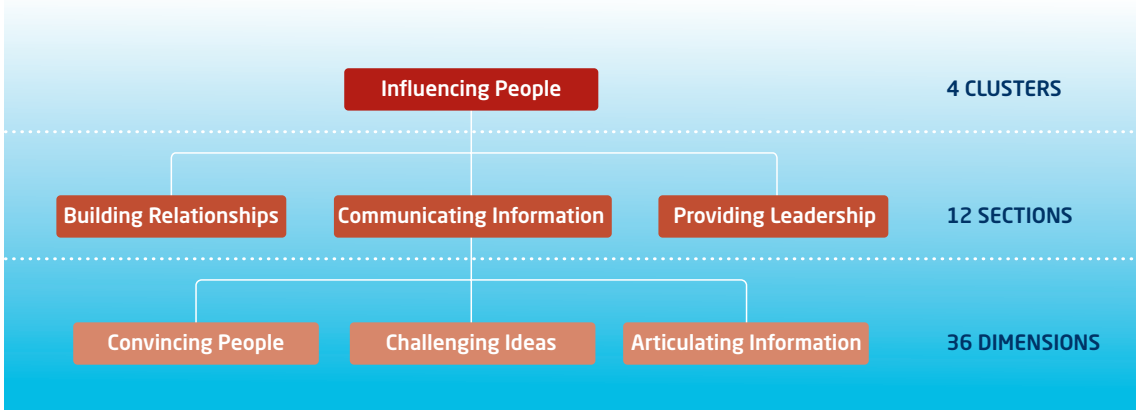


Each of the four clusters breaks down into three to create the 12 sections as follows:

- **Solving Problems** encompasses the sections Evaluating Problems, Investigating Issues and Creating Innovation. This cluster is focused on developing ideas, from analyzing problems and understanding underlying principles through to being more expansive and divergent in thought by being creative and strategic.
- **Influencing People** encompasses the sections Building Relationships, Communicating Information and Providing Leadership. This cluster relates to communication and working with others. It is concerned with establishing positive relationships with people and demonstrating positive leadership behaviors.
- **Adapting Approaches** encompasses the sections Showing Resilience, Adjusting to Change and Giving Support. This cluster covers areas of emotional, behavioral and social adaptability, respectively.
- **Delivering Results** encompasses the sections Processing Details, Structuring Tasks and Driving Success. This cluster is focused on implementation and delivery of results, from ensuring high standards of delivery through to proactively making things happen.

The 12 sections then break down into the more detailed level of 36 dimensions. Each dimension is comprised of three facets which measure different aspects of personality critical to the prediction of effectiveness in that area.

Figure 1.5 Example of Work Strengths Cluster to Dimension Structure



For an example, see Figure 1.5 highlighting one small part of the three level Work Strengths hierarchy. The cluster 'Influencing People' breaks down into sections 'Building Relationships', 'Communicating Information' and 'Providing Leadership'. If we follow the section 'Communicating Information' further down the hierarchy, it can be seen that it is composed of the dimensions 'Convincing People', 'Challenging Ideas' and 'Articulating Information.' Each of these dimensions are composed of three facet items, each measuring different aspects of personality crucial to predicting effectiveness.

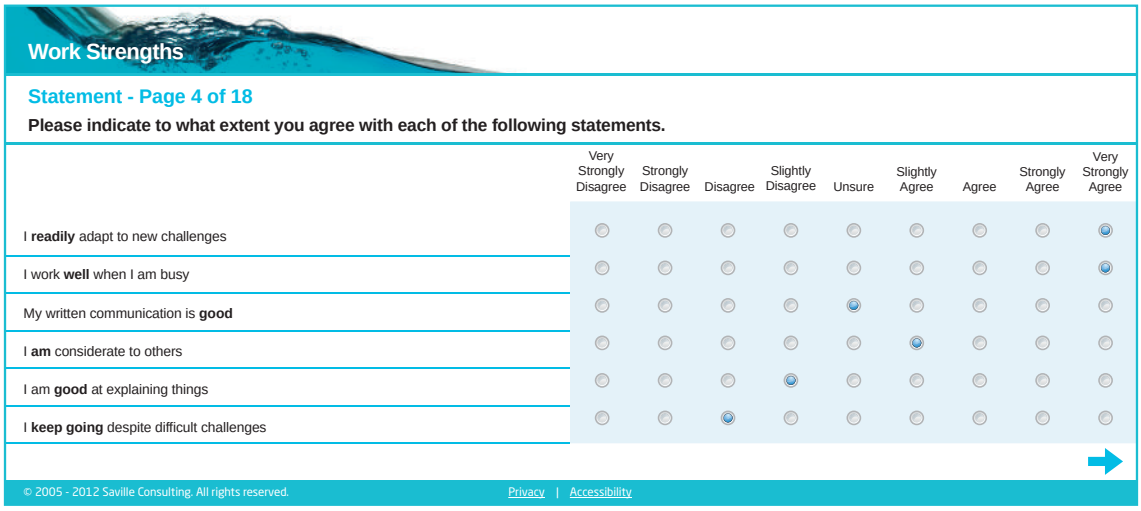
Scale descriptions of the 36 Dimensions of Work Strengths can be found in the 'Scale Descriptions' chapter of this handbook.

1.5 Dynamic Rate-Rank "Ra-Ra" Response Format

Saville Consulting Wave Strengths uses a new dynamic response format that combines a free-choice rating response format with a forced-choice ranking response format (our new rate-rank or "ra-ra" format). This can help to identify where on a profile a person's behavior may be underestimated or where a person may be responding in a socially desirable manner.

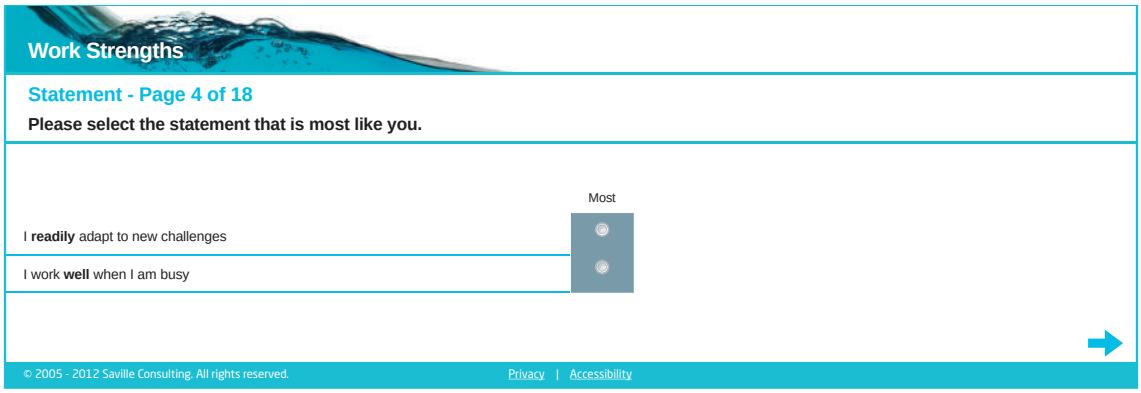
The online Work Strengths questionnaire presents a page of six statements (see figure 1.7).

Figure 1.6 Screenshot of Online Rating Task of Work Strengths



After the six statements are rated by the respondent, the system records the ratings and then calculates the rankings automatically. If a respondent has tied certain ratings, the system immediately re-presents the tied items to be placed in rank order by the respondent using a forced-choice response format. If there are no tied items, then a new page of six items is presented.

Figure 1.7 Screenshot of Online Ranking Task of Work Strengths



N.B. The ranking score comes from both the order of the rating and the ranking task.

1.6 Clear Interpretation

A criticism that can be fairly leveled at many self-report questionnaires is that, despite their reliability and validity, there is still a degree of subjectivity in their interpretation.

Even with proper training, subject matter experts in assessment believe that poor interpretation is a significant source of error in the use of personality questionnaires (Smith & Foley, 2006). A lack of consistency between interpreters is much more likely where an aspect of work performance is predicted by a complex combination of predictor scales, which is the situation with many multi-scale self-report personality instruments.

Is inconsistency a given? Can we do anything about it? With the performance-driven approach, the work constructs that best predict a work competency are brought together to form a scale. This largely removes the need to look around the profile for what scales relate to a particular competency (i.e., we move from predictor-centric models to criterion-centric models of work performance so users have to work less hard to "join-the-dots").

Better interpretation inevitably leads to improved validity in decision-making based on questionnaire data. Clearer interpretation means fewer selection errors and better identification of talent in selection processes. In career development situations, it means clearer feedback and finer understanding of development needs. Ultimately, the higher the validity, the greater the return on investment from using psychometric assessments.

1.7 Reports

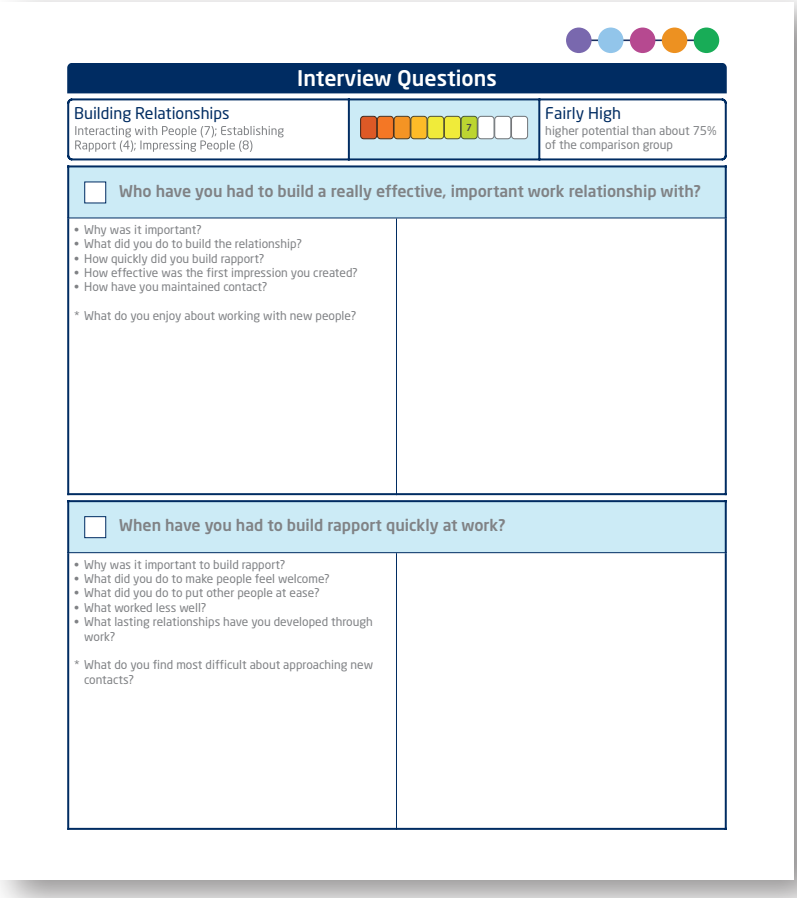
Following screening out, assessors have the option of generating two different reports to aid selecting in; a Behavioral Profile and an Interview Guide. The Behavioral Profile simply displays an individual's scores on each Work Strengths competency, while the Interview Guide uses these scores to dynamically power interview questions that will ensure a fair, standardized and objective assessment process that simultaneously allows for probing around potential areas of concern for a particular individual.

The Work Strengths Profile section of the Behavioral Profile report is designed for straightforward interpretation. The four cluster headings appear on the left of the page in their associated color. The three sections belonging to each cluster are grouped under these. A sten score indicator and dynamic narrative description appear alongside each section, providing information relating to the candidate's effectiveness potential for that particular section. The description varies according to the sten score and details the individual's potential compared with the chosen comparison group. Finally, the three dimensions appear under each section with an accompanying sten score.

Figure 1.8 An Excerpt of the Work Strengths Behavioral Profile Report

In the Behavioral Profile excerpt above, the individual has a sten score of 7 on Building Relationships. This is described as Fairly High and as possessing higher potential than about 75% of the comparison group.

Figure 1.9 An Excerpt of the Work Strengths Interview Guide



Interview Questions

Building Relationships Interacting with People (7); Establishing Rapport (4); Impressing People (8)	7	Fairly High higher potential than about 75% of the comparison group

☐ **Who have you had to build a really effective, important work relationship with?**

- Why was it important?
- What did you do to build the relationship?
- How quickly did you build rapport?
- How effective was the first impression you created?
- How have you maintained contact?

* What do you enjoy about working with new people?

☐ **When have you had to build rapport quickly at work?**

- Why was it important to build rapport?
- What did you do to make people feel welcome?
- What did you do to put other people at ease?
- What worked less well?
- What lasting relationships have you developed through work?

* What do you find most difficult about approaching new contacts?

Full examples of the Work Strengths Behavioral Profile report and Work Strengths Interview Guide are provided in the 'Outputs' chapter of this handbook.

1.8 Work Culture/Environment Fit

Provided in the 'Outputs' chapter is a full example of the Work Strengths Environment Fit report. This comes complimentary with a Behavioral Profile Report or Interview Guide, and can be given to candidates following a selection decision. Based on empirically-developed measures of work culture that run parallel to the Work Strengths model, the report is designed to give the candidate positive, meaningful feedback about the work culture, job, and environment fit that are likely to enhance or inhibit their future success.

From the perspective of Positive Psychology, Dr. Seligman, the author of Learned Optimism, has argued that work can be changed to suit the employee (rather than just finding an employee that fits the job or trying to develop the individual to better match/meet job demands). Assessment can be constructed to support this approach.

With our unique model which ties together talent, competency and culture, we can help individuals understand what work demands (culture, job and environment) they are most likely to favor. Armed with this understanding it becomes easier to discuss what enhances or inhibits individuals' performance at work. It also facilitates constructive discussions about how a job could better reflect a person's talents. This approach can help managers think about how to tailor work to suit individual employees in order to retain staff by keeping them satisfied and motivated.

1.9 Response Style

The Behavioral Profile report also contains information about how the candidate completed the assessment. The start of the Work Strengths Profile section details the candidate's sten scores for Rating Acquiescence and Consistency of Rankings.

Figure 1.10 Example of Ratings Acquiescence and Consistency of Rankings Scores

Work Strengths Profile

The following report summarises Chris Park's areas of greater and lesser potential. Chris Park's Rating Acquiescence is Sten 7 and their Consistency of Rankings is Sten 9.

Ratings Acquiescence indicates how positive or self-critical a person has been when rating themselves across the 36 dimensions. Highly positive profiles may reflect an unrealistically positive self-view whilst low scoring profiles may reflect an overly critical self-view. In such cases, it is particularly important to verify the results against other information.

Consistency of Rankings indicates how consistently a person has ordered characteristics across the 36 dimensions.

For information on interpretation of both Ratings Acquiescence and Consistency of Rankings, please refer to the 'Scale Descriptions' chapter.

1.10 Easy Merit Listing and Screening Scores

Merit listing is a useful alternative to conventional reporting per candidate that allows for efficient screening of candidates in high volume recruitment projects.

A merit list summarizes the scores of an applicant pool and the procedure of extracting Strengths scores is put into the hands of the assessor via the Oasys platform; assessors are able to quickly and easily extract scores when it best suits them. This enables hiring managers to make quick and effective decisions with regard to which candidates should be taken forward in the recruitment process and which should be screened out.

Figure 1.11 depicts an example of a standard merit list detailing candidate's scores on a selection of the Work Strengths section scales alongside their Swift Analysis Aptitude percentile score. Scores highlighted in green indicate good fit, those in amber indicate adequate fit, and those in red indicate poor fit.

Figure 1.11 Example Merit List of Candidate's Work Strengths Section Scores and Swift Analysis Aptitude Percentile Score

Candidate Name	Evaluating Problems	Building Relationships	Providing Leadership	Adjusting to Change	Structuring Tasks	Driving Success	Swift Analysis Aptitude
Candidate A	8	5	2	6	7	4	6
Candidate B	4	8	8	7	6	8	7
Candidate C	6	7	5	5	7	4	5
Candidate D	9	5	4	1	8	7	10
Candidate E	2	5	6	9	5	6	3
Candidate F	5	8	5	2	6	10	4
Candidate G	7	1	1	7	9	5	8
Candidate H	4	10	8	3	4	9	1
Candidate I	6	2	5	8	2	6	5

The level of detail that Saville Consulting Wave Strengths achieves also enables a detailed match with client models of performance (such as competency, capability or value frameworks). Work Strengths scores can be weighted and combined with aptitude scores to create organizational and job fit scores, reflective of the values of a particular organization or a particular role.

In addition to extracting scores from Saville Consulting's Oasys Platform, Strengths section and dimension scores can be passed back to assessors through their own platform via integration.

For more information on merit listing please refer to the 'Outputs' chapter.

2.0 Applications of Saville Consulting Wave® Strengths

Designed for use at the initial stage of the employee lifecycle, Saville Consulting Wave Strengths create a platform for better decision making from a self-report questionnaire, leading to an increase in the caliber of employees. Strengths provide more valid data in less time and can be administered before conducting an interview or as a source of information to cross-reference with other data. Below are some of the applications of Saville Consulting Wave Strengths, along with suggested Strengths outputs, giving an insight into where they can make a difference.

Screening

Saville Consulting Wave Strengths can be used either on their own or in combination with aptitude scores to create bespoke job fit or organizational values scores, reflective of a particular role or the values of a particular organization. These fit scores can be used to screen out unsuitable candidates early in the recruitment process.

- **Behavioral Profiling:** the Behavioral Profile presents an individual's scores on a number of behavior areas. This profile can be used to predict an individual's potential in areas identified as key to success in a certain job role. The Behavioral Profile can also be tailored to an organization. Bespoke profiles are based on the links established between the 108 behavioral facets from the Wave Performance Framework and the organization's own behavioral model. See the 'Outputs' chapter for an example of a Behavioral Profile report.
- **Merit Listing:** in high volume recruitment situations, scores can be passed back to the organization as a formatted Excel spreadsheet containing all candidates for more efficient comparison and decision making. Merit lists can include overall organizational fit and bespoke job fit scores, color-coded to provide a visual overview of candidate suitability, and ordered according to their overall organizational fit scores. This score can combine information from aptitude testing as well as Strengths scores. See the 'Outputs' chapter for examples of merit lists.

Selection

- **Interviewing:** the Interview Guide generated following completion of Strengths provides questions to cross-reference and requires candidates to provide evidence of their self-reported strengths or talents. The Interview Guide contains dynamic text which is tailored to individual candidates' 'watch fors', while the structure of the guide ensures a standardized and fair recruitment process. See the 'Outputs' chapter for an example of the Interview Guide.
- **Self-selection:** selection is a two-way process and culture fit data provided by Saville Consulting Wave Strengths can be helpful to candidates in their decision making. See the 'Outputs' chapter for an example of the Environment Fit report.

- **Onboarding:** Saville Consulting Wave Strengths can be used after hire to accelerate induction and development. Despite new hires reporting to be satisfied in general, their satisfaction ratings are relatively weak when they are asked about the feedback (or lack of feedback) of assessment data collected during the selection process (Miles, 2006). In the first 100 days of an individual's employment, Strengths can help provide a platform from which to discuss the individual's preferred culture. This can then inform and help drive further onboarding discussions, from which the job can be adjusted to better fit the new employee, as well as providing them with the opportunity to consider how best to approach their new role.

Organizational Talent Audit

Saville Consulting Wave Strengths provide a vehicle for benchmarking groups in terms of their perceived talents. This information can be combined with information from the Saville Consulting Wave Performance Culture Framework and can be used as a basis for the development of new performance-driven frameworks for a client organization (e.g., Competency, Capability, Values). The combination of a matched individual style assessment and matched measures of requirement and performance from the Performance Culture Framework allows for the development of empirical validation-based competency frameworks which identify threshold competencies which differentiate on the key behaviors underpinning enhanced performance.

Career Planning

Self-insight is important when career planning. It is therefore useful for the individual to understand what they like to do and what they are good at. It is also helpful to identify characteristics in a work culture that will help bring out their full potential and boost job satisfaction. Saville Consulting Wave Strengths provides that insight.

2.1 Misuse of Saville Consulting Wave Strengths

Saville Consulting Wave Strengths questionnaires provide a wealth of information about job applicants and employees to the user for a wide range of applications. There are, however, uses and target populations for which Strengths assessments are not appropriate, such as:

- Mental health, clinical or forensic assessment
- Intelligence testing
- Parenting advice or school eligibility
- Relationship compatibility
- Workforce reductions or firing a problem employee

For more details on these inappropriate uses of Strengths, and other personality questionnaires from the Saville Consulting Wave Styles suite, please refer to the 'Applications of Saville Consulting Wave Styles' chapter in the Saville Consulting Wave Professional Styles Handbook.

3.0 Target Users

Saville Consulting Wave® Strengths were developed to assess the self-perceived talents of individuals across different jobs and levels.

The questionnaire was designed specifically for use in a work context with people aged 16 and over.

Strengths can be used for a wide range of job levels. The following is not a comprehensive list but is intended to give you an idea of how you can best use Saville Consulting Wave Strengths to best meet your requirements.

- ## Manager

  Manages a business unit, e.g., bank Branch Manager, Store Manager, Sales Manager, Marketing Product Manager, Shipping Manager (Work Strengths is suitable for assessing manager level roles).

- ## Team Leader

  Manages a small team of individual contributors, e.g., Supervisor, Team Controller, Charge Hand, Customer Service Supervisor, Shift Supervisor (Work Strengths is suitable for assessing team leader level roles).

- ## Individual Contributor – Professional

  Manages own work with Professional qualification. Examples of jobs and sectors are given below:

  - Public Sector, e.g., Social Worker, Immigration Officer, Planning Officer.
  - Sales and Marketing, e.g., Sales Executive, Marketing Associate, Graphic Designer (Commercial Strengths is suitable for assessing sales oriented roles).
  - Engineering and Science, e.g., Electrical Engineer, Research Scientist, Laboratory Technician (Operational Strengths is suitable for assessing technically oriented roles).
  - Professional Services, e.g., Accountant, Legal Associate, HR Assistant (Administrative Strengths is suitable for assessing administrative focused roles).

- ## Individual Contributor – Non-Professional

  Manages own work with no professional qualification. Examples of jobs and sector are given below:

  - Public Sector, e.g., Healthcare Assistant, Librarian, Ambulance Technician.
  - Retail, e.g., Retail Sales Associate, Customer Service Representative, Stock Clerk.
  - Manufacturing, e.g., Machine Operator, Apprentice, Quality Control Inspector (Operational Strengths is suitable for assessing technically oriented roles).
  - Hospitality, e.g., Catering Assistant, Cabin Crew, Concierge (Customer Strengths is suitable for assessing hospitality based roles).

For higher level job roles we would recommend the use of a more in-depth assessment of personality, such as Saville Consulting Wave Professional Styles. This is due to the lower volume and higher stakes associated with these recruitment processes. We would recommend Professional Styles for the following:

- ## Enterprise/Corporate Manager

  Board member of large, multinational enterprise, e.g., Chairperson, Corporate Chief Executive Officer of multinational corporation or enterprise.

- ## Group Manager

  Regional Managing Director or President/Vice President with a portfolio of businesses/geographies/ product lines, e.g., Managing Director of Eastern Europe, Managing Director of Energy Division, President of Global Software Company, Vice President of Americas Region.

- ## Business Manager

  Managing Director or President of a single country or product line or owner of small to mid-size organization, e.g., Managing Director of Poland, President Solar Power Division, Executive Chair/Principal Shareholder Power Trends.

- ## Functional Manager

  Manages a business function such as finance or sales, e.g., Information Technology Director, Chief Financial Officer, Vice President of Sales.

- ## Senior Manager

  Manages a number of business units or sub functions, e.g., Regional Sales Director, Marketing Brand Director – Product Division, Head of Information Technology – Commercial Systems.

4.0 Administration and Security

4.1 A Note on Security for Administrators

Saville Consulting Wave® Strengths were built from first principles to be internet assessment tools. Strengths are available in a single form, for use with an Invited Access mode of administration.

Invited Access mode is where an individual has been prequalified to be assessed. This prequalification could take many forms; for instance, it may be that the individual is an existing member of staff attending an internal development event or a candidate having passed previous stages of a selection procedure. In Invited Access mode, the typical form of administration is when individuals receive an email with a username, secure password and a link to complete Strengths online without supervision.

When a separate supervised alternative form of a self-report assessment is not available, as is the case with Strengths, it may be appropriate to complete the Invited Access form under supervised conditions. A supervised administration of Invited Access is a more secure form of administration, with an administrator present and the individual being assessed online. Supervised administration offers greater safeguards over identity deception (i.e., getting someone else to complete).

We recommend that Saville Consulting Wave Strengths be supported by an analysis of the components of the role critical to job success from sources such as local validation studies, formal job analysis, competency models, role profiles, person specifications and job descriptions.

The Saville Consulting Job Profiler can be completed by appropriate stakeholders and subject matter experts to indicate the relevance or importance of different characteristics for the job. Job Profiler typically takes 15 minutes to complete per stakeholder/subject matter expert and is a quick and efficient way to establish job relevance. Alternatively, a parallel process can be accomplished person-to-person or in focus groups with Saville Consulting Performance Culture Framework. A local validation study can also be commissioned and completed using our short online performance rating tools to establish criterion-related validity job relevance.

4.2 Administration

Saville Consulting Wave Strengths questionnaires are online questionnaires with instructions and examples given as part of the administration. This means that in Invited Access administration mode the questionnaires do not require the use of an administration card.

We do advise that prior to administration assessees are sent the relevant Strengths Preparation Guide. The preparation guide provides a short description of the assessment process, along with example screen shots and tips for proper preparation. **Digital versions of the preparation guides are available as complimentary downloads on the Saville Consulting website www.savilleconsulting.com.**

Assessees are not allowed to go back to previous items that have already been answered. In the event that an assessee notices that the response scale has been used incorrectly, the questionnaire may be reset and they can start over. A reset can only be done by an Oasys Project Administrator (e.g., client project administrator or Saville Consulting Bureau service).

4.3 Administration to Accommodate Disabilities

If you have established that an individual who will be completing a Strengths questionnaire has a disability that you may need to accommodate in the administration, you can liaise with your local Saville Consulting contact to discuss potential issues and considerations in making any necessary accommodations to an administration.

Below are some of the more common accommodations for disabilities that you may want to consider as a Strengths user.

Visual

While some people with visual disabilities may be able to complete Strengths without the need for accommodation, others may wish to have the support of additional accessibility software or hardware they have been set up to use. In other cases, it may be appropriate to have a trained reader to read the questions and note the answers for an individual assessee. Often, this can be successfully accomplished on the telephone rather than needing to have the individual present in person. Clearly, this raises issues of confidentiality for the reader who should be given clear instructions not to disclose the individual's responses from the administration session and equally, suitably trained in test and questionnaire administration. It may be that an administration will be longer than usual, so typically no instruction is given on the speed of completion to individuals with visual impairments. Ask the assessee what accommodation would be effective.

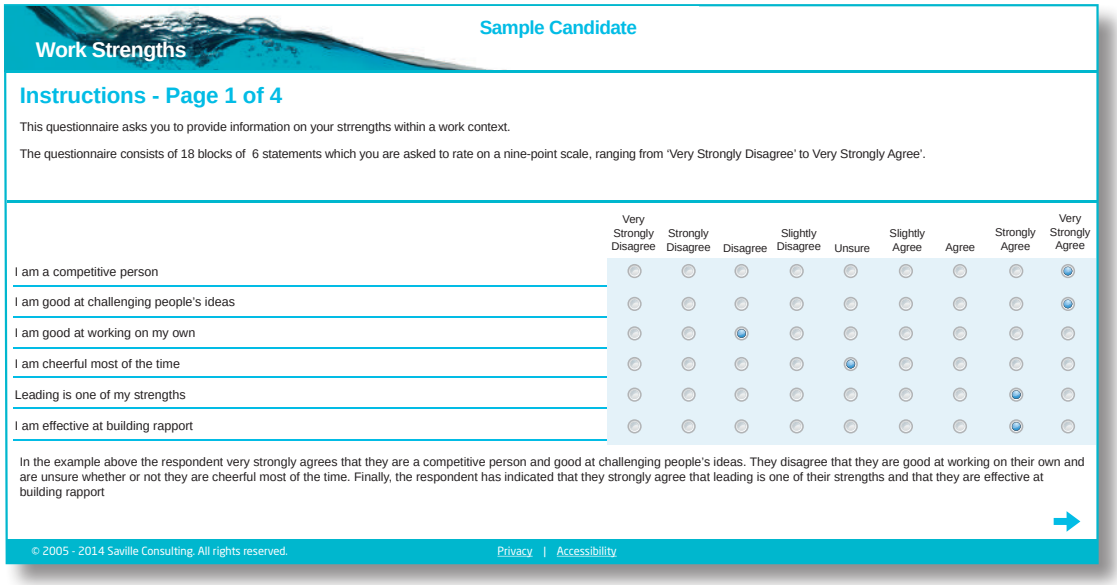
Auditory

Individuals with hearing impairments are unlikely to need accommodation in an invited access administration (although if they require technical support this may need to be accommodated). In a supervised administration, accommodation may be needed to ensure that the hearing impaired individual gets any initial instruction on logging in and using the computer. It may be that an individual signing in the appropriate language or the administrator taking care to allow the hearing impaired individual to lip read are appropriate accommodations. Communicate with the assessee on what accommodation would be effective.

Movement

Individuals with disabilities that are related to movement and coordination may have their own devices and software to allow them to use the computer and, as a result, this may require no accommodation when using Saville Consulting Wave Strengths in Invited Access format. In other cases, suitable accommodation may include providing an administrator to record the responses to the assessment. Ask the assessee what accommodation would be effective.

4.4 Online Administration Instructions



Sample Candidate

Work Strengths

Instructions - Page 1 of 4

This questionnaire asks you to provide information on your strrengths within a work context.

The questionnaire consists of 18 blocks of 6 statements which you are asked to rate on a nine-point scale, ranging from 'Very Strongly Disagree' to Very Strongly Agree'.

	Very Strongly Disagree	Strongly Disagree	Disagree	Slightly Disagree	Unsure	Slightly Agree	Agree	Strongly Agree	Very Strongly Agree
I am a competitive person									●
I am good at challenging people's ideas									●
I am good at working on my own			●						
I am cheerful most of the time					●				
Leading is one of my strengths								●	
I am effective at building rapport								●	

In the example above the respondent very strongly agrees that they are a competitive person and good at challenging people's ideas. They disagree that they are good at working on their own and are unsure whether or not they are cheerful most of the time. Finally, the respondent has indicated that they strongly agree that leading is one of their strengths and that they are effective at building rapport

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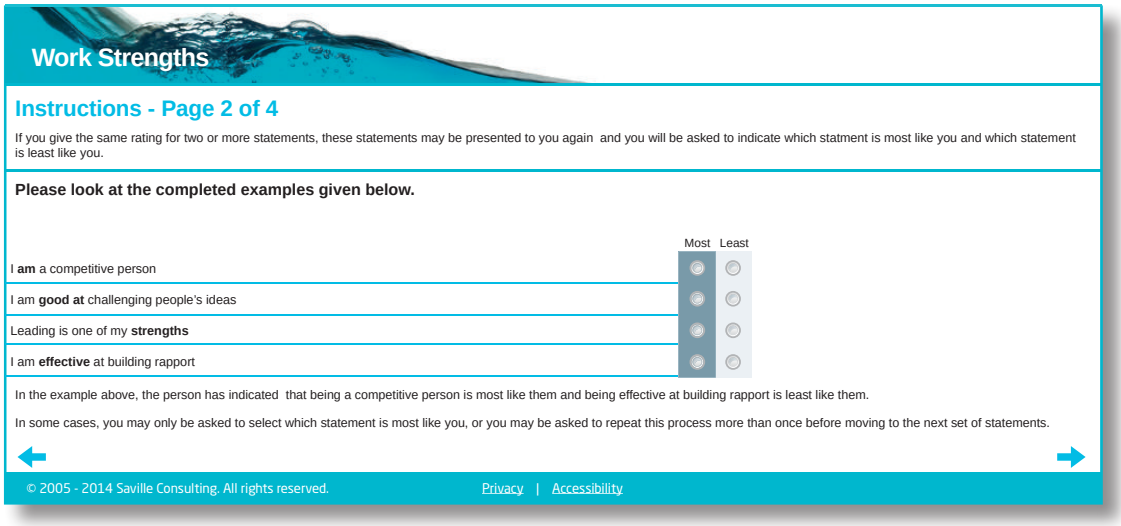

Work Strengths

Instructions - Page 2 of 4

If you give the same rating for two or more statements, these statements may be presented to you again and you will be asked to indicate which statment is most like you and which statement is least like you.

Please look at the completed examples given below.

	Most	Least
I **am** a competitive person	●	
I am **good at** challenging people's ideas	●	
Leading is one of my **strengths**	●	
I am **effective** at building rapport	●	

In the example above, the person has indicated that being a competitive person is most like them and being effective at building rapport is least like them.

In some cases, you may only be asked to select which statement is most like you, or you may be asked to repeat this process more than once before moving to the next set of statements.

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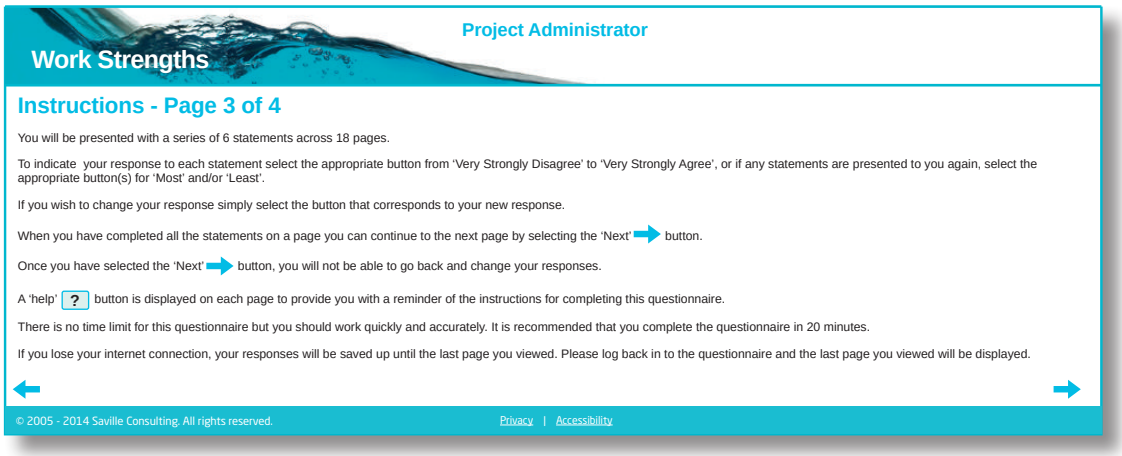

Project Administrator

Work Strengths

Instructions - Page 3 of 4

You will be presented with a series of 6 statements across 18 pages.

To indicate your response to each statement select the appropriate button from 'Very Strongly Disagree' to 'Very Strongly Agree', or if any statements are presented to you again, select the appropriate button(s) for 'Most' and/or 'Least'.

If you wish to change your response simply select the button that corresponds to your new response.

When you have completed all the statements on a page you can continue to the next page by selecting the 'Next' button.

Once you have selected the 'Next' button, you will not be able to go back and change your responses.

A 'help' ? button is displayed on each page to provide you with a reminder of the instructions for completing this questionnaire.

There is no time limit for this questionnaire but you should work quickly and accurately. It is recommended that you complete the questionnaire in 20 minutes.

If you lose your internet connection, your responses will be saved up until the last page you viewed. Please log back in to the questionnaire and the last page you viewed will be displayed.

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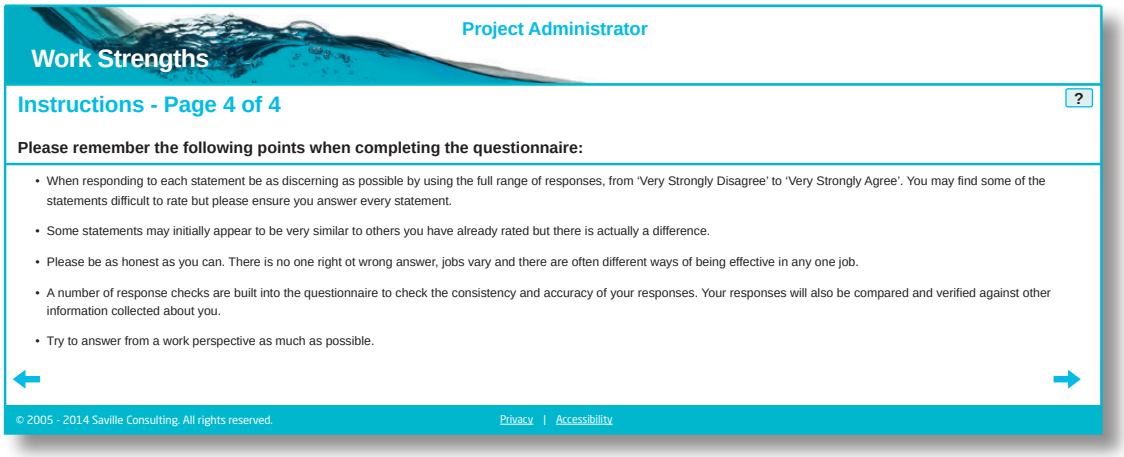


4.5 Preparation Guide

The preparation guide is available for download at **www.savilleconsulting.com**.

Introducing Wave® Strengths

This preparation guide is designed to help you understand how to approach the Strengths questionnaire. The questionnaire explores a person's talents within a work context. Research has demonstrated that Saville Consulting Wave questionnaires are powerful predictors of a wide variety of performance and behaviour at work.

Strengths can help you:

- understand your talents in a work context
- find ways to make better use of your preferred working style in your current job role, or identify future job roles, environments and cultures suited to your strengths

Strengths can help employers:

- understand the talents of their employees and applicants
- place individuals in positions best suited to their style and the organisation's style

Completing Wave Strengths

The questionnaire is presented on-screen in blocks of 6 statements which you are asked to rate on a nine-point scale, ranging from 'Very Strongly Disagree' to 'Very Strongly Agree'. You enter your responses by clicking on the appropriate rating for each statement. You must respond to every statement to progress to the next screen. If you give the same rating for two or more statements, these statements may be presented to you again and you will be asked to indicate which statement is most like you and which statement is least like you.

Look at the completed example.

Example

	Very Strongly Disagree	Strongly Disagree	Disagree	Slightly Disagree	Unsure	Slightly Agree	Agree	Strongly Agree	Very Strongly Agree
I **am** a competitive person									●
I am **good at** challenging people's ideas									●
I am **good at** working on my own			●						
I **am** cheerful most of the time					●				
Leading is one of my **strengths**								●	
I am **effective at** building rapport								●	

In the example, the respondent has indicated that they:

- ***very strongly agree*** that they are a competitive person
- ***very strongly agree*** that they are good at challenging people's ideas
- ***disagree*** that they are good at working on their own
- are ***unsure*** whether or not they are cheerful most of the time
- ***strongly agree*** that leading is one of their strengths
- ***strongly agree*** that they are effective at building rapport

	Most	Least
I **am** a competitive person	●	
I am **good at** challenging people's ideas		
Leading is one of my **strengths**		
I am **effective** at building rapport		●

Because the respondent has given the same rating to two pairs of statements, these are presented again, and the respondent is asked to indicate which statement is **most** like them and which statement is **least** like them. Look at the example above.

How to approach Strengths

When completing the questionnaire, it is important you consider the following points:

- When answering each question be as discerning as possible by using the full range of possible responses, from 'Very Strongly Disagree' to 'Very Strongly Agree'. Remember to respond from a work context.
- Read each statement carefully, as what you are good at and what you feel you need may be very different.
- Respond to the statements as honestly as you can. There are no right or wrong answers; job roles vary and there are many ways of being effective in any one job.
- A number of response checks are built into the questionnaire to validate the consistency of your responses. Your responses will also be verified against other information collected.
- Before you complete the questionnaire, you may find it useful to reflect on your own work strengths. You may also find it useful to consider any feedback you have received from others on your strengths at work.
- The questionnaire is best completed when you are alert and free from interruptions.
- If you have any special requirements it is important that you make these known immediately to allow appropriate accommodations to be made.

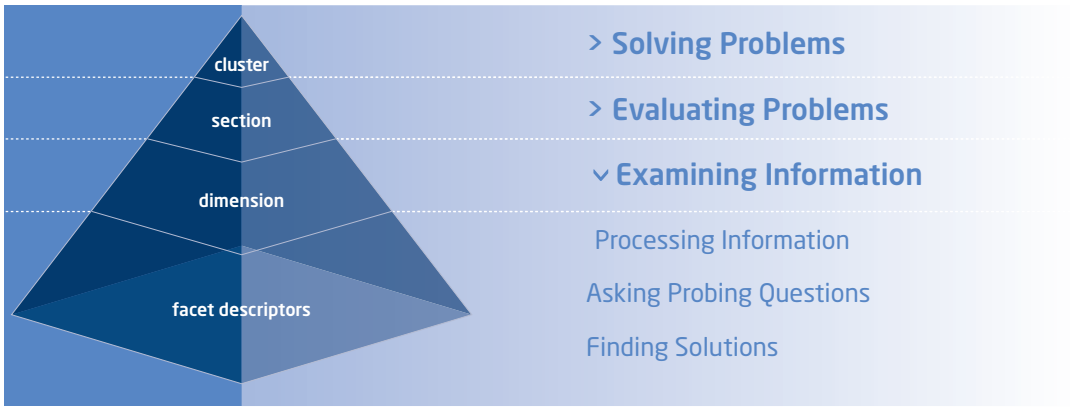
info@savilleconsulting.com
www.savilleconsulting.com

Saville Consulting Wave Strengths Handbook

PART 2: INTERPRETATION

5.0 Scale Descriptions

Examining Information

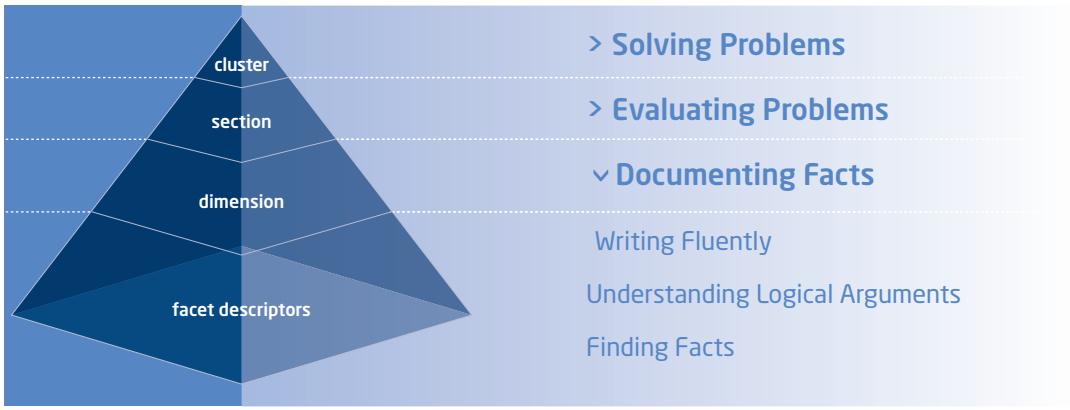


HIGH SCORERS: consider themselves skilled at analyzing information; see themselves as having a great deal of curiosity and often ask probing questions; view problem solving as one of their strengths.

LOW SCORERS: are unlikely to regard themselves as very analytical; have little curiosity and rarely ask probing questions; are not particularly concerned with solving problems.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high score is counterbalanced by one or more low score.

Documenting Facts

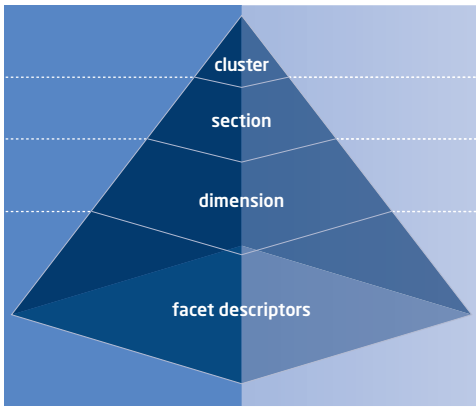


HIGH SCORERS: consider that they communicate well in writing; readily understand the logic behind an argument; go to some lengths to ensure that they have all the relevant facts.

LOW SCORERS: tend not to communicate well in writing; find it difficult to understand the logic behind an argument; are able to work without full information.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Interpreting Data



> Solving Problems

> Evaluating Problems

v Interpreting Data

Quantifying Issues

Applying Technology

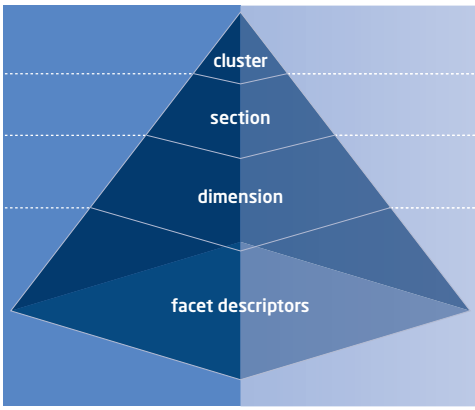
Evaluating Information Objectively

HIGH SCORERS: are very comfortable working with numerical data; regard themselves as well versed in information technology; rely heavily on facts and hard, objective data in making decisions.

LOW SCORERS: are less comfortable working with numerical data; do not consider using information technology to be one of their strengths; recognize that their decisions are seldom based solely on hard, objective facts.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Developing Expertise



> Solving Problems

> Investigating Issues

v Developing Expertise

Taking up Learning Opportunities

Acquiring Knowledge and Skills

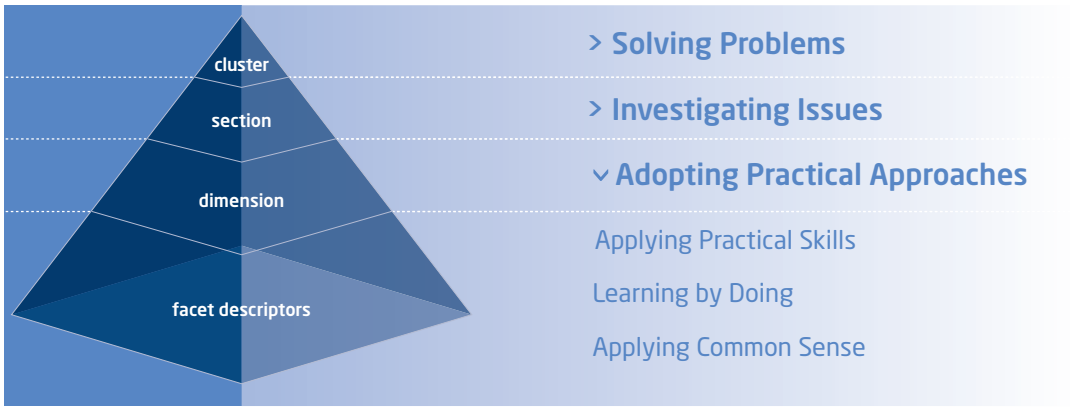
Updating Specialist Knowledge

HIGH SCORERS: actively seek opportunities for learning new things; consider themselves to be very quick learners; believe they learn a great deal through reading.

LOW SCORERS: are unlikely to actively seek opportunities for learning; take time to learn; consider that they learn relatively little through reading.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Adopting Practical Approaches

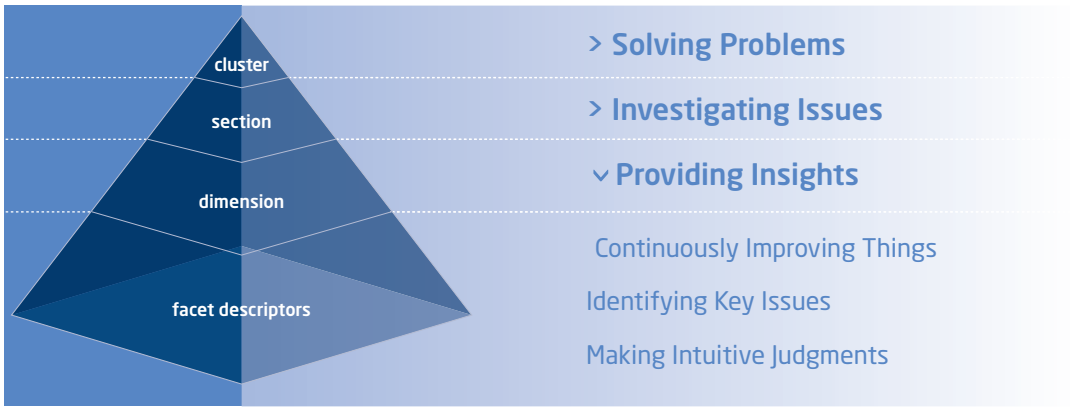


HIGH SCORERS: are very oriented towards practical work; learn well by doing; consider applying common sense as one of their strengths.

LOW SCORERS: find practical work challenging; tend not to learn well by doing; recognize that they do not always show common sense.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Providing Insights

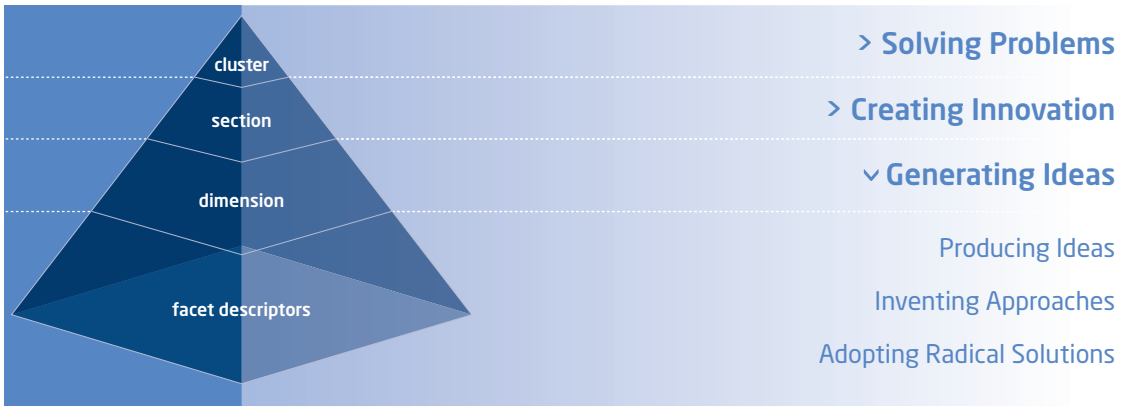


HIGH SCORERS: believe they are good at identifying ways in which things can be improved; consider themselves very quick at getting to the core of a problem; very much trust their intuition about whether things will work.

LOW SCORERS: seldom identify ways in which things can be improved; take time to get to the core of a problem; rarely rely on intuition to guide their judgments.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Generating Ideas

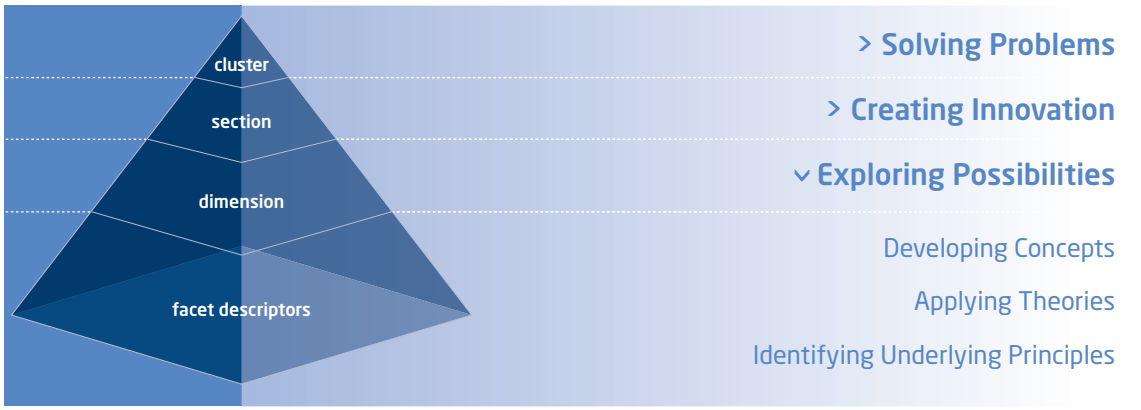


HIGH SCORERS: are fluent in generating ideas and produce lots of ideas; are confident in their ability to generate unusual ideas; favor radical solutions to problems.

LOW SCORERS: do not regard themselves as creative and generate few ideas; seldom come up with original ideas; favor conventional solutions to problems.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Exploring Possibilities

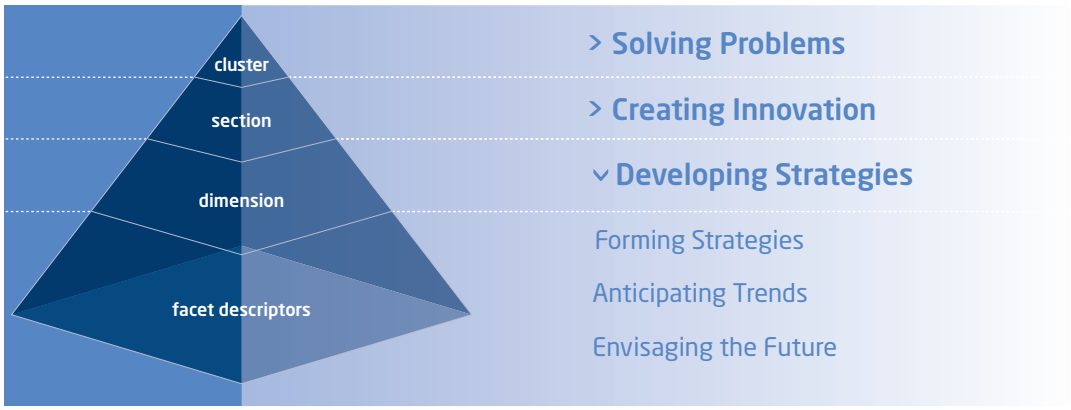


HIGH SCORERS: develop concepts well; apply theories and believe they do this effectively; need to understand the underlying principles to learn effectively.

LOW SCORERS: may not develop concepts as well as others; encounter difficulties in applying theories; do not need to understand the underlying principles to learn effectively.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Developing Strategies

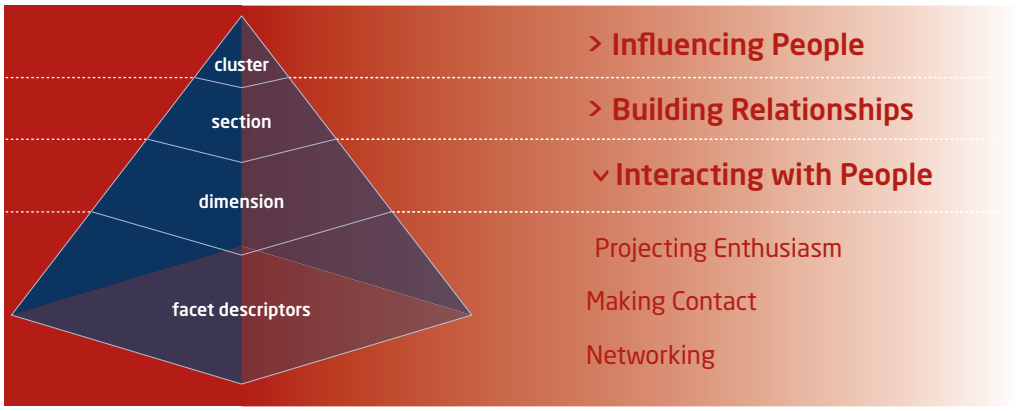


HIGH SCORERS: are good at developing effective strategies; feel able to anticipate future trends; think long term and are likely to be seen as visionary.

LOW SCORERS: do not regard developing strategies as their strong point; have some difficulty anticipating future trends; take a relatively short-term view and concentrate on the here and now.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Interacting with People

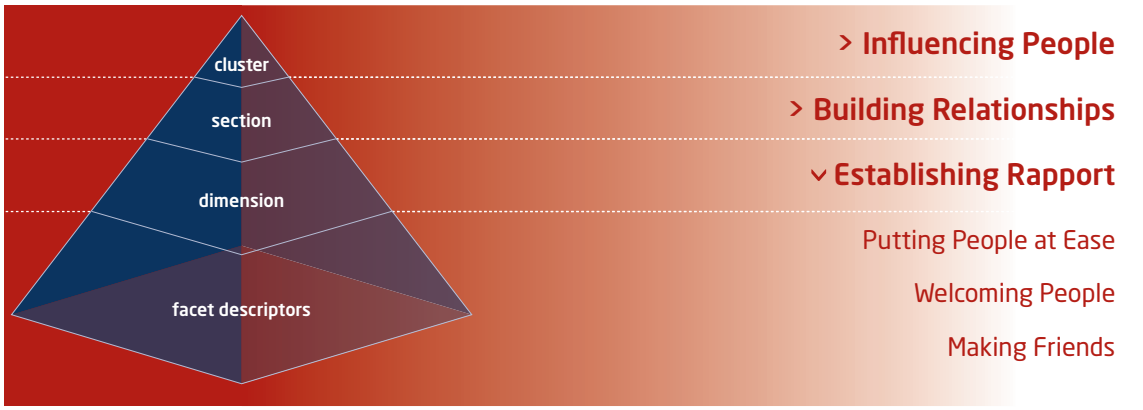


HIGH SCORERS: are likely to project enthusiasm by being lively; make contact by being talkative; believe they network very well.

LOW SCORERS: are unlikely to openly project their enthusiasm or be seen as lively; tend not to make contact by being talkative; spend little time networking.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Establishing Rapport

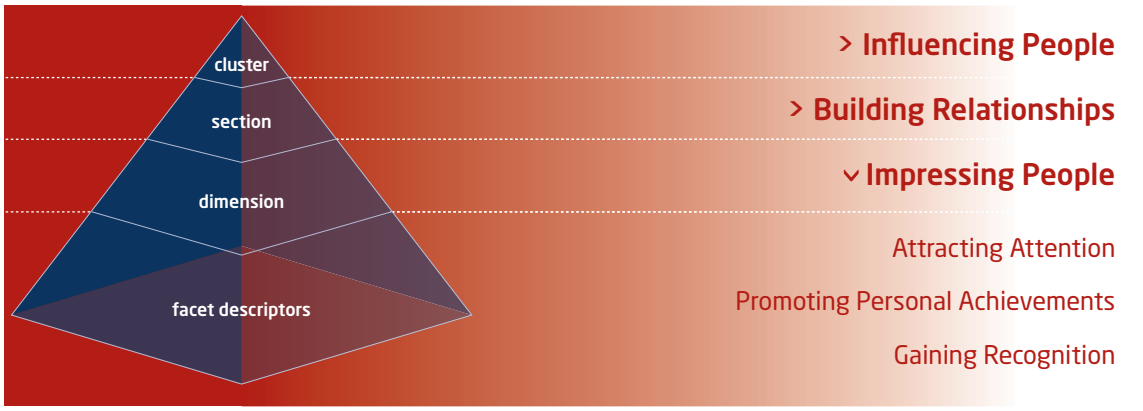


HIGH SCORERS: very quickly establish rapport with people; believe they are effective at making a good first impression; find making friends easy.

LOW SCORERS: can take considerable time to establish rapport with people; are unlikely to make a strong first impression; do not make new friends easily.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Impressing People

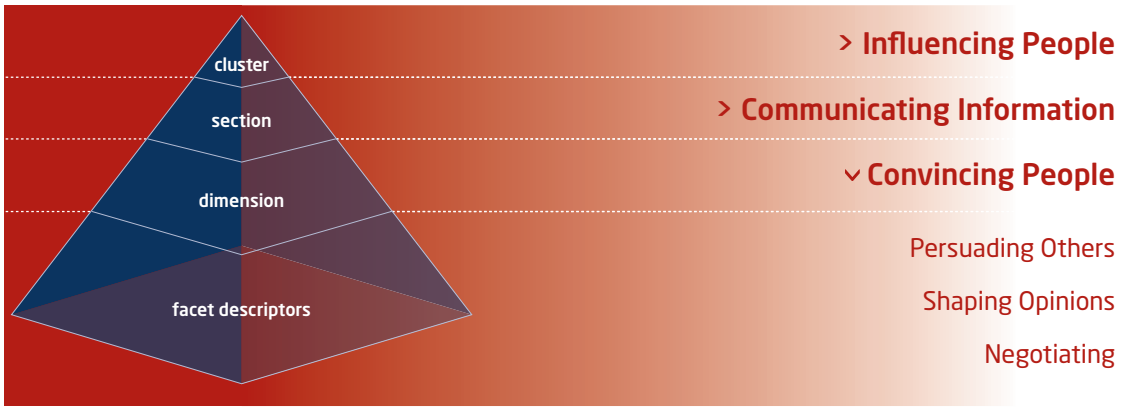


HIGH SCORERS: often find themselves the center of attention; want people to know about their achievements and often bring them to people's attention; seek praise when they have done well.

LOW SCORERS: avoid becoming the center of attention; are reserved about their achievements and rarely bring them to people's attention; seldom look for praise, even when they have done very well.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Convincing People

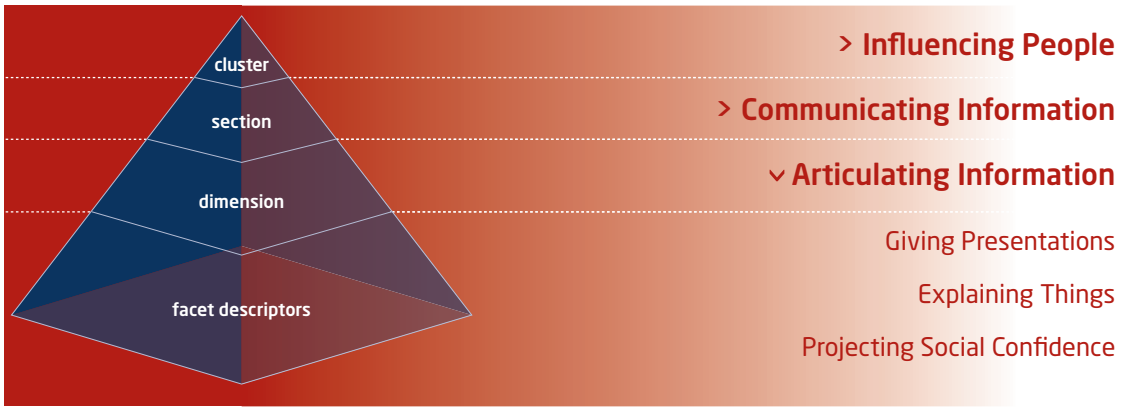


HIGH SCORERS: are able to bring people round to their point of view and see themselves as very persuasive; are determined to make people listen to their views and put their point across forcibly; try to get the best deal and believe they negotiate well.

LOW SCORERS: consider themselves to be less persuasive; are less forceful in putting their points across; do not consider themselves strong at negotiation.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Articulating Information

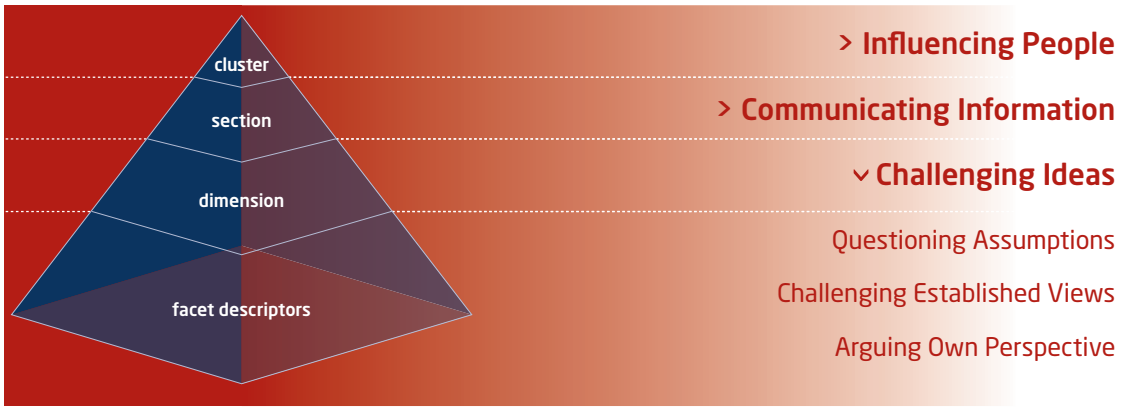


HIGH SCORERS: believe they are good at giving presentations; are able to explain things well; are confident when meeting and mixing with new people.

LOW SCORERS: tend to avoid giving presentations; do not consider themselves effective at explaining things; lack confidence when meeting and mixing with new people.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Challenging Ideas

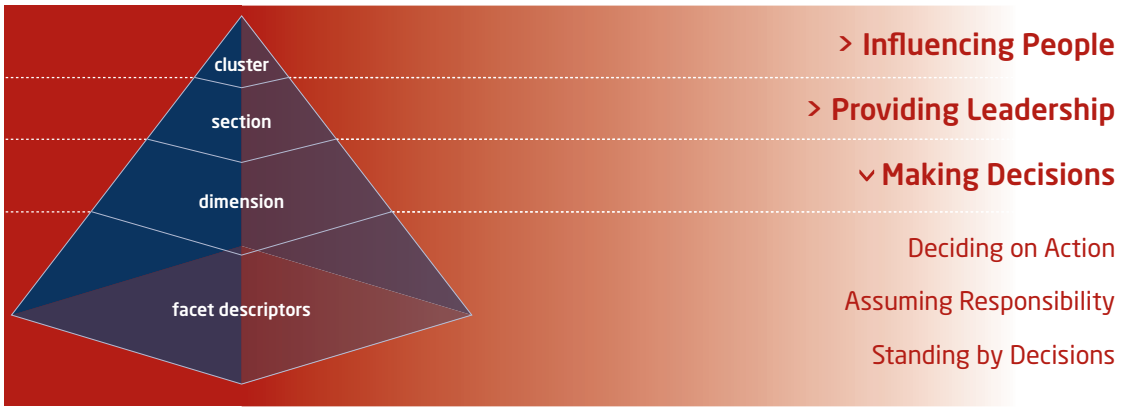


HIGH SCORERS: frequently challenge other people's ideas; are open in voicing their disagreement; regularly get involved in arguments.

LOW SCORERS: seldom challenge other people's ideas; avoid expressing disagreements openly, preferring to keep their views to themselves; rarely get involved in arguments.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Making Decisions

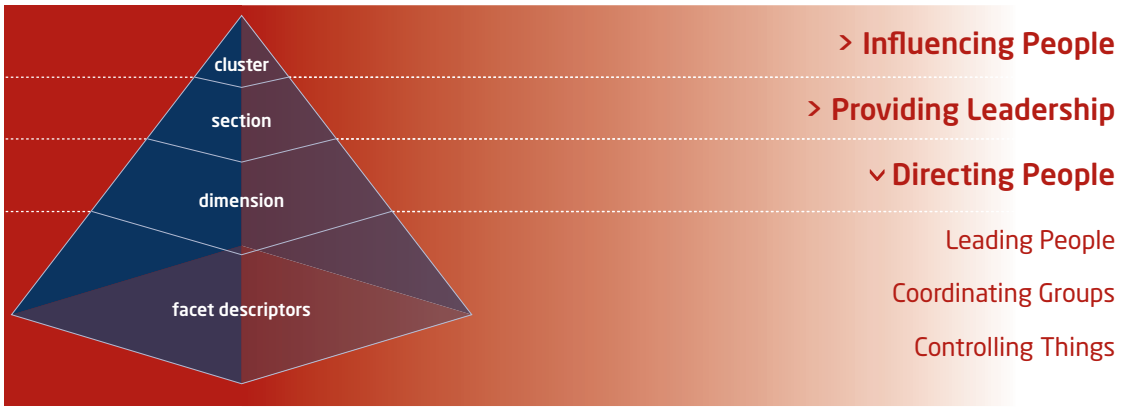


HIGH SCORERS: are very comfortable making quick decisions; are prepared to take and be responsible for big decisions; are steadfast in their decision making.

LOW SCORERS: take their time over decision making; let others take responsibility for big decisions; are prone to changing their minds after a decision has been made.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Directing People

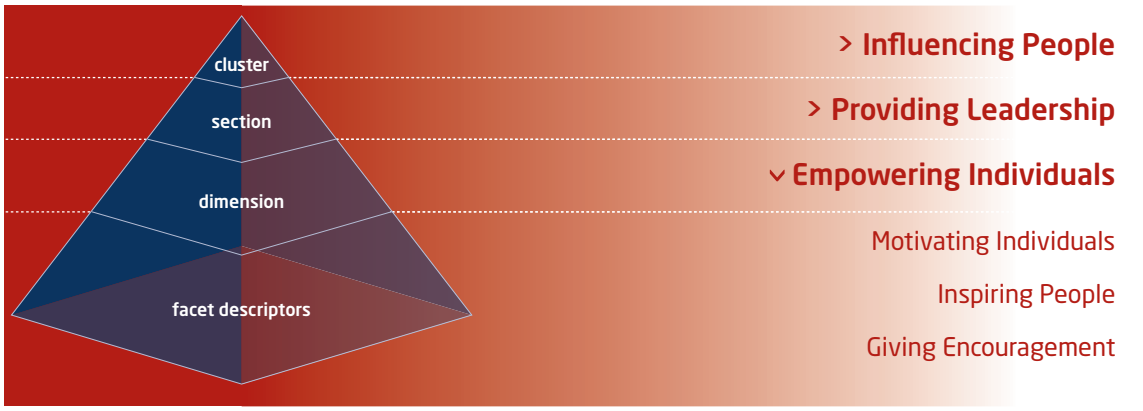


HIGH SCORERS: see leadership as one of their key strengths; are good at coordinating people; are effective at taking control of things.

LOW SCORERS: let other people take the lead; do not regard coordinating people as one of their strengths; seldom take control of things.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Empowering Individuals

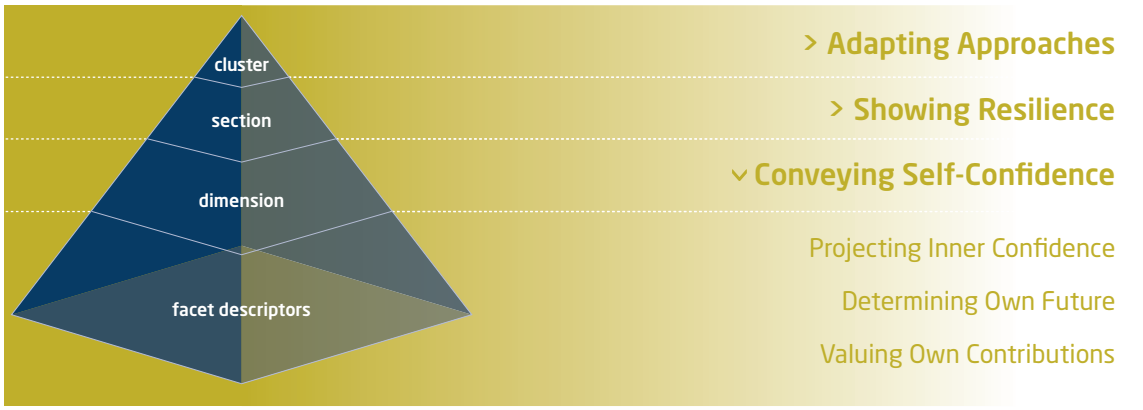


HIGH SCORERS: attempt to motivate other people and consider themselves adept at finding ways to do this; believe they are inspirational to others; go out of their way to encourage others.

LOW SCORERS: do not actively try to motivate others; do not consider themselves to be inspirational to other people; do not go out of their way to encourage others.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Conveying Self-Confidence

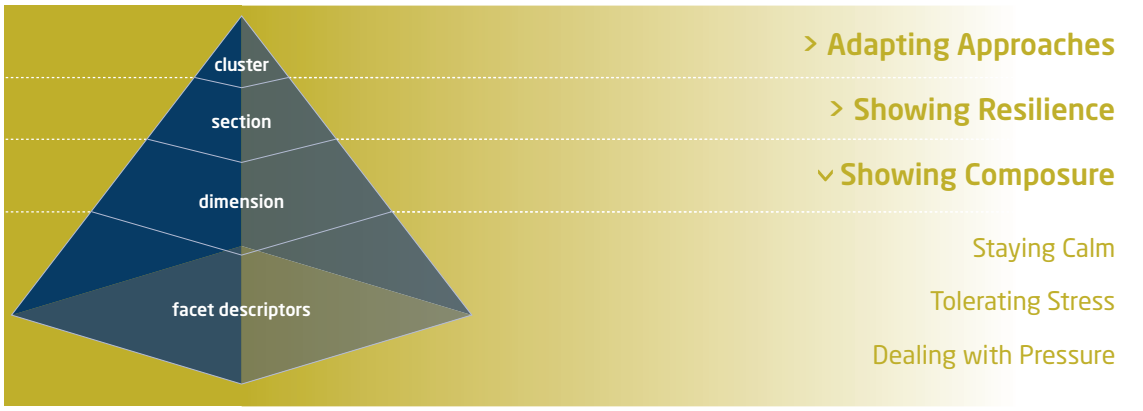


HIGH SCORERS: are self-confident and feel very positive about themselves; feel in control of their own future; have a strong appreciation of their own contributions.

LOW SCORERS: are less self-confident and feel less positive about themselves; feel a limited sense of control over their own future; lack appreciation of their own contributions.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Showing Composure

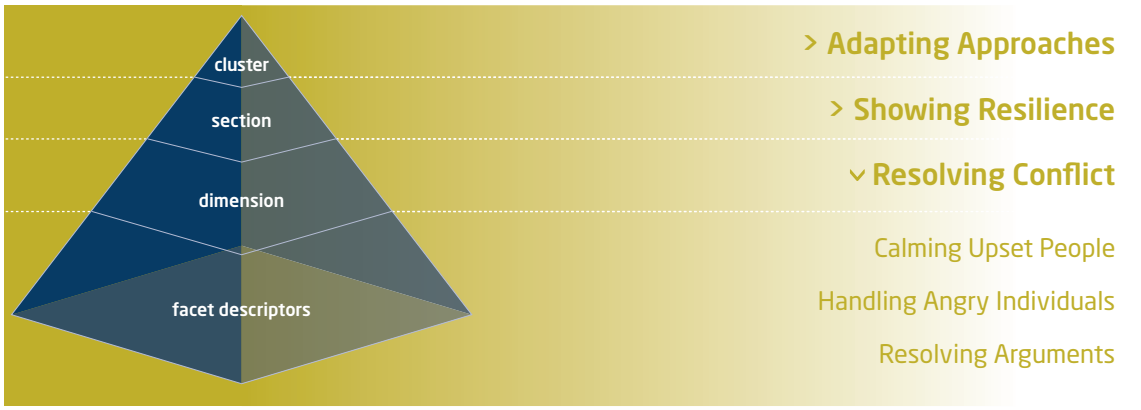


HIGH SCORERS: maintain their composure; cope well with stressful situations; work well under pressure.

LOW SCORERS: find it difficult to maintain their composure; may struggle when in stressful situations; do not cope well with pressure.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Resolving Conflict

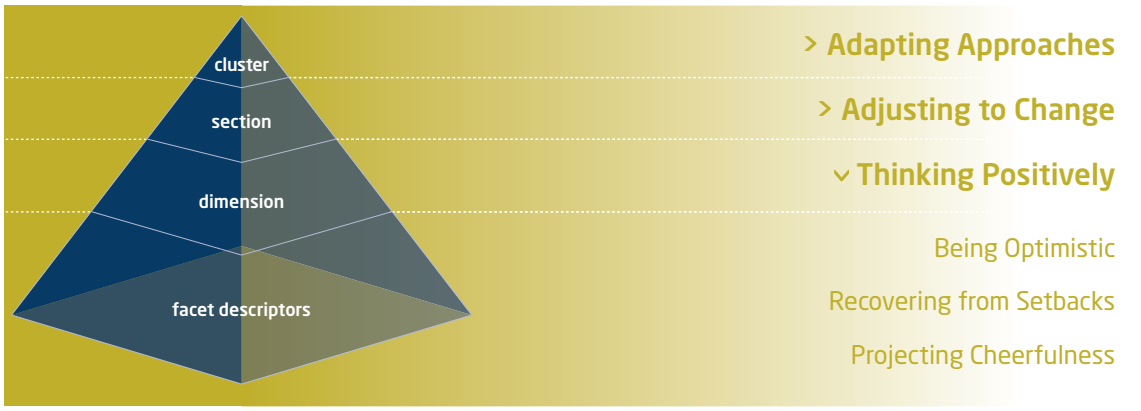


HIGH SCORERS: cope well with people who are upset; consider themselves effective at calming angry people down; quickly resolve disagreements.

LOW SCORERS: do not cope well with people who are upset; have difficulty in dealing with angry people; do not consider resolving disagreements as one of their strengths.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Thinking Positively

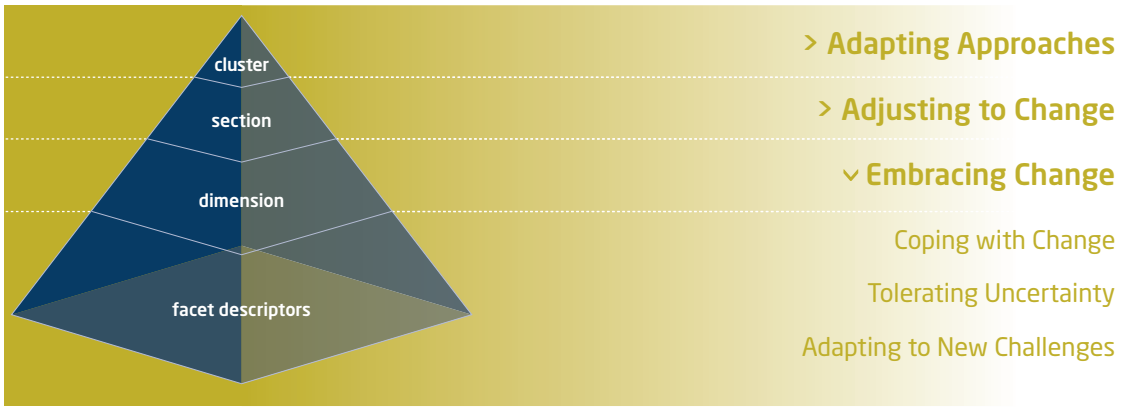


HIGH SCORERS: are optimistic; recover quickly from setbacks; are very cheerful.

LOW SCORERS: are inclined to be pessimistic; take time to recover from setbacks; are less cheerful than most people.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Embracing Change

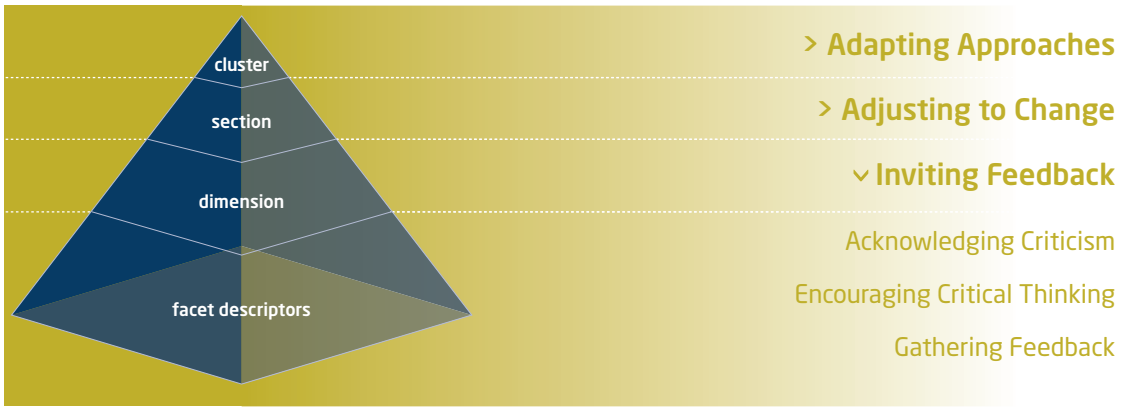


HIGH SCORERS: cope well with change; feel able to deal with uncertainty; take on new challenges and adapt readily to new situations.

LOW SCORERS: are uncomfortable with change; have difficulty dealing with uncertainty; take time to adapt to new situations.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Inviting Feedback

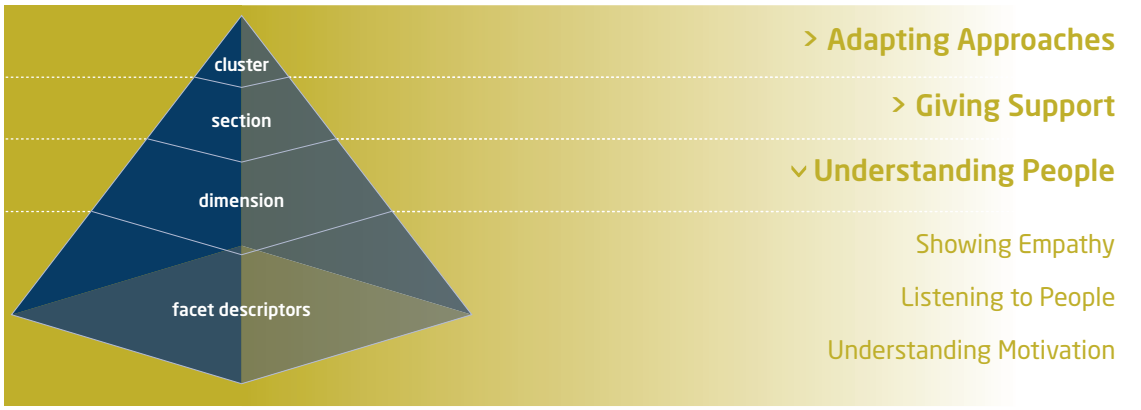


HIGH SCORERS: respond well to feedback from others; encourage people to criticize their approach; actively seek feedback on their performance.

LOW SCORERS: respond less well to feedback from others; are reluctant to accept criticism; seldom ask for feedback on their performance.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Understanding People

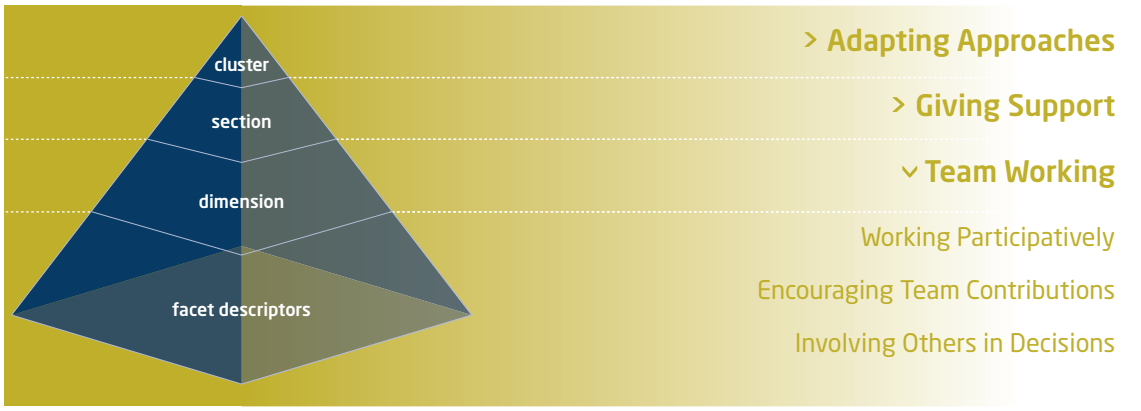


HIGH SCORERS: believe that they are good at understanding how others are feeling; regard themselves as good listeners; consider themselves adept at understanding why people behave as they do.

LOW SCORERS: show limited awareness of how others are feeling; recognize that listening to other people is not one of their strong points; show limited interest in understanding people's behavior.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Team Working

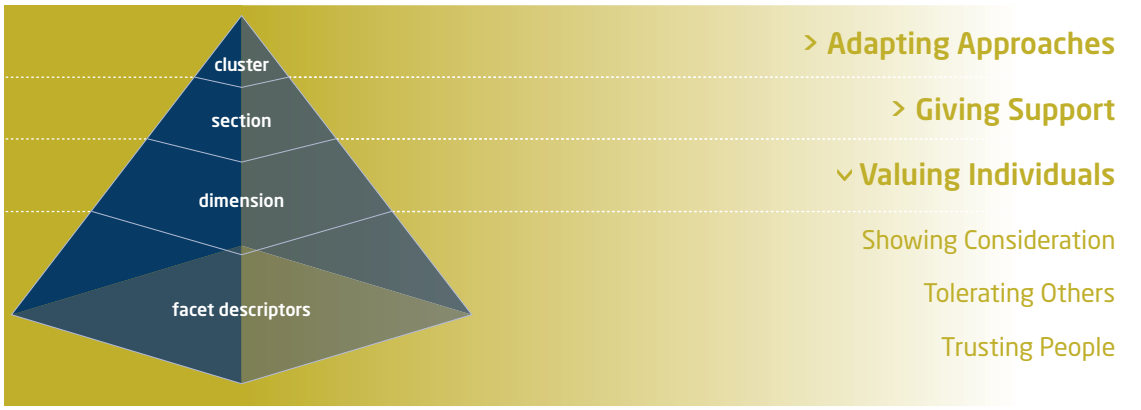


HIGH SCORERS: believe they work well in a team; invite others to share their views; go to considerable lengths to include others in the final decision.

LOW SCORERS: see themselves as more effective working alone rather than as part of a team; avoid asking others to share their views; are likely to make decisions independently of others.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Valuing Individuals

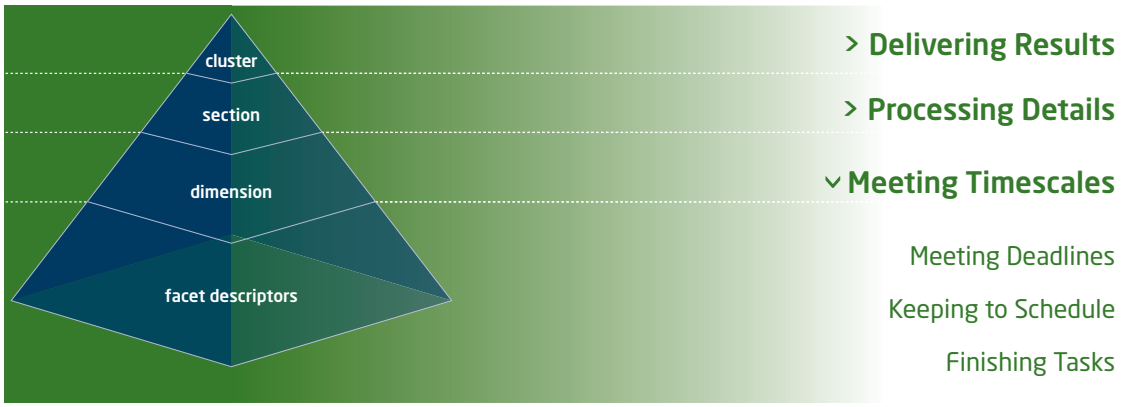


HIGH SCORERS: place great emphasis on being considerate towards other people; are tolerant; are very trusting of people.

LOW SCORERS: show a lack of consideration for others at times; may be viewed as not very tolerant; do not readily trust other people.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Meeting Timescales

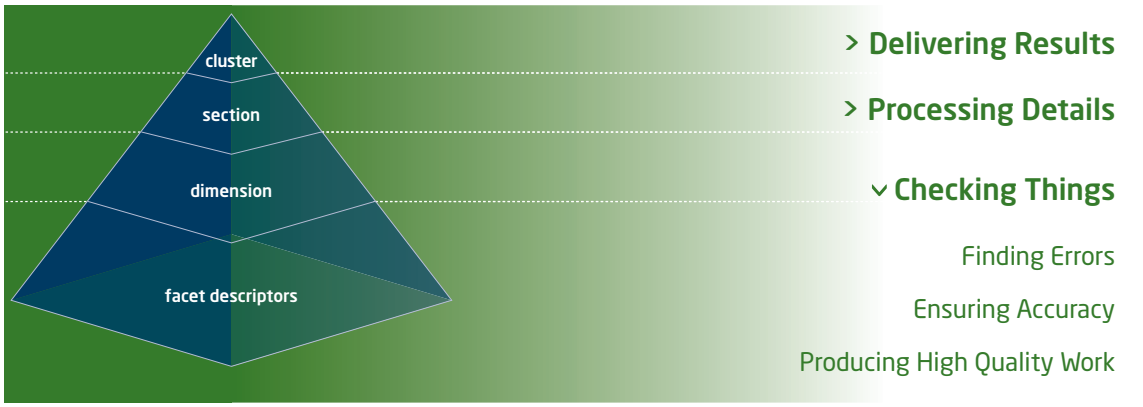


HIGH SCORERS: are conscientious about meeting deadlines; consider themselves good at keeping to schedule; believe they rarely leave things unfinished.

LOW SCORERS: acknowledge that they have difficulty keeping to deadlines; find it difficult to keep to schedule; recognize that finishing tasks is not one of their strengths.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Checking Things

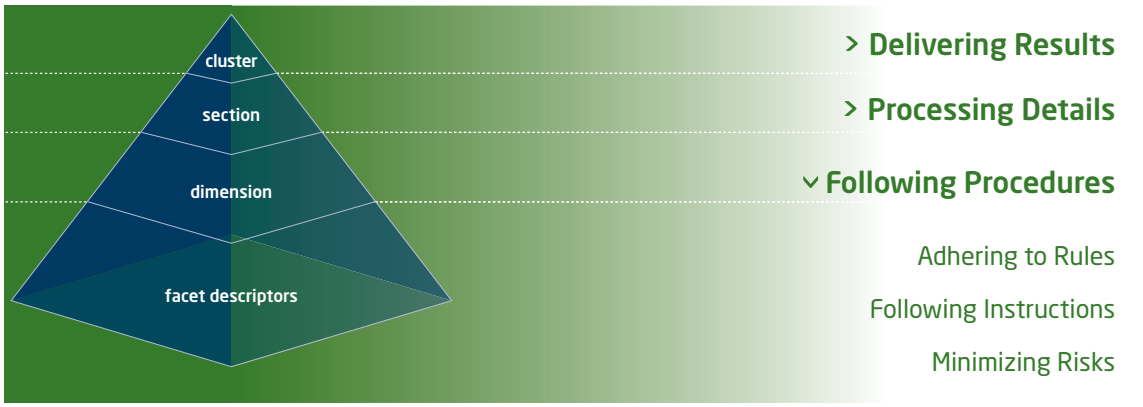


HIGH SCORERS: are good at identifying errors and have high attention to detail; want things done properly and are thorough in their approach; ensure a high level of quality.

LOW SCORERS: have difficulty identifying errors and show limited attention to detail; are less thorough than many; are often prepared to compromise on quality.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Following Procedures

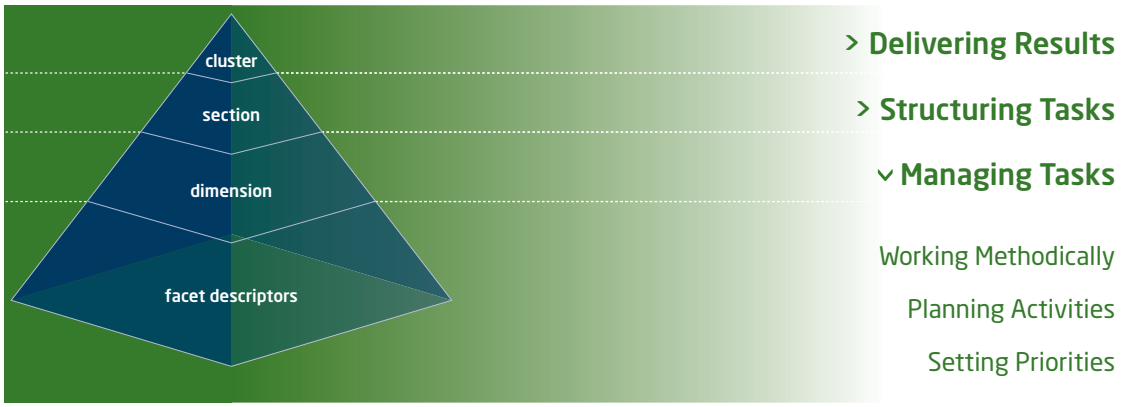


HIGH SCORERS: need to have rules and adhere strictly to them; are good at following set procedures; regard themselves as decidedly risk-averse.

LOW SCORERS: are much more likely to deviate from the rules; depart from set procedures; believe they are prepared to take risks in decision making.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Managing Tasks

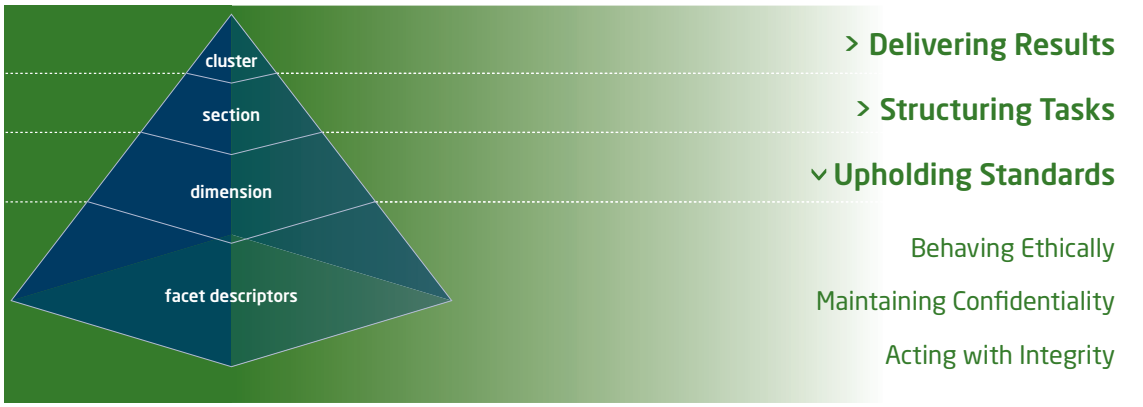


HIGH SCORERS: are well organized; make effective plans; establish clear priorities.

LOW SCORERS: are rather disorganized; rarely make plans; seldom establish clear priorities.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Upholding Standards

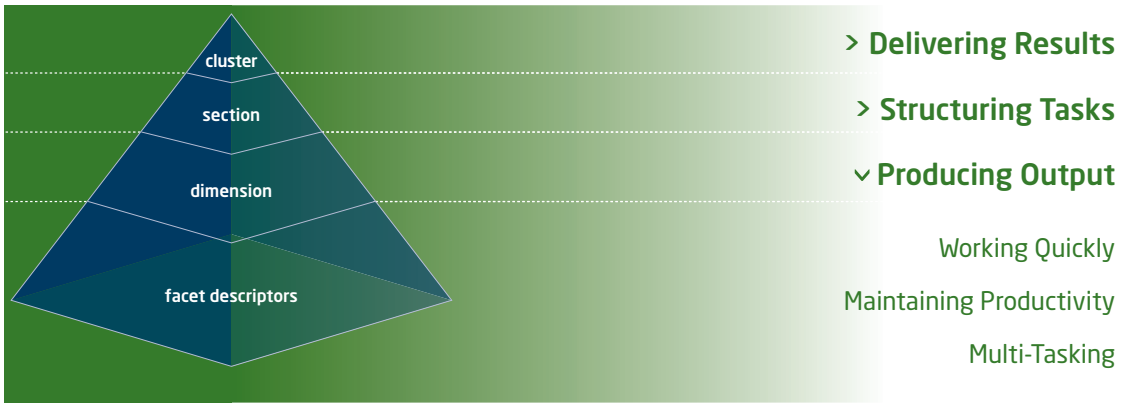


HIGH SCORERS: believe they behave in an ethical fashion; consider maintaining confidentiality to be among their key strengths and can be relied upon to be discreet; view themselves as honoring the commitments they have agreed to.

LOW SCORERS: do not place as much emphasis on ethical matters as most people; recognize that they may at times be indiscreet; place less emphasis on honoring commitments than others.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Producing Output

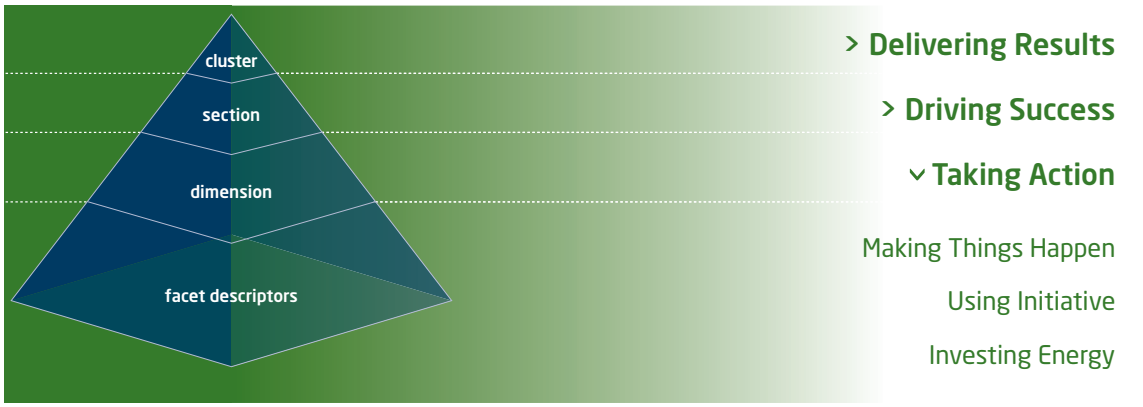


HIGH SCORERS: work at a fast pace; maintain productivity well; cope well with multitasking.

LOW SCORERS: work at a relatively slow pace; find it difficult to maintain productivity; are more comfortable doing one thing at a time.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Taking Action



HIGH SCORERS: consider themselves to be very energetic; see themselves as impatient to get things started and good at starting things off; are focused on making things happen.

LOW SCORERS: see themselves as less energetic than many people; rarely start things off; seldom see it as their responsibility to make things happen.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

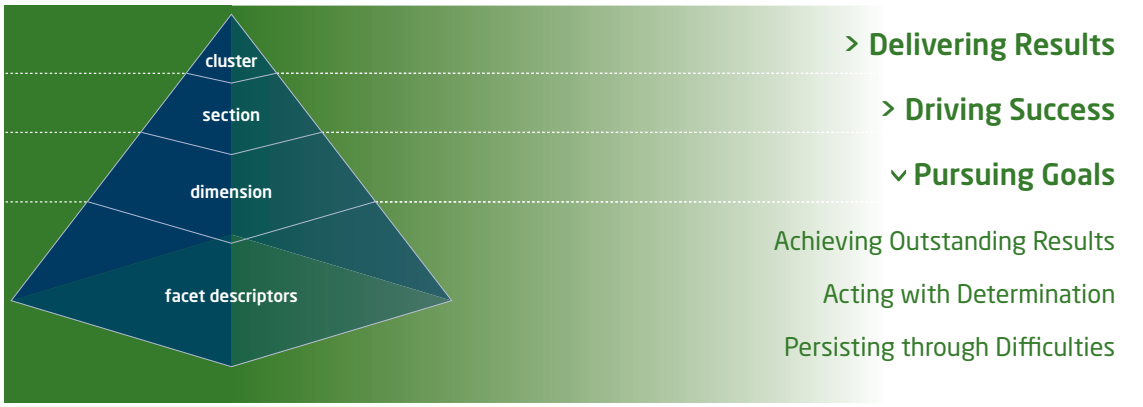
Seizing Opportunities

HIGH SCORERS: believe they are good at identifying business opportunities; are orientated towards selling; regard themselves as highly competitive.

LOW SCORERS: acknowledge that they seldom identify good business opportunities; do not see themselves as sales-orientated; do not consider themselves to be competitive.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

Pursuing Goals



HIGH SCORERS: are highly driven to achieve outstanding results; are determined to succeed; are persevering and keep going no matter what.

LOW SCORERS: are not driven to achieve outstanding results; may not be as determined to succeed as others; are less likely than many to persevere when faced with difficulty.

MID SCORES: can represent either an average score on all three facets or a 'net average' derived from a mix of scores, typically where one or more high scores are counterbalanced by one or more low scores.

5.1 Response Style Summary Scales

Ratings Acquiescence

A measure of how positive or self-critical a person has been in terms of rating themselves (based on the agreement rating of very strongly disagree to very strongly agree) across the 36 dimensions.

HIGH SCORERS: are likely to have high self-esteem, may feel a need to please and may demonstrate a lack of self-criticism.

LOW SCORERS: may have lower self-esteem, tend to feel less need to please than many people and may be highly self-critical.

MID SCORES: represent individuals who have neither portrayed themselves in a highly critical nor highly positive way. They may have used the extremes at both ends of the scale, or tended towards the midpoint of the rating scale.

Consistency of Rankings

A measure of how consistently a person has rank-ordered the statements across the 36 dimensions.

HIGH SCORERS: have been highly consistent in the way they rank-ordered items.

LOW SCORERS: showed less consistency in how they ordered the statements, possibly indicating a style that varies depending upon the situation (or even possibly a lower motivation or concentration in completing the questionnaire). They may have experienced difficulty understanding the statements if not completing the assessment in their first language.

MID SCORES: demonstrate that an individual has been as consistent as most people in their rank-ordering of items.

6.0 Outputs

This chapter details the different outputs available following a completion of the Work Strengths instrument. Conventional reporting per candidate is discussed first, followed by merit listing, which is a useful alternative that allows for efficient screening of candidates in volume recruitment projects.

6.1 Work Strengths Reports

This section provides a selection of Work Strengths Example Reports.

- **Behavioral Profile**
  Simply provides an individual's scores on each of the Work Strengths dimensions.
- **Environment Fit Report**
  This report is designed to give the assessee positive, meaningful feedback about the culture, job and environment fit that are likely to enhance or inhibit their success.
- **Interview Guide**
  Individuals' scores on each dimension are used to dynamically power interview questions. This ensures a fair, standardized, and objective assessment process while simultaneously allowing for probing around potential areas of concern.

More information on reports can be found at www.savilleconsulting.com.

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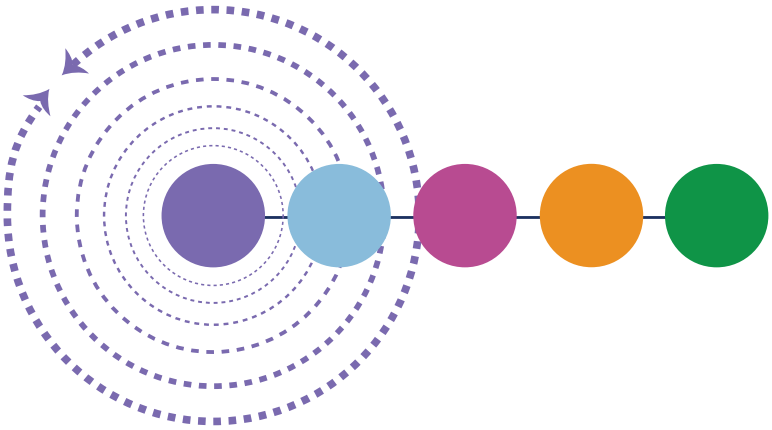
Behavioural Profile
Chris Park



Work

Strengths

Work Strengths Profile

The following report summarises Chris Park's areas of greater and lesser potential. Chris Park's Rating Acquiescence is Sten 7 and their Consistency of Rankings is Sten 9.

	Area	Potential	
Solving Problems	**Evaluating Problems** Examining Information (7); Documenting Facts (4); Interpreting Data (5)	5	**Average** higher potential than about 40% of the comparison group
	Investigating Issues Developing Expertise (6); Adopting Practical Approaches (4); Providing Insights (9)	7	**Fairly High** higher potential than about 75% of the comparison group
	Creating Innovation Generating Ideas (9); Exploring Possibilities (6); Developing Strategies (7)	8	**High** higher potential than about 90% of the comparison group
Influencing People	**Building Relationships** Interacting with People (7); Establishing Rapport (4); Impressing People (8)	7	**Fairly High** higher potential than about 75% of the comparison group
	Communicating Information Convincing People (8); Articulating Information (7); Challenging Ideas (10)	9	**Very High** higher potential than about 95% of the comparison group
	Providing Leadership Making Decisions (10); Directing People (8); Empowering Individuals (7)	9	**Very High** higher potential than about 95% of the comparison group
Adapting Approaches	**Showing Resilience** Conveying Self-Confidence (8); Showing Composure (7); Resolving Conflict (3)	7	**Fairly High** higher potential than about 75% of the comparison group
	Adjusting to Change Thinking Positively (8); Embracing Change (6); Inviting Feedback (4)	6	**Average** higher potential than about 60% of the comparison group
	Giving Support Understanding People (3); Team Working (4); Valuing Individuals (4)	3	**Low** higher potential than about 10% of the comparison group
Delivering Results	**Processing Details** Meeting Timescales (2); Checking Things (3); Following Procedures (2)	2	**Very Low** higher potential than about 5%of the comparison group
	Structuring Tasks Managing Tasks (2); Upholding Standards (2); Producing Output (4)	1	**Extremely Low** higher potential than about 1% of the comparison group
	Driving Success Taking Action (9); Seizing Opportunities (8); Pursuing Goals (9)	9	**Very High** higher potential than about 95% of the comparison group

Report for Chris Park
Generated on: 15-Jan-2013

Page 2

Comparison Group: Professionals & Managers (UK, IA, 2009)

About this Report

This report is based upon the Work Strengths assessment, which explores an individual's strengths in critical work areas.

The results are based on a comparison with a group of over 9,000 professionals and managers.

Since the questionnaire is a self-report measure, the results reflect the individual's self-perceptions. Nevertheless, our extensive research has shown it to be a valid measure of how people will operate in the workplace.

It should be remembered that the information contained in this report is potentially sensitive and every effort should be made to ensure that it is stored in a secure place.

The information contained within this report is likely to remain valid for 12 to 24 months, depending on circumstances.

The report was produced using Saville Consulting software systems. It has been derived from the results of a questionnaire completed by the respondent, and reflects the responses they made.

This report has been generated electronically. Saville Consulting do not guarantee that it has not been changed or edited. We can accept no liability for the consequences of the use of this report, howsoever arising.

The application of this assessment is limited to Saville Consulting employees, agents of Saville Consulting and clients authorised by Saville Consulting.

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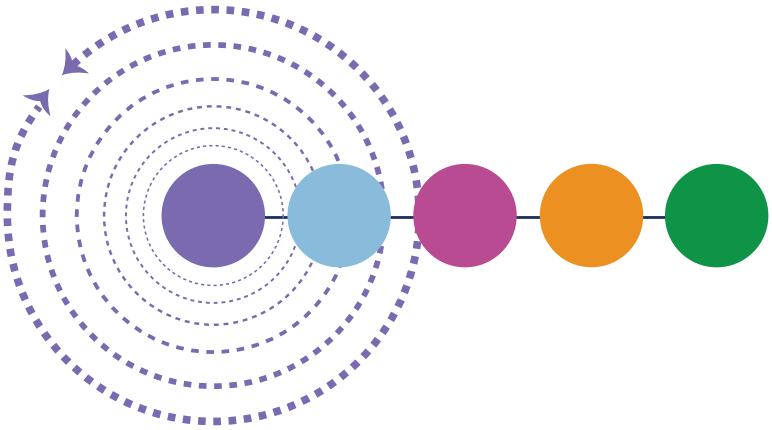
Environment Fit Report
Chris Park



Work

Strengths

Predicted Culture/Environment Fit

Based on extensive Saville Consulting research linking work place culture and the styles of individuals, this report highlights the aspects of the culture, job and environment that are likely to enhance or inhibit Chris Park's success:

Performance Enhancers

- where people are encouraged to assume responsibility for important decisions and decisiveness is a valued characteristic
- where heated debate is valued and people are encouraged to challenge ideas, argue and voice disagreements openly
- where the ability to get rapidly to the core of issues and readily identify solutions to problems is highly valued
- where there is a strong results focus and determination to succeed, no matter what, and people are rewarded for achieving outstanding results
- where energy levels are high, there is a strong action orientation and people are rewarded for taking the initiative and making things happen
- where creativity and innovation are encouraged and radical ideas and solutions welcomed
- where there is the opportunity to take on leadership responsibilities and have control over other people and resources
- where commercialism and entrepreneurialism are valued and the emphasis is on identifying business opportunities and outperforming the competition

Performance Inhibitors

- where the responsibility for major decisions rests with other people and there is little opportunity to influence the outcome
- where dissent is frowned upon and people are discouraged from challenging ideas and voicing disagreements
- where little value is placed on providing new insights and identifying potential improvements
- where the urge to achieve outstanding results is not great and people seldom persist in the face of difficulties
- where energy levels are low and people show little initiative
- where conventional attitudes prevail, traditional approaches are preferred and people are discouraged from generating new ideas
- where there is little opportunity for taking on leadership responsibilities or directing other people
- where the culture is non-commercial, non-competitive and non-profit oriented

About this Report

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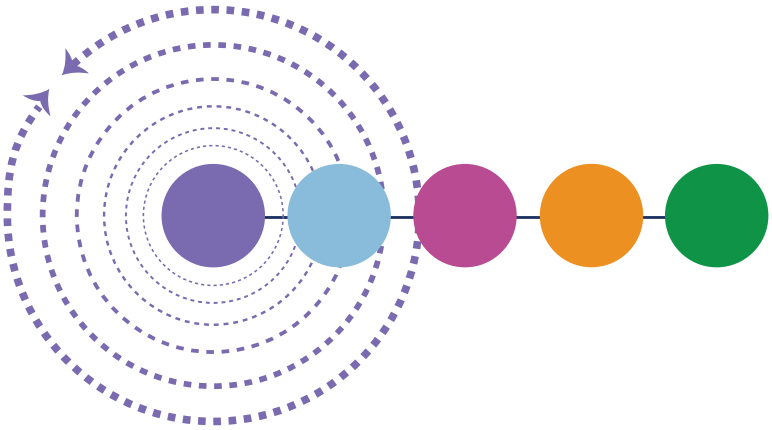
Interview Guide
Chris Park



Work

Strengths

Contents

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Introduction to Interview Guide

This Interview Guide presents appropriate questions based on the results of the assessment completed by Chris Park. The questions are designed to gain evidence of the candidate's effectiveness and motivation at work.

Interview Questions for Chris Park

Between two and four questions are presented for each of the areas, with fewer questions being given for areas where the candidate has rated themself as strongly effective. Additional questions that target the candidate's motivation for an area are marked by an asterisk.

For each area, information is provided on how Chris Park rated themself on the assessment when compared to others on a 1 to 10 scale. Please note that this is for the interviewer's information only and is not to be fed back to the candidate.

How to use this Interview Guide

Review job description and/or person specification

↓

Select competencies for interview (Page 4)

↓

Select questions

↓

Conduct interview

↓

Record answers

↓

Score and evaluate data

↓

Summarise scores (Page 4)

↓

Make recommendation (Final Page)

Interview Scores Summary

✓	Page	Area Assessed	Assessment Score	Interview Score
☐	5	**Evaluating Problems** Examining Information (7); Documenting Facts (4); Interpreting Data (5)	5	
☐	6	**Investigating Issues** Developing Expertise (6); Adopting Practical Approaches (4); Providing Insights (9)	7	
☐	7	**Creating Innovation** Generating Ideas (9); Exploring Possibilities (6); Developing Strategies (7)	8	
☐	8	**Building Relationships** Interacting with People (7); Establishing Rapport (4); Impressing People (8)	7	
☐	9	**Communicating Information** Convincing People (8); Articulating Information (7); Challenging Ideas (10)	9	
☐	10	**Providing Leadership** Making Decisions (10); Directing People (8); Empowering Individuals (7)	9	
☐	11	**Showing Resilience** Conveying Self-Confidence (8); Showing Composure (7); Resolving Conflict (3)	7	
☐	12	**Adjusting to Change** Thinking Positively (8); Embracing Change (6); Inviting Feedback (4)	6	
☐	13	**Giving Support** Understanding People (3); Team Working (4); Valuing Individuals (4)	3	
☐	14	**Processing Details** Meeting Timescales (2); Checking Things (3); Following Procedures (2)	2	
☐	15	**Structuring Tasks** Managing Tasks (2); Upholding Standards (2); Producing Output (4)	1	
☐	16	**Driving Success** Taking Action (9); Seizing Opportunities (8); Pursuing Goals (9)	9	

Report for Chris Park
Generated on: 15-Jan-2013
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Comparison Group: Professionals & Managers (UK, IA, 2009)

Interview Questions

Evaluating Problems Examining Information (7); Documenting Facts (4); Interpreting Data (5)	5	Average higher potential than about 40% of the comparison group

Describe an occasion when you had to evaluate a complex problem at work.

- What was the problem?
- What information was important?
- Where did you look for information?
- How did you analyse the information?
- What technology did you use?
- How did you weigh up what was most important?
- How effective was your overall evaluation?

* What aspect of evaluating problems do you find most interesting?

Describe an occasion where you had to write an important document.

- What information did you need to find?
- What were the key points for the reader?
- How did you put the document together?
- Which issues were the most difficult to communicate to the reader?
- How did you communicate them?
- What feedback did you get about the document?

* How much do you enjoy preparing written documents?

Tell me about a time when you were required to analyse a large amount of data.

- Who was the end user?
- How did you evaluate the information?
- What technology did you use to help you deal with the data?
- What did you do to summarise the key trends in the data?
- What were the important messages that you took from the data?

* How much do you enjoy working with numerical information?

Interview Questions

Investigating Issues		Fairly High
Developing Expertise (6); Adopting Practical Approaches (4); Providing Insights (9)	7	higher potential than about 75% of the comparison group

When has your job expertise been essential in ensuring a good practical outcome at work?

- What was the situation?
- Why was your expertise important?
- What key issues/information did you need to identify?
- What did you do to make sure the solution was practical?
- What learning did you gain from the experience?

* Which aspects of your job are you most interested in?

Tell me about a time where you identified the need to make practical improvements at work.

- Why did you think that improvements were needed?
- Who else did you involve in the improvement process?
- How did you make the improvements happen?
- What practical knowledge did you use?
- What did you learn from doing this?

* What practical aspects of the issue interested you least?

Interview Questions

Creating Innovation Generating Ideas (9); Exploring Possibilities (6); Developing Strategies (7)	8	High higher potential than about 90% of the comparison group

Tell me about when you have made a real difference with your creative input.

- What was your creative input?
- What other alternatives did you consider?
- Why was this option chosen?
- What were the general trends in how things were changing at the time?
- How did this influence the strategic direction of the organisation?

* Which aspect of your creativity do you find most satisfying?

Give me an example of where your good ideas have not been accepted.

- What was the background?
- What were your ideas?
- Why were they so good?
- Why were they not accepted?

* How do you feel about having your ideas rejected?

Interview Questions

Building Relationships		Fairly High
Interacting with People (7); Establishing Rapport (4); Impressing People (8)	7	higher potential than about 75% of the comparison group

Who have you had to build a really effective, important work relationship with?

- Why was it important?
- What did you do to build the relationship?
- How quickly did you build rapport?
- How effective was the first impression you created?
- How have you maintained contact?

* What do you enjoy about working with new people?

When have you had to build rapport quickly at work?

- Why was it important to build rapport?
- What did you do to make people feel welcome?
- What did you do to put other people at ease?
- What worked less well?
- What lasting relationships have you developed through work?

* What do you find most difficult about approaching new contacts?

Interview Questions

Communicating Information Convincing People (8); Articulating Information (7); Challenging Ideas (10)	9	Very High higher potential than about 95% of the comparison group

Give me an example of when you have had to communicate important information persuasively.

- Why was it important?
- What were the key points you had to make?
- Which of these points were the most important for your audience?
- What points/misconceptions did you challenge?
- How effective were you?

* What do you enjoy about getting your message across?

When have you had to communicate information to people who were particularly challenging?

- Why was it so challenging?
- What were the important points for your audience?
- How did you deal with objections?
- What did you explain particularly well?
- What was the outcome?

* How much do you enjoy presenting information in challenging circumstances?

Interview Questions

Providing Leadership Making Decisions (10); Directing People (8); Empowering Individuals (7)	9	Very High higher potential than about 95% of the comparison group

When have you had to provide leadership for others at work?

- What was the situation?
- How did you approach it?
- What was your leadership style?
- How did you motivate others?
- How did people respond to you?
- What key decisions did you have to make?

* What do you enjoy about being a leader?

Tell me about a time when you have chosen to take responsibility for getting something done by leading others.

- Why did you choose to take responsibility in the situation?
- How did you lead people?
- What did you do to keep the people motivated?
- What were the difficult decisions you had to make?
- What feedback did you get on your leadership?

* What do you dislike most about being a leader?

Interview Questions

Showing Resilience		Fairly High
Conveying Self-Confidence (8); Showing Composure (7); Resolving Conflict (3)	7	higher potential than about 75% of the comparison group

Where have you had to be resilient at work?

- What was the situation?
- Why was it challenging?
- How did you react to pressure?
- What impact did it have on you?
- How did your behaviour impact on others?

* How do you motivate yourself under pressure?

Give me an example of when you have resolved a conflict at work.

- Why was there a conflict?
- What did you do?
- What emotions did you have to deal with?
- How did people respond?
- What would you do differently next time?

* How comfortable are you dealing with people when they are emotional?

Interview Questions

Adjusting to Change Thinking Positively (8); Embracing Change (6); Inviting Feedback (4)	6	Average higher potential than about 60% of the comparison group

Tell me about a time when you had to adjust to an important change.

- What exactly was the impact of the change on you?
- How positively did you react?
- How well do you feel the change was communicated?
- What did you do to influence the direction of the change?
- What more could you have fed back to make the change more effective?

* What do you dislike about change?

Give me an example of when you have changed your behaviour based on feedback from others.

- What was the situation?
- Who did you ask for feedback?
- What feedback did you receive?
- How did you react to the critical feedback?
- What did you do as a result of the feedback?

* When have you felt most negatively about feedback you have received? Why?

Interview Questions

Giving Support Understanding People (3); Team Working (4); Valuing Individuals (4)	3	Low higher potential than about 10% of the comparison group

Tell me when you have had to go out of your way to support others at work.

- What support did your colleagues need?
- What did you do to help?
- What more could you have done to help with the benefit of hindsight?
- To what extent did helping inconvenience you?
- What was the outcome?

* What do you like about helping people?

Describe a situation where it was important for you to understand people at work.

- What was the situation?
- Why was it important for you to understand them?
- What were the important messages you heard from them?
- What did it take you longer to recognise about their needs?
- What did you do to show you understood them?

* How interested are you in understanding people and their motivations?

When have you found it challenging to work collaboratively in a team?

- What was your role in the team?
- Why was it important to work collaboratively?
- How did you do this?
- What was the most difficult aspect of the team work?

* What did you least enjoy about being a member of a team?

Give me an example of when you have really valued people as individuals at work.

- Who did you really value?
- Why did you really value them?
- How did you show your appreciation?
- How much trust did you place in them?
- Which behaviours did you have to tolerate?

* How quickly do you feel comfortable trusting people at work?

Interview Questions

Processing Details		Very Low
Meeting Timescales (2); Checking Things (3); Following Procedures (2)	2	higher potential than about 5%of the comparison group

Tell me about when you have had to do something to a high quality level within a fixed timeline.

- What exactly did you have to do?
- How did you achieve the quality level?
- What procedures did you follow?
- What mistakes did you identify?
- How close to the deadline were you?

* How much do you enjoy working with details?

Describe a time when you had to meet a challenging deadline.

- Why was the deadline demanding?
- What did you need to do to ensure the deadline was met?
- What problems did you encounter?
- How did you deal with these?
- What was the outcome?

* How have you felt when you have had to extend a deadline?

When has it been important for you to follow procedures at work?

- What did you have to do?
- Why did you have to do it this way?
- How closely did you follow the procedures?
- Where did you not follow the procedures so closely?

* How much importance do you attach to following procedures?

Give me an example of where you have had to work accurately with detail.

- Why was accuracy important?
- How did you check for errors?
- What errors were there?
- How did you deal with these?
- How much of the checking did you do?
- What feedback did you get on the outcome?

* How do you feel when you cannot check things properly?

Interview Questions

Structuring Tasks Managing Tasks (2); Upholding Standards (2); Producing Output (4)	1	Extremely Low higher potential than about 1% of the comparison group

Give me an example of when you have had to manage people on a specific project.

- How many people did you manage?
- How did you organise the tasks?
- What potential problems did you account for in your planning?
- What did you do to make sure people maintained high standards of behaviour during the project?
- How much work was completed in the timescale?

* How much do you enjoy structuring and managing tasks?

When have you been responsible for planning a complex task?

- What exactly was your responsibility?
- How did you plan the task?
- How did you structure your time?
- What were the conflicting priorities?
- How did you deal with these?

* How much do you seek responsibility for planning?

Tell me about a situation where it has been difficult for you to act with integrity at work.

- What were the ethical challenges you faced?
- What did you do?
- To what extent did you feel you acted with integrity?
- What issues of confidentiality were involved?
- Who did you talk to?

* When would you not compromise your principles?

Where have you been required to produce high levels of output?

- What did you produce?
- How quickly did you have to work?
- How did you maintain your productivity?
- How many tasks did you have to deal with at the same time?

* How much do you enjoy having a lot to do?

Interview Questions

Driving Success		Very High
Taking Action (9); Seizing Opportunities (8); Pursuing Goals (9)	9	higher potential than about 95% of the comparison group

Which of your recent work achievements are you particularly proud of?

- Why have you chosen this example?
- What did you do?
- Why was this important?
- How did you exceed expectations?
- What feedback did you get?

* What drives you to succeed?

Give an example of when you have taken decisive action to achieve an outstanding result.

- What exactly did you do?
- Why did you decide to take that action?
- What exactly was the result?
- What made it outstanding?
- What effort did you put in?

* What impacts negatively on your motivation to succeed?

Interview Summary

Candidate Name	Chris Park
Interviewer Name(s)	
Interview Date	
Role Applied For	
Signed	

Evidence

Key Evidence Against	Key Evidence For

Recommendation

Report for Chris Park
Generated on: 15-Jan-2013
Page 17
Comparison Group: Professionals & Managers (UK, IA, 2009)

6.2 Merit Listing

This section provides examples of merit lists which can be created by the assessor using the Oasys Platform.

Strengths Merit Listing

Strengths scores from multiple candidates at dimension or section level can be extracted and compared along with aptitude scores. Scores highlighted in green indicate good fit, those in amber indicate adequate fit and those in red indicate poor fit.

Figure 6.1 Example Merit List of Candidates' Work Strengths Section Scores and Swift Analysis Aptitude Percentile Score

Candidate Name	Evaluating Problems	Building Relationships	Providing Leadership	Adjusting to Change	Structuring Tasks	Driving Success	Swift Analysis Aptitude
Candidate A	8	5	2	6	7	4	6
Candidate B	4	8	8	7	6	8	7
Candidate C	6	7	5	5	7	4	5
Candidate D	9	5	4	1	8	7	10
Candidate E	2	5	6	9	5	6	3
Candidate F	5	8	5	2	6	10	4
Candidate G	7	1	1	7	9	5	8
Candidate H	4	10	8	3	4	9	1
Candidate I	6	2	5	8	2	6	5

Merit Listing of Organizational/Job Fit Scores

Strengths scores can be weighted and combined with aptitude scores to create organizational and job fit scores, reflective of the values of a particular organization or a particular role.

Figure 6.2 Example Merit List of Candidates' Organizational and Job Fit Scores

Candidate Name	Overall Organizational Fit	Great Selling and Service	One Team	Can Do	Bringing the Best out of People	Great Shopkeeping	Fresh Thinking
Candidate A	8	6	8	7	9	5	8
Candidate B	5	8	7	7	6	2	2
Candidate C	2	4	3	5	1	2	1
Candidate D	7	4	4	8	8	4	6
Candidate E	4	5	6	7	4	3	5
Candidate F	5	7	5	3	6	8	6
Candidate G	8	9	5	10	7	5	7
Candidate H	9	7	8	9	10	10	6
Candidate I	6	3	7	5	5	5	5

Saville Consulting Wave Strengths Handbook

PART 3: TECHNICAL

7.0 Construction

This chapter describes the development process used to construct the Strengths assessments, derived from the Saville Consulting Wave® model. The Strengths development process was a part of the development of Wave Professional Styles, for which further information can be found in the Construction chapter of the Wave Professional Styles Handbook. A general background to Strengths can be found in the 'Introduction' chapter. Validation was fundamental to the development of the Strengths questionnaires, and users can find further details about the unique approach used to validate the questionnaires in the 'Validity' chapter.

7.1 Development Background

Development Goal

The primary assessment goal of Saville Consulting Wave Strengths is to accurately forecast people's performance at work. This is accomplished by maximizing the criterion-related validity with job performance and other work-related effectiveness outcomes. In addition to validity, the Strengths questionnaires are designed to be fair in application and applicable internationally.

By achieving these goals, Strengths assessments are designed to provide real value to organizations through improved workforce productivity and performance, and lead to a strong return on initial investment.

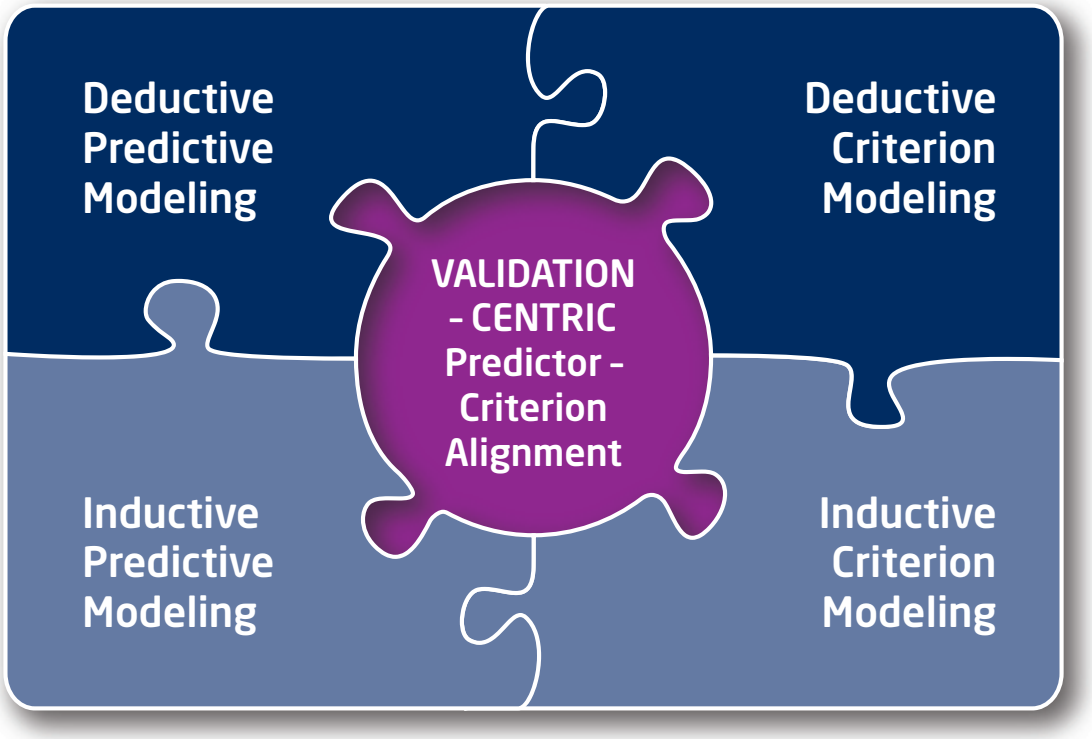
The quest for enhanced validity should be the core mission of the test or questionnaire developer. We also believe it is a priority for assessment and test users. Users have the potential to maximize the benefit they provide in practice by using tools where criterion-related validity is higher.

An assessment tool must be easy to use, acceptable to participants, attractive, and be applicable to today's modern workplace. Strengths questionnaire administration, scoring, and reports are designed to ensure that validity is easily accessible and understood by the user. We do this by providing the user with clear, well-researched links between Saville Consulting Wave Strengths scales and measures of workplace performance. This enables Strengths to give a better, more valid indication of overall effectiveness in terms of proficiency and potential for future success than other conventionally developed personality assessments.

Saville Consulting Integrated Development

Three approaches to questionnaire design were used in the development of Strengths. The first two we refer to as 'deductive' and 'inductive' approaches and they are commonly used to create conventional multi-scale personality questionnaires. The latter approach we refer to as 'validation-centric' and it is one of the fundamental design features that make Saville Consulting Strengths questionnaires different.

Figure 7.1 Conceptual Overview of Strengths Integrated Development



Saville Consulting Wave Strengths was based on both inductive and deductive modeling at both the predictor and criterion ends of assessment. These predictors and criteria were aligned and the validity maximized by performance-driven, validation-centric item/scale choice. Criterion-related validity was central to item choice in the development phase of the questionnaire. This is the essence of the validation-centric approach to creating performance-driven assessment and maximizing validity.

Validation-Centric Approach to Questionnaire Development

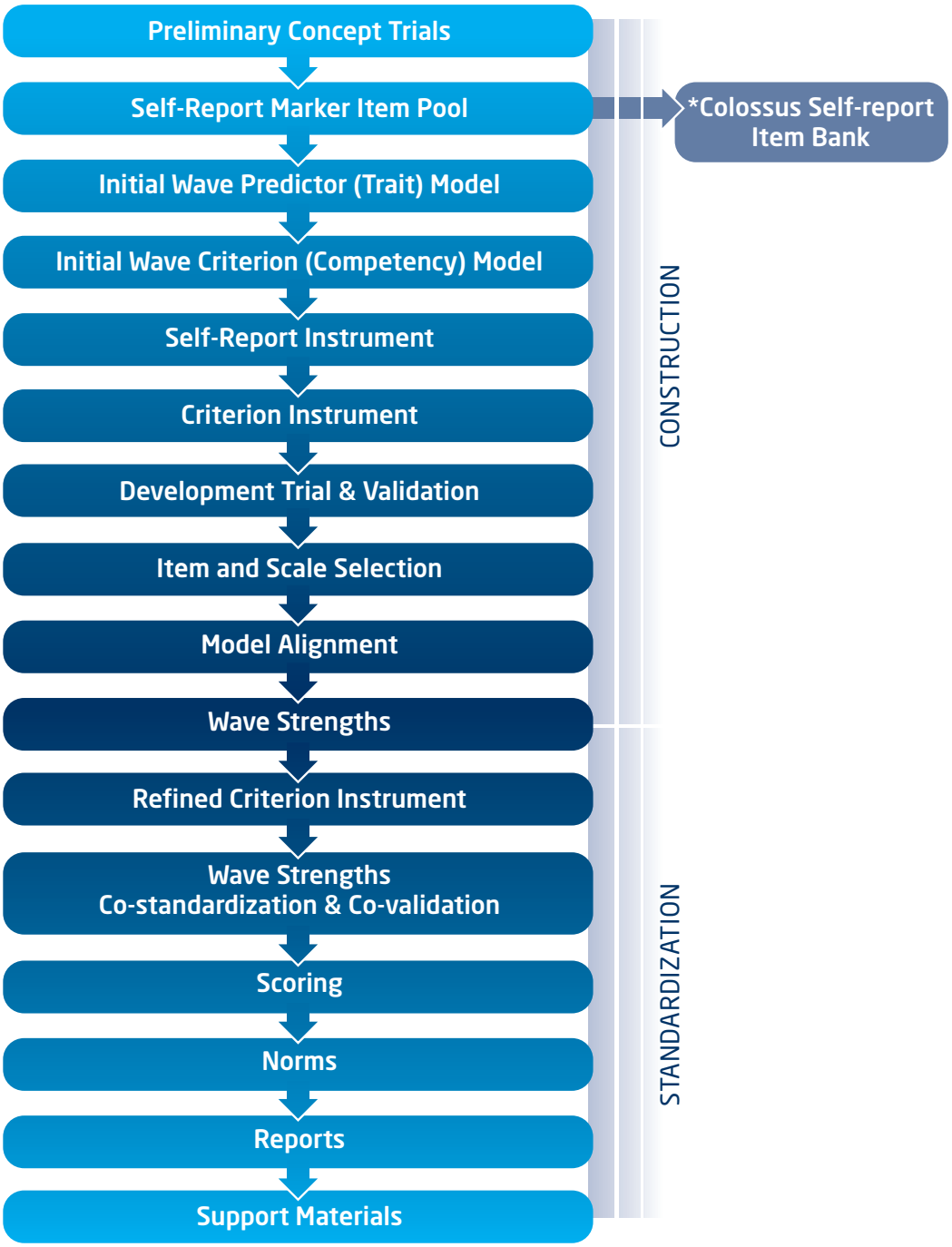
The validation-centric approach to questionnaire development differs from the inductive and deductive approaches. Item selection begins by looking for items or item groupings that have the best criterion-related validity rather than selecting items based on how they correlate with other items or how they contribute to a scale's internal structure, such as the item's impact on a scale's mean, standard deviation, or other psychometric characteristics.

An advantage of this approach is the ability to create short and concise but highly valid scales. For instance, Burisch (1997) created short scales by selecting the most valid items from longer scales. Using a double cross-validated research design, he then found that these short scales were capable of greater validity than the conventionally developed scales that were eight times longer!

7.2 Strengths Development

The development of the Strengths questionnaires took place in two major phases: the construction phase and the standardization phase. These two phases can be broken down into a number of individual steps as shown in Figure 7.2.

Figure 7.2 Overview of Key Steps in the Development of Strengths



**Colossus Self-Report Item Bank was developed but not used for item/facet scale selection in the Development Trial, the Self-Report Marker Item Pool was used. Parallel items were drawn from Colossus for the Co-Standardization Trial.*

Preliminary Concept Trials

The trials pilot tested psychometric properties of a series of short scales (facets) that were designed as part of a model hierarchy to increase the fidelity of assessment by measuring very specific facets of behavior.

A total of over 250 items were trialed on 205 participants from a mixed occupational group. These items were rated against a ten-point true/false anchored Likert-type scale. The items were designed to measure 50 different traits and were both positively and negatively keyed. Three alternate forms of the questionnaire were created. Measures of response style and social desirability were included in this trial.

Exemplar of item included in preliminary trials:

I produce lots of ideas

Before the study, a priori hypotheses were made regarding the structure of the items and scales. These hypotheses were confirmed based on the results of the trials. Specifically, the factor structure and scale intercorrelation matrix reflected the deductive model structure and indicated that it was possible to have a large number of short scales that were internally reliable and that showed good construct independence. A subset of the items was also subject to a retest to check for stability.

The trials confirmed the authors' previous findings that the negatively worded and keyed items, with words such as 'not', had less reliability and a less complex factor structure than positively keyed items without negation.

The preliminary trial also provided the necessary information on the scaling properties of the items to begin development of a new dynamic response format. This dynamic response format, designed for use on the internet, calculates ipsative scores from the rank order of items based on normative ratings, and if certain tied ratings are encountered, will adaptively represent tied items for ranking. The true-false rating scale was amended following this trial to a nine-point Likert-type agreement scale following some small within subject comparative trials of different rating scales.

In essence, these were 'proof of concept and method' trials before investing in the full development and standardization trials of Strengths assessments. Although the trials did not lead directly to the development of a questionnaire, they helped to identify the most promising content which was then refined for use in the main development trial. Further to this, they allowed for pilot testing of the psychometric properties of a series of short scales (facets).

Item Writing Guidelines and Review Criteria

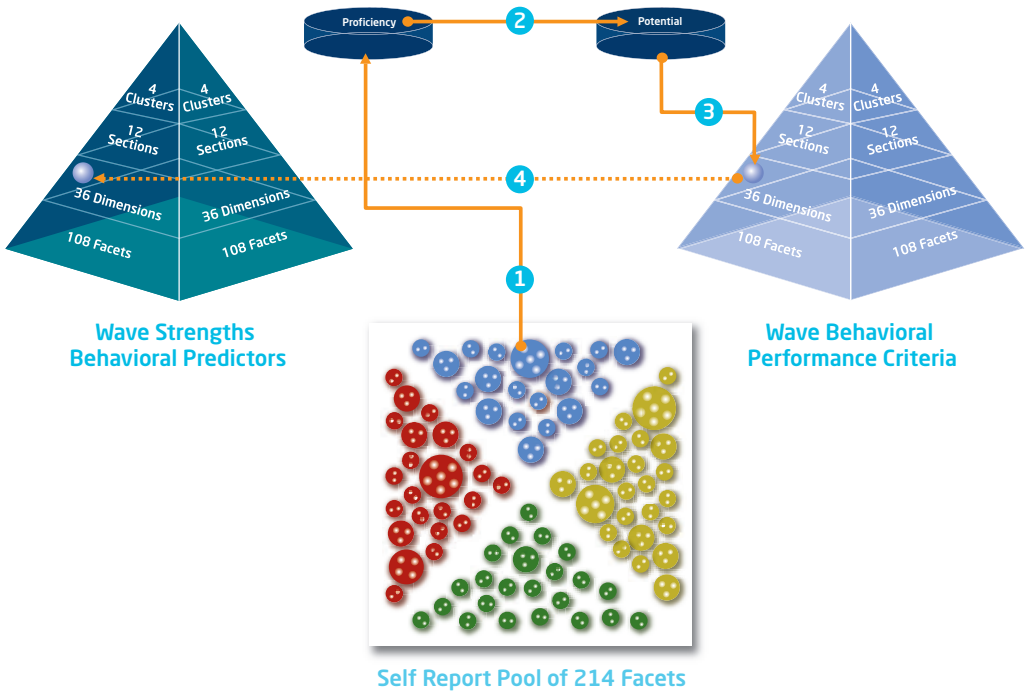
Perhaps the most underrated skill of all in questionnaire development is that of the item writer and reviewer. It is fundamental to the Wave Strengths development philosophy that the quality of items is central to the validity of the questionnaire. Over two working person years was taken up with item writing and review by a team of highly experienced individual difference psychologists.

A set of item writing guidelines and review criteria were created for item writers and reviewers. These are summarized below.

- Targeted
- Simple
- Short
- Unitary
- Unique
- Comprehensible
- Avoiding Idioms and Metaphors
- Non-Opaque
- Self-Referent
- Behavioral
- Positively Phrased
- Avoiding Stereotypical, Biased Content
- Non-Bizarre
- Non-Clinical

Item and Facet Selection

Figure 7.3 Model Creation



1. For each criterion dimension, the items in the self-report (predictor) model that were aligned to it were examined. The first step was to check that the items correlated with the rater's external view of the individual's overall job proficiency.

2. Items were considered for selection if they correlated strongly with the future progression criteria (potential).

3. The items' correlations with their matched criterion were examined.

4. After passing these steps, the most valid items were selected to be used in the creation of Strengths scales.

Development of the Strengths Scales

The final stage was to develop the Strengths scales which aim to maximize the validity of Strengths in predicting workplace performance.

Items making it through the selection stage were combined and weighted to create Strengths facets. The first item to be selected was picked on the basis of its validity as the highest individual predictor of its specific matched criterion. Next, additional items were selected on the basis that they also had validity when forecasting workplace performance. These additional predictor items added to the scale equation were given lower weights than the matched component which accounted for the majority of the predicted variance.

These equations were subsequently cross-validated to ensure that the equations are robust and can be generalized to new populations of respondents.

Example of a Strengths facet:

Identifying Business Opportunities (Strengths Facet) =	
Business Opportunity Oriented x 21	+
Leadership Oriented x 4	+
Deciding on Action x 3	+
Action Oriented x 2	+
Visionary x 1	

Strengths facets were combined to create Strengths dimensions, which were then combined to form Strengths sections, and finally Strengths clusters.

This process led to an aligned predictor and competency model with four clusters, 12 sections, and 36 dimensions, each constructed through weighting different combinations of the selected items. This meant that of the original items trialed, only the 108 most valid items were selected into the Strengths questionnaire.

It should be noted that the ratio of deselected to selected items is much higher than with most self-report questionnaire development. The ratio of selected to deselected Strengths items was 1 in 4 rather than selecting 3 out every 4 which is more typical. This oversupply of high quality items was purposely designed to create the mechanism where validity would be maximized.

There can be a problem with this approach due to the ratio of the number of variables being selected from, versus the number of subjects in the study. This problem can lead to results which do not cross-validate as the initial selection capitalizes on error variance or chance outcomes. This was controlled by a priori limiting the number of variables that were available to be selected for specific criteria.

It was interesting to note during item selection that items that correlated strongly with each other in the trials often had far from identical patterns of correlation with the criteria. This is a finding that was also observed in our co-validation research of different instruments, Project Epsom, where scores from assessment instruments that correlate quite strongly with each other sometimes had markedly different correlations with the criteria, indicating that subtle difference in the phrasing of items can have an important impact on the validity (see 'Validity' chapter for more information about Project Epsom).

7.3 Model Alignment - The Final Model

Figure 7.4 The Final Model - the top three levels of Strengths

Criterion Cluster
Solving Problems
Influencing People
Adapting Approaches
Delivering Results
Criterion Section
Evaluating Problems Investigating Issues Creating Innovation
Building Relationships Communicating Information Providing Leadership
Showing Resilience Adjusting to Change Giving Support
Processing Details Structuring Tasks Driving Success
Criterion Dimension
Examining Information Documenting Facts Interpreting Data Developing Expertise Adopting Practical Approaches Providing Insights Generating Ideas Exploring Possibilities Developing Strategies

Criterion Dimension
Interacting with People Establishing Rapport Impressing People Convincing People Articulating Information Challenging Ideas Making Decisions Directing People Empowering Individuals
Conveying Self-Confidence Showing Composure Resolving Conflict Thinking Positively Embracing Change Inviting Feedback Understanding People Team Working Valuing Individuals
Meeting Timescales Checking Things Following Procedures Managing Tasks Upholding Standards Producing Output Taking Action Seizing Opportunities Pursuing Goals

A number of other development stages were conducted, including Response Style scale development, a Standardization Trial, refinement of the criterion instrument (Saville Consulting Wave Performance 360 multi-rater assessment), co-standardization and validation, scoring refinement, development of preferred culture, and finally creation of norms, reports and support materials.

It should be noted that the development of the Strengths model has been based upon years of research into the field of personality and takes into account important perspectives such as the Five Factor Model (FFM) or "Big Five" Personality Factors, The "Great Eight" Competencies (Kurz and Bartram, 2002), Digman's Alpha and Beta factors (1997), and The Big One (Musek, 2007). For more in-depth discussion regarding this subject and the construction of Saville Consulting's tools, please refer to the Wave Professional Styles Handbook.

7.4 Response Format

The Dynamic Online "Ra-Ra" Response Format

Saville Consulting Wave Strengths use a new dynamic online response format developed and designed specifically for Saville Consulting assessments. The format is neither exclusively ranking nor rating, but a new method which begins with rating, and adaptively moves onto ranking when there is insufficient information to automatically differentiate the rated scores into rankings. We call this dynamic rating-ranking process the "Ra-Ra" response format, and it is designed to give the benefits of both ranking and rating formats while reducing some of the negative consequences of each.

Rating Task

Saville Consulting Wave Strengths questionnaires first present a page with six statements and a free-choice rating scale.

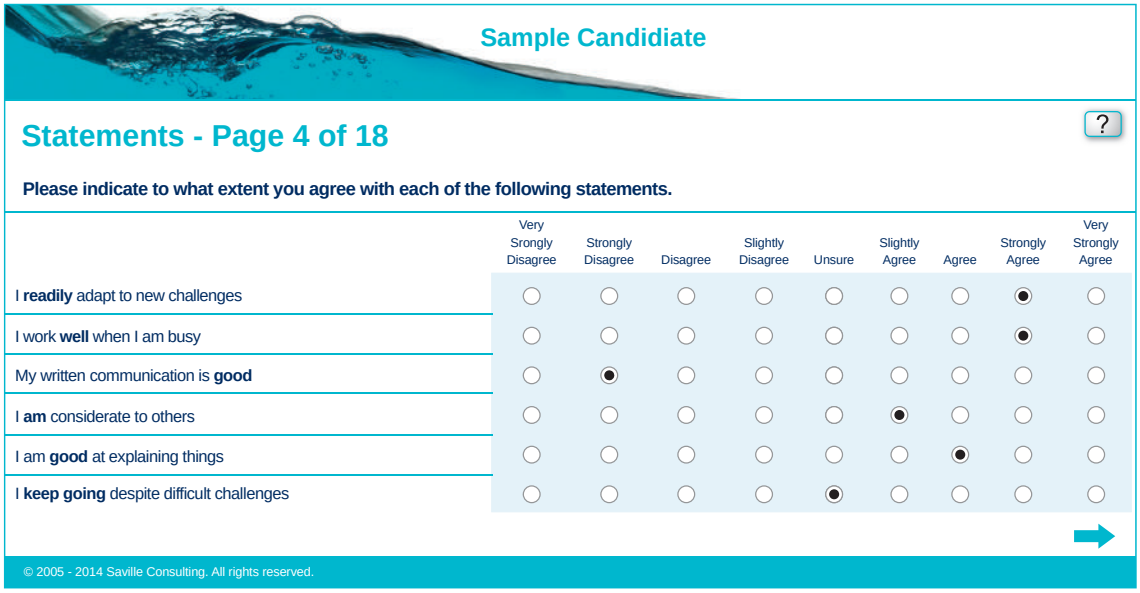


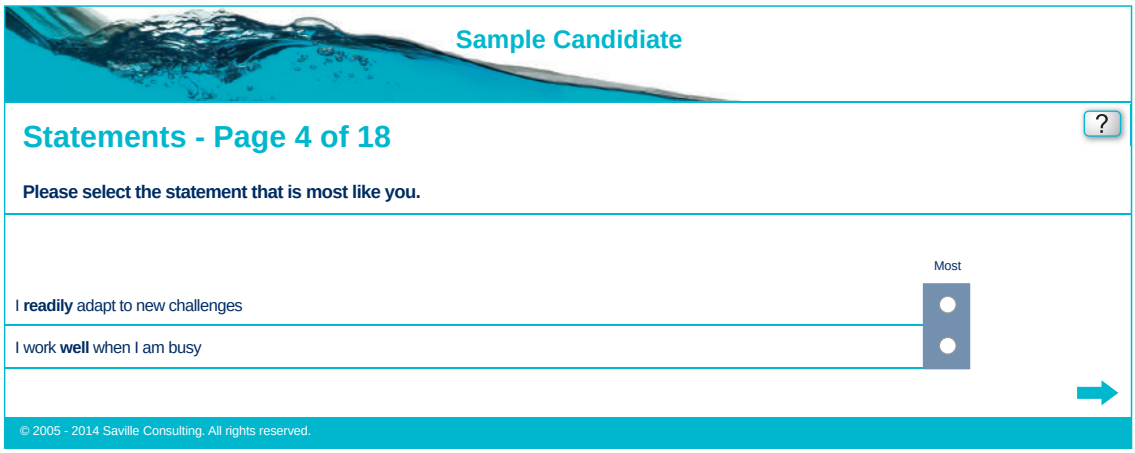
Figure 7.5 Screenshot of Online Rating Task of Work Strengths

After the six statements are rated by the respondent, the system records the ratings as normative scores from 'Very Strongly Disagree' (1), to 'Very Strongly Agree' (9) and then uses the information about the relative position to assign ipsative scores. In the example above, the ipsative score can be determined with the lowest ranked item of 'Disagree' being ranked last, or 6th (and assigned an ipsative score of 1), the 'Slightly Disagree' rating being ranked 5th (and will receive an ipsative score of 2), the 'Unsure' rating will receive an ipsative score of 3, and 'Slightly Agree' will receive an ipsative score of 4. The two 'Very Strongly Agree' statements are not possible to rank as they have been rated equally, so no ipsative score is assigned at this stage.

Dynamic Ranking Task

If a respondent has tied two ratings, the system immediately re-presents the tied items to be placed in rank order by the respondent using a forced-choice response format. For example, in Figure 7.5, as the candidate had tied the top two items by rating them both as 'Very Strongly Agree', these two items are presented in the ranking task as shown in Figure 7.6.

Figure 7.6 Screenshot of Online Ranking Task of Work Strengths



The item assigned 'Most' now receives the top ipsative score of '6' and the remaining item is assigned an ipsative score of '5'.

When more than two statements are tied, a 'Most and Least' task is displayed. As well as picking the statement they perceive as most like themselves, they must also choose the statement least like themselves.

Where all six statements have tied ratings, two 'Most and Least' tasks will be displayed one after another, assigning the 'Most' (6) and 'Least' (1) extreme rankings on the first ranking screen. On the subsequent screen, the remaining four statements are displayed with the one ranked 'Most' receiving an ipsative score of 5 and the one ranked least receiving a score of 2. The remaining two statements each automatically receive a score of three and a half (there is no discernible increment in validity or reliability from seeking to differentiate the middle two statements).

If there are no tied items, then a new page of six items is presented.

By this mechanism, both ipsative and normative scores are computed efficiently, and the two scores are summed to create a combined score.

Combining Normative and Ipsative Scoring

Discussed below are benefits and drawbacks of ipsative and normative scoring. While most conventional tools use either one or the other of these methods, at the practitioner level it is often useful to have both sources of information. The new dynamic "Ra-Ra" scoring method utilized by Wave instruments achieves this.

Normative Scores

Normative ratings in questionnaires do not have a forced inter-relationship between the items; each item stands alone and the response to an item only changes the scores on one primary scale of the questionnaire that the item is a part of.

Simple normative formats include:

- Adjective checklist
- Two answer options (dichotomous)
- More than two answer options (polychotomous)

Rating scores have the advantage that individuals are free to be where they want on each and every scale. They could get a maximum score on all the scales (i.e., get a sten score of 10 on each scale) or a minimum score on every scale.

They do, however, suffer from some potential disadvantages, including:

- **Halo and horn effects –** overinflated or underestimated self-ratings across the profile
- **Central tendency/extremity** – differences between respondents' use of extreme ratings
- **Acquiescence** – people differing in the tendency to agree or disagree
- **Social desirability** – responding in a way that is likely to be considered more socially acceptable
- **Cognitive complexity in self-concept** – a difference between individuals in the capacity to differentiate many characteristics within themselves
- **Faking** – respondents creating an impression of themselves that is more likely to lead to them being considered favorably

For a fuller discussion of the disadvantages of normative scoring, please refer to the 'Response Format' chapter of the Wave Professional Styles Handbook.

Ipsative Scores

With ranking that leads to ipsative scores, the scores have a degree of dependency on each other. Different responses to an item will impact scores on more than one primary scale of the questionnaire. In essence, by giving the scores on an item to one primary scale you take it away from another (or others).

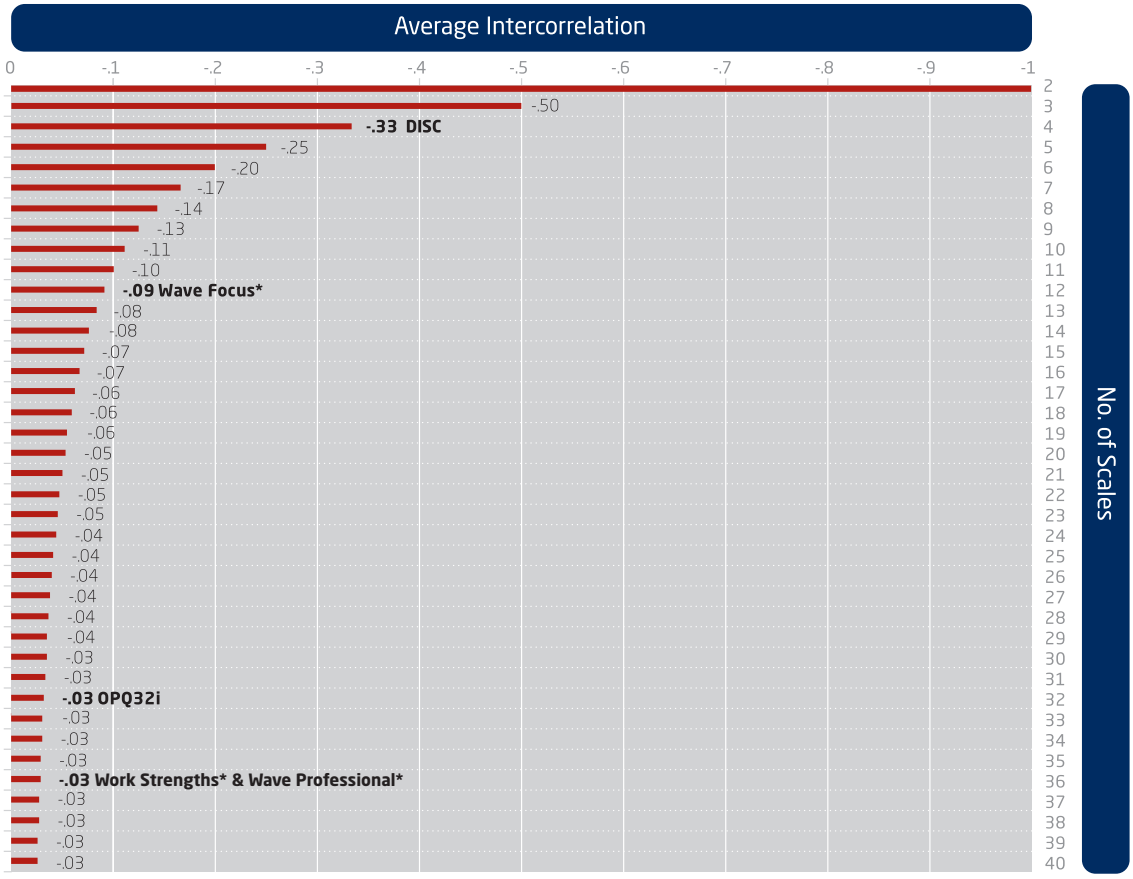
Fully ipsative questionnaires have a fixed total score. If all the scale scores are added together they will always result, by definition, in one fixed value. Ipsative scoring is, in essence, apportioning the scores across the scales.

Ipsative item formats include:

- Two answer options (dichotomous)
- More than two answer options (polychotomous)

The important characteristic of ipsative scoring methods is that they create scores between scales that are interdependent. When scales are interdependent, it means that it is impossible to be high (or low) on every scale of the questionnaire. Also, the fewer primary scales assessed in the ipsative measure the greater the impact of the interdependency of the full scales themselves. This is shown in Graph 7.1.

Graph 7.1 The impact of the number of ipsative scales on the average intercorrelations among the scales



DISC - Thomas International DISC – 4 scales- average intercorrelation of -.33.

OPQ32 – Occupational Personality Questionnaire 32i – 32 scales – average intercorrelation of scales of - .03.

Work Strengths and Wave Professional have 36 scales in ranking design giving average for the ranking score component of – .03 and Wave Focus has 12 scales – giving average for this score component of - .09.

* Wave Professional Styles, Focus Styles and Strengths have a rating component so the actual average intercorrelations of combined scores are slightly positive rather than negative.

Ipsative questionnaires have the advantage that it is not possible to be high on every scale, and with a higher number of scales they present the relative preferences of the individual.

By asking an individual to choose between different statements, we can measure that individual's relative preferences compared to simply asking the individual to describe him or herself (rating responses). A person may claim to enjoy all flavors of ice cream, but we can learn which flavor the person likes best by seeing which flavor they choose most often. Life in critical moments can be about making choices between a number of different options and ipsative scores are designed to better reflect these choices.

However, ipsative questionnaires also have limitations, including:

- Potential for increasing error – for example, by presenting false or unrealistic choices.
- Limits freedom/acceptability – choices may be seen by respondents as restrictive and they may feel they are being made to make a choice that does not adequately reflect themself.
- Interdependency – correlations between scales are forced down and are unlikely to represent the true relationship between the measures.
- Norming intra vs. inter-individual comparisons – there are arguments that ipsative scores are better for comparisons within individuals rather than between individuals.
- Losing a degree of freedom – if you have information on all but one of the scales, the final scale is just a linear composite of the other scales; there is one less independent score in a fully ipsative model than a comparative normative model.
- Problems with statistical procedures – there are arguments that ipsative scores present some problems with statistical procedures (e.g., factor analysis).

For further discussion around the disadvantages of ipsative scoring, please refer to the 'Construction' chapter of the Wave Professional Styles Handbook.

The Online Dynamic (Ra-Ra) Format

No format results in a perfect, error-free representation of trait scores. While the new format conveys clear advantages by dynamically presenting ratings and rankings, and hence making the test more interesting to complete than standard formats, not all of the limitations present in normative and ipsative scores are eradicated.

The new response format provides an efficient mechanism that increases the fidelity of measurement, allowing more information to be measured in less time. The validity and reliability is equal to, if not better than, the individual normative and ipsative components in the score (and time will tell if the combination has better convergent validity still than either of the individual components). In relation to the candidate, it provides an acceptable method to collect ipsative as well as normative scores, and makes faking of the questionnaire more complex, and distortion easier to detect.

8.0 Work Strengths Norms

8.1 About Norms

When interpreting the results of an assessment it is often useful to know how each individual score compares to scores achieved by others. Knowing whether a score is high, low or average compared to others requires that we have a norm group. Norms allow for comparison of an individual's score on an assessment with a relevant group. The use of norms ensures that, when looking at the scores of different individuals, you can be sure you are comparing like with like.

There are various standard scales that could be used to assess individuals on aptitude and behavioral styles assessments. Often, different scales are used for aptitude and behavioral assessments. To allow for a common simple language on both behavioral styles assessments and aptitude tests, 'sten' (standard to ten) scores are used. Stens provide a score which ranges from 1 to 10 with 5 and 6 straddling the average (mean) score. While this provides a simple scale for users, it is also useful to understand how these scores relate to percentiles in the normal distribution. See Figure 8.1 below.

Figure 8.1 Stens 1 – 10 and their relation to percentiles in the normal distribution

1 - Extremely Low	- performed better than only 1% of comparison group
2 - Very Low	- performed better than only 5% of comparison group
3 - Low	- performed better than only 10% of comparison group
4 - Fairly Low	- performed better than only 25% of comparison group
5 - Average	- performed better than only 40% of comparison group
6 - Average	- performed better than 60% of comparison group
7 - Fairly High	- performed better than 75% of comparison group
8 - High	- performed better than 90% of comparison group
9 - Very High	- performed better than 95% of comparison group
10 - Extremely High	- performed better than 99% of comparison group

For user simplicity, these figures are rounded to give whole number percentiles which are near the center of each sten band and, where possible, as a multiple of 5 or 10. This avoids creating the perception of over-accuracy in the score, particularly as stens are bands of scores which are subject to a degree of error.

Calculating Sten Scores

When using Strengths, the user does not need to calculate sten scores manually as the Oasys online assessment system does this. However, for those who are interested or would like a reminder, the formulae for calculating sten scores are presented for reference below.

To work out a person's sten score you first need to calculate the Z-score. A Z-score represents how far away a person's score is from the group mean in standard deviation units. The formula to calculate a person's Z-score is as follows:

$$\text{Z-score} = \frac{\text{Individual's raw score - Mean of the group}}{\text{Standard Deviation}}$$

$$\text{Z-score} = \frac{X - \bar{X}}{SD}$$

From this, you can work out a person's sten score. The formula for calculating sten scores is given below:

$$\text{Sten score} = (\text{Z-score} \times 2) + 5.5$$

A sten score gives a rounded representation of a person's score against a benchmark comparison group. One sten score covers half of a standard deviation from the bottom to the top of the score band.

Standard Error of the Mean (SE_{mean})

Standard Error of the Mean (SE_{mean}) measures of how accurate a representation your sample mean is of the 'true' population mean. The larger your sample size, the more accurate it is at representing the true population mean. Table 9.1 demonstrates how SE_{mean} is related to sample size.

Table 8.1 Standard Error of the Mean at different sample sizes

Sample Size	SE_{mean} (stens)
50	.29
100	.20
250	.13
500	.09
1,000	.06
10,000	.02

There is always a quest within psychometric assessment to have the largest possible numbers for the analysis and interpretation of data. While this is essential for reliability and validity analysis, when considering Standard Error of the Mean, it can be seen that this is not always as important. As can be seen in Table 8.1, after a sample size of around 500, the impact of increasing sample size upon Standard Error of the Mean is negligible on an already small error.

So although in general the larger the sample size the better, in terms of normative data collection very large samples are often less important than other considerations. The most important consideration in collecting normative data when samples are larger is often how representative the sample is of the population.

A note on the importance of normative information and validity

If a test has a wide range of different norm groups with thousands of people in each but has no evidence of validity, then norms in and of themselves are of no value for the purpose of predicting job performance or potential.

Available Norm Groups

Saville Consulting's development program is producing versions of Work Strengths in over 30 languages. Please contact your local Saville Consulting office for further information.

8.2 Stratification of the Saville Consulting Work Strengths Norms

On Different Norms

Population Norms

Population norms are usually stratified to be representative of an entire country's population in terms of age, gender, social class, ethnicity, geographical location etc. Saville Consulting have not attempted – and have no plans to attempt – a population norm for Saville Consulting Work Strengths. The authors' previous experience of conducting population norm standardizations of the OPQCM5.2 and the OPQ32n indicated that these norms were relatively rarely used and were unrepresentative of the samples they were being applied to in selection and development. Not only were these norms unrepresentative in terms of key biographical variables of the operational contexts in which the assessment are used, such as educational and job level, but, perhaps more importantly, those participants completing the assessments did so with very different motivations behind their responses. The motivations and therefore the responses of candidates applying for a job versus individuals completing an assessment for developmental purposes tend to be very different to those of individuals randomly sampled for a population norm. This means that population norms tend to be unrepresentative of both candidates applying for a job and individuals completing assessments as part of a developmental process.

Client Norms

Client norms are at the opposite end of the norm spectrum to population norms in terms of their representativeness. They are collected for a particular client for a particular purpose. A company may seek, for example, their own norm consisting of all graduate recruitment candidates from the previous year. These norms are only likely to be unrepresentative where the group is changing significantly over time. A disadvantage is that it does not compare candidates to an external benchmark from other companies.

User Norms for Work Strengths

User norms for Work Strengths are based on operational use and are largely stratified to provide users of an assessment the opportunity to choose a large representative group which has high face validity to the users of the assessment, e.g., 'UK Graduates'.

Work Strengths norms are stratified into:

- **Professionals & Managers**
- **Graduates**
- **Mixed Occupational Group**
- **Individual Contributors**

Norms of three types are published:

- **National Norms (e.g., UK)**
- **Regional Norms (e.g., Europe)**
- **International Norms (worldwide usage sample)**

International Norms are available for occasions where it is less appropriate or not possible to apply a comparison group from an individual country. Where a group is international, users may want to reflect on the composition of these norms (information provided in the Appendices) to decide on whether they are appropriate. There is in fact a great deal of similarity between the scores based on International norms and UK and US norms.

In practice, with Strengths, the highest number of completions tends to be for the Graduate level and, as a result, when we are standardizing a questionnaire in a new language and/or country, this is one of the first norms that is typically produced.

Saville Consulting user norms were collected from the Oasys system and are comprised of job applicants and candidates for other assessment purposes such as individual development, talent management or team building. A small minority will have been for research and validation purposes (<5%). Where there are large numbers of completions within one organization, country or region, over-reliance on one particular sample was prevented by limiting the number of such completions in norm groups to 30%.

Saville Consulting Norms 2009 and 2011

Norm data was collected in occupational use except where clients had requested to not be included. All responses and associated demographical information of individuals who completed the questions which were later used to construct Strengths were retrieved, which amounted to N=62,285 completions in 2009. After removing those completed for system testing purposes, only responses with corresponding biodata were considered for the norm groups. The dataset was then split by culture. Based on completion numbers per cultural group, the data was divided into three separate datasets, namely UK (N=33,730), US (N=4,271), International (N=13,333). 'International' refers to all non-UK/-US data in addition to 20% of randomly selected cases of the UK and US data respectively.

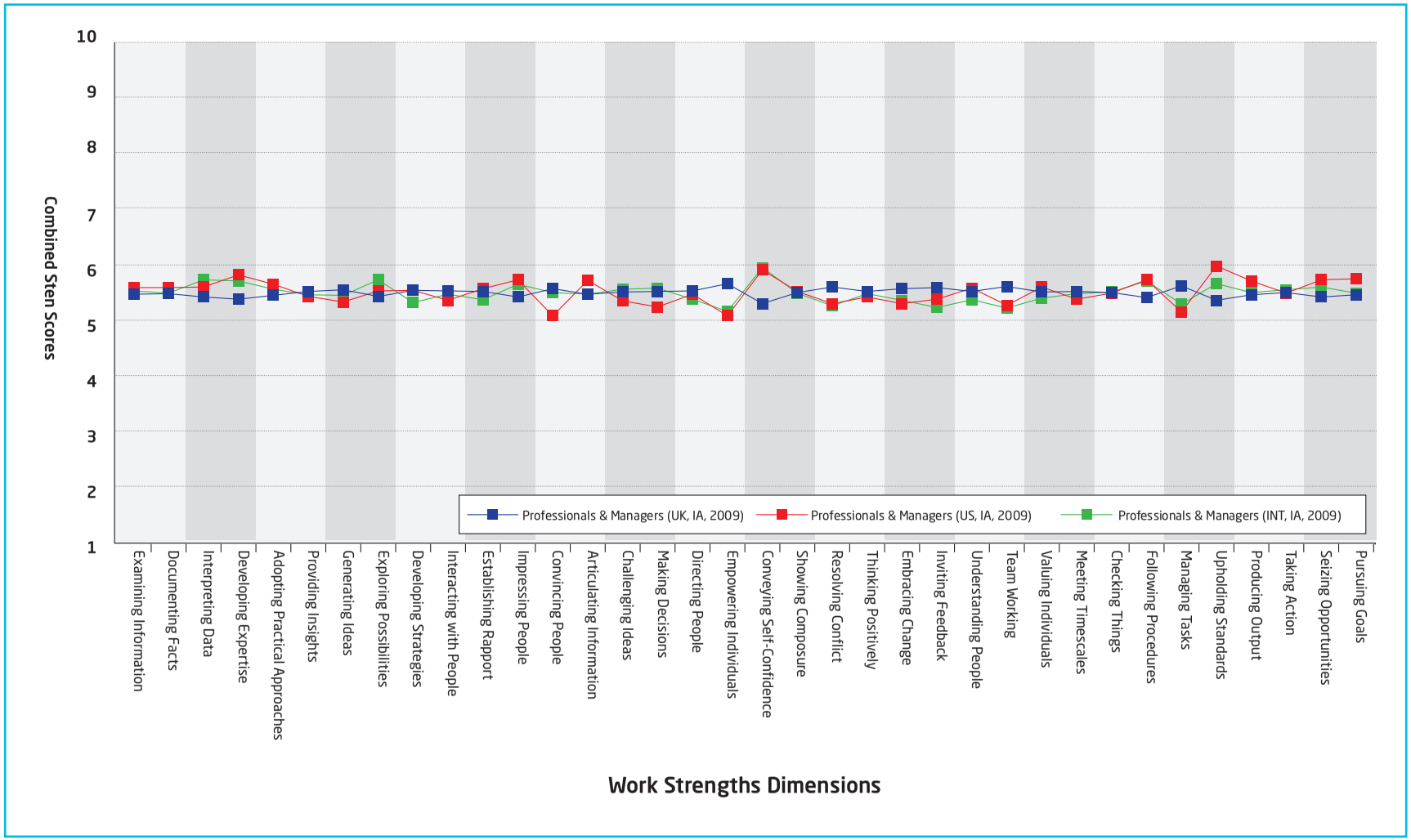
Subsequently, the US, UK and International cultural groups were further broken down by levels of management responsibility to achieve a Professionals & Managers group and Graduates group for each dataset. The Professionals & Managers norm group included individuals who described their management level as 'Manager', 'Team Leader', 'Professional/Specialist', 'Management Trainee', 'Board', 'Executive' or 'Senior Manager'. Meanwhile, the Graduates norm group included individuals who indicated that they had a first/undergraduate or postgraduate degree as their highest qualification.

Individual Contributors norms were created in 2011. Norm data and associated demographical information was gathered in occupational use (except where clients had requested to not be included), amounting to N=109,290 completions. Mirroring the process undertaken in 2009, system testing completions were removed and only responses with corresponding biodata were retained for the norm groups. The dataset was again split by culture and divided into three separate datasets, namely UK (N=3,190), US (N=323) and International (N=2,202). Since this set of norms was meant to represent a non-managerial population, only cases in which participants had described themselves as professional or non-professional individual contributors or those that had indicated not having any management responsibility were considered. As a further safeguard to ensure the norms would consist of non-managerial data only, participants who had described their job titles as 'Director', 'Manager', 'Leader' or 'Executive' were also subsequently excluded.

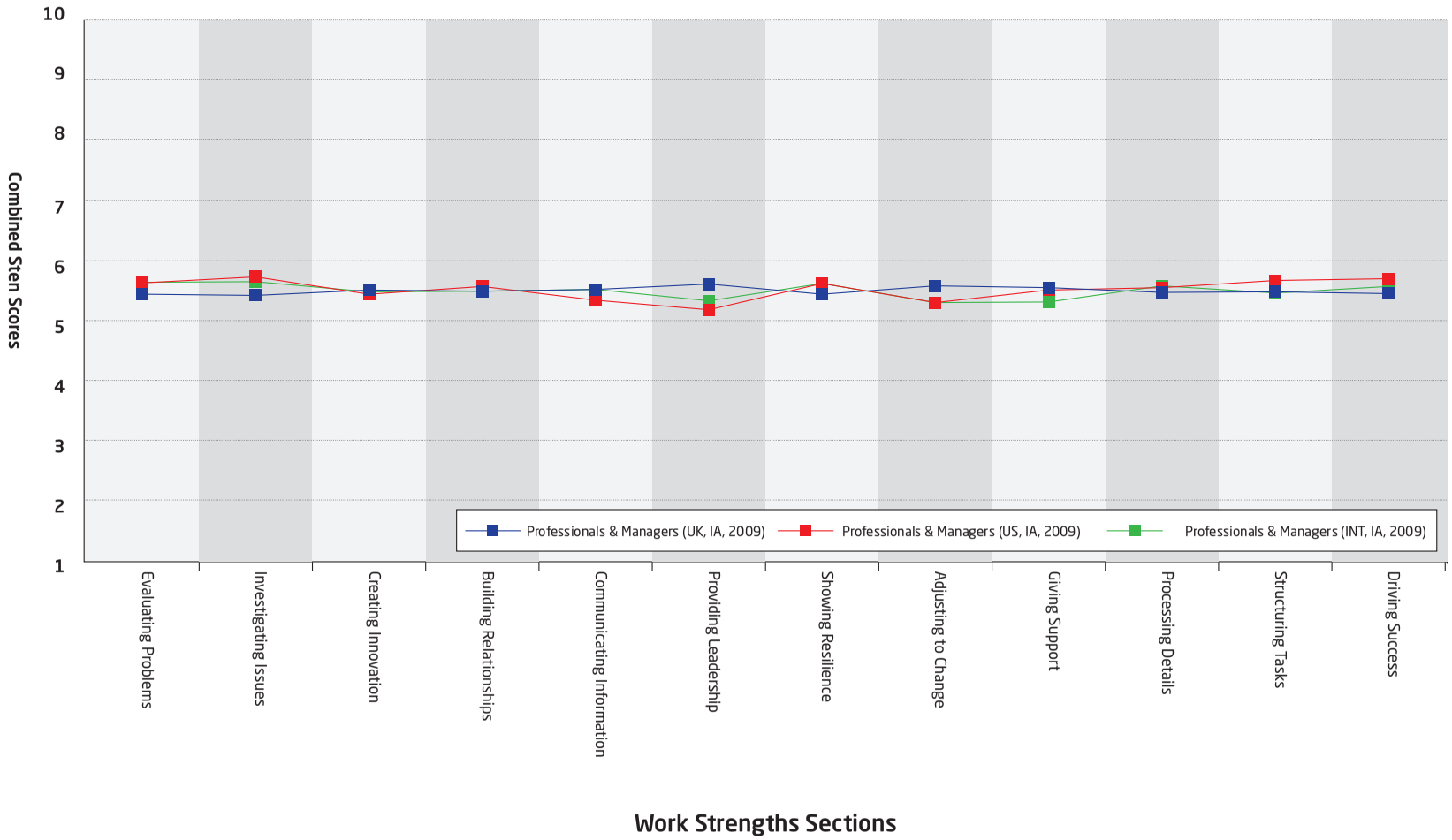
8.3 Work Strengths Regional Norms

In the following graphs and supporting text, Cohen's d is referred to, where .20 of an SD (.40 of a sten) is a small effect, .50 of an SD (1 sten) is a medium or moderate effect size and .80 of an SD (1.60 stens) is a large effect size.

Graph 8.1 Comparison of Work Strengths Dimension Scores for the Professionals & Managers UK (N=9,884), US (N=1,849) and International (N=2,600) Norm Groups



Graph 8.2 Comparison of Work Strengths Section Scores for the Professionals & Managers UK (N=9,884), US (N=1,849) and International (N=2,600) Norm Groups



Graphs 8.1 and 8.2 compare mean Work Strengths dimension and section sten scores for the Professionals & Managers norm groups across the three regions (UK, US and International).

No moderate or large differences between mean scores were found between the three regions at dimension or section level.

A small difference was found for the dimension 'Conveying Self-Confidence', with the UK group tending to rate themselves lower on this scale than the International (effect size of -.32 of an sd) and US (-.31) groups.

The UK group, however, tended to rate themselves higher than the International and US groups at 'Empowering Individuals' (.25 and .29 respectively).

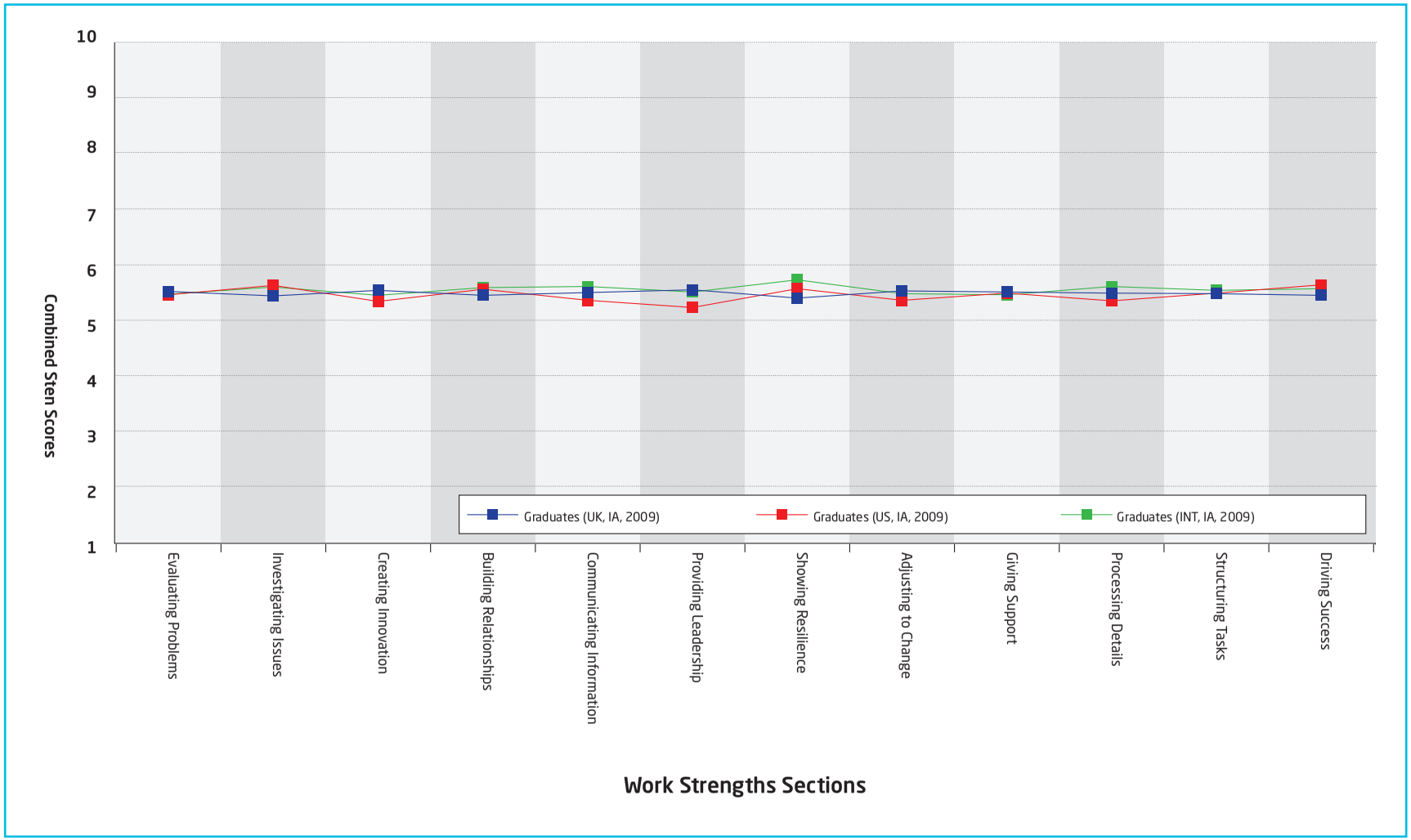
Small effect sizes between the UK and US groups were also found for the dimensions 'Developing Expertise' (.21) and 'Upholding Standards' (.30), where the US group rated themselves higher than the UK group. Conversely, the UK group tended to rate themselves higher at 'Convincing People' (.24) and 'Managing Tasks' (.23).

A small effect size of .20 was found for the dimension 'Team Working' between the UK and International groups, with the UK group rating themselves higher.

At section level, a small effect size was noted for the scale 'Following Procedures' (.21), where the UK group tended to rate themselves higher than the US group.

Graph 8.3 Comparison of Work Strengths Dimension Scores for the Graduates UK (N=4,021), US (N=685) and International (N=1,423) Norm Groups

Graph 8.4 Comparison of Work Strengths Section Scores for the Graduates UK (N=4,021), US (N=685) and International (N=1,423) Norm Groups



Graphs 8.3 and 8.4 compare mean Work Strengths dimension and section sten scores for the Graduates norm groups across the three regions (UK, US and International).

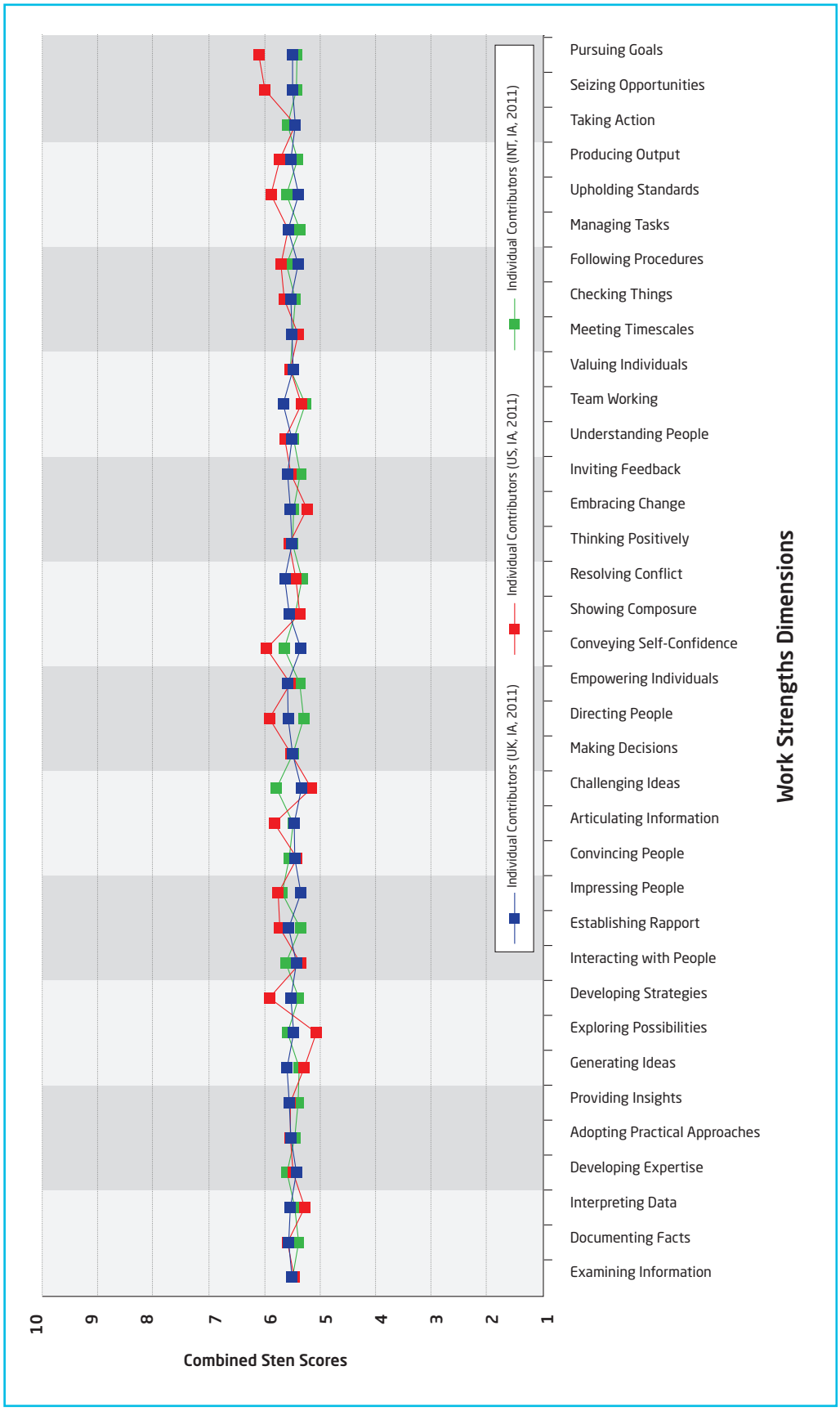
While no differences between mean scores were found at section level, small differences similar to those observed between the Professionals and Managers norm groups were found between the Graduates norm groups at dimension level.

The UK group tended to rate themselves higher than the US group on the dimensions 'Empowering Individuals' and 'Managing Tasks', with effect sizes of .29 and . .33 of an SD respectively.

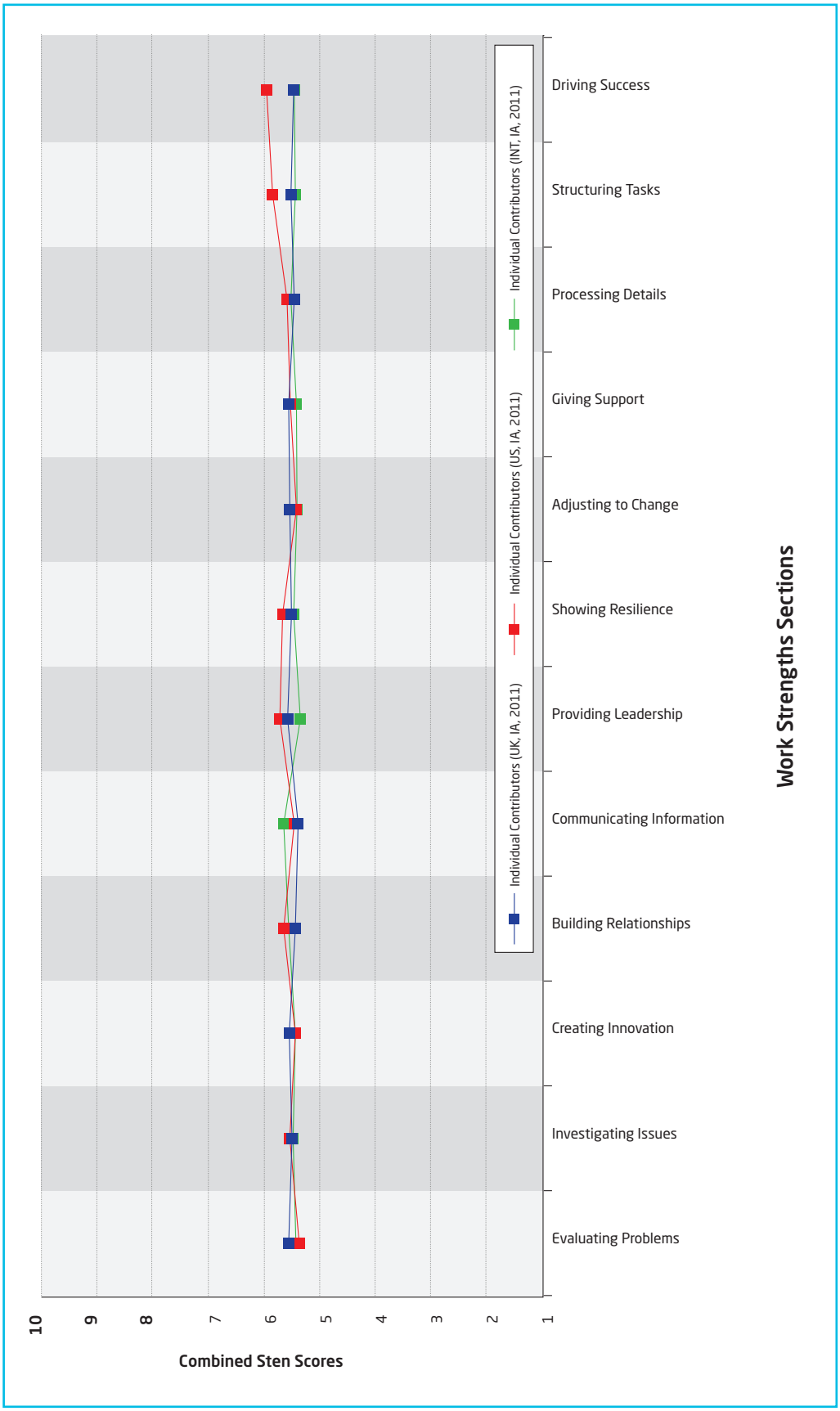
However, the UK group tended to rate themselves as lower than both the US and International groups on the dimensions 'Conveying Self-Confidence' (-.26 and -.32 respectively) and 'Upholding Standards' (-.26 and -.20 respectively).

Finally, a small effect size of .28 was observed between the US and International groups for the dimension 'Convincing People', where the International group tended to rate themselves more highly.

Graph 8.5 Comparison of Work Strengths Dimension Scores for the Individual Contributors UK (N=3,190), US (N=323) and International (N=2,202) Norm Groups



Graph 8.6 Comparison of Work Strengths Section Scores for the Individual Contributors UK (N=3,190), US (N=323) and International (N=2,202) Norm Groups



Graphs 8.5 and 8.6 compare mean Work Strengths dimension and section sten scores for the Individual Contributors norm groups across the three regions (UK, US and International).

No medium or large differences were found between the three regions at dimension or section level.

Three small differences were found at section level. The US group tended to rate themselves higher at 'Driving Success' than the UK and International groups, with effect sizes of .24 in both cases. The remaining difference was found for the section 'Structuring Tasks' (.20), where the US group tended to rate themselves higher than the International group.

Small differences were found between the UK and International groups on two dimensions; the UK group rated themselves higher on 'Team Working' (.20), whereas the International Group rated themselves higher on 'Challenging Ideas' (-.22). The International group also rated themselves higher than the US group at 'Challenging Ideas' (-.30).

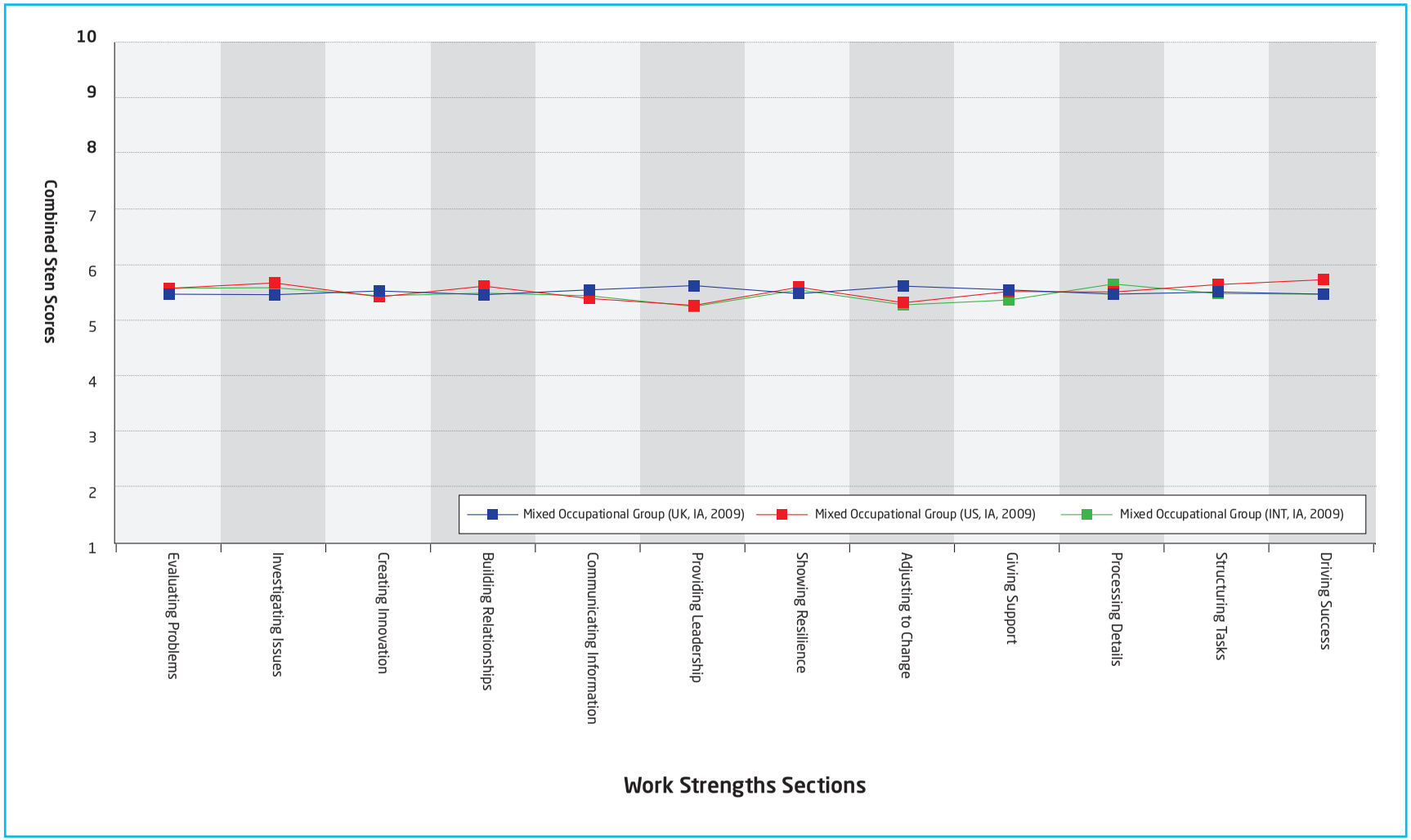
The US rated themselves higher than the UK on the dimensions 'Pursuing Goals' (-.31) and 'Seizing Opportunities' (-.25). They also rated themselves higher than the International group on the same dimensions; Pursuing Goals (.34) and 'Seizing Opportunities' (.27). However, for the dimension of 'Exploring Possibilities' the reverse was seen, where the UK and International groups rated themselves higher than the US group, with effect sizes of .20 and .26 respectively.

Other small effect sizes observed between the US and UK groups included .31 for the dimension 'Conveying Self-Confidence', .24 for 'Upholding Standards', and finally .20 for 'Impressing People'. In each case the US group rated themselves higher.

Finally, small differences were noted at dimension level between the US and International groups for the dimensions 'Developing Strategies' (.26) and 'Directing People' (.30), where the US group tended to rate themselves higher.

Graph 8.7 Comparison of Work Strengths Dimension Scores for the Mixed Occupational Group UK (N=10,953), US (N=2,143) and International (N=3,095) Norm Groups

Graph 8.8 Comparison of Work Strengths Section Scores for the Mixed Occupational Group UK (N=10,953), US (N=2,143) and International (N=3,095) Norm Groups



Graphs 8.7 and 8.8 compare mean Work Strengths dimension and section sten scores for the Mixed Occupational norm groups across the three regions (UK, US and International).

No differences were found between the three regions at section level. At dimension level a few small differences were noted when the UK group was compared to the US and International groups, which were similar to those observed in the other norm groups. Specifically, the UK group tended to rate themselves higher than the US and International groups at 'Empowering Individuals' (effect sizes of .27 and .26). The UK group also rated themselves higher than the US group at 'Managing Tasks' (.25).

Conversely, the UK group tended to rate themselves lower than both the US and International groups on the dimension 'Conveying Self-Confidence', with the effect sizes being .31 and .27 respectively.

Other differences observed between the UK and US group included small effect sizes for the dimensions 'Upholding Standards' (.30) and 'Adopting Practical Approaches' (.20), where the US group tended to rate themselves higher than the UK group.

A final small effect size between the UK and International groups was found for 'Team Working' (.20), with the International group rating themselves higher.

No effect sizes at dimension level were observed between the US and International groups.

8.4 Summary

As discussed earlier in the chapter, there exists a great deal of similarity between scores based on International, UK and US norms. As well as analyzing differences between regions, differences between the norm group levels within each region were investigated.

Across all regions, very few small differences were observed between the Professional & Managers and Graduates norm groups, and no medium or large effects were found.

An increased amount of small differences were seen between the Graduates and Individual Contributors groups. One moderate difference was found for the dimension 'Directing People', where the International Graduates tended to rate themselves higher than Individual Contributors.

A number of small to moderate effect size differences were observed between the Individual Contributors group and the Professionals & Managers group. The majority of these effects were shown to be consistent throughout each region. Moderate effects were observed for the dimensions 'Directing People', 'Providing Insights', 'Developing Strategies', Convincing People', 'Making Decisions', 'Embracing Change', 'Taking Action', 'Seizing Opportunities' and 'Pursuing Goals', with the Professionals & Managers group rating themselves higher than the Individual Contributors group. Conversely, the Individual Contributors group rated themselves higher than the Professionals & Managers group on the dimension 'Following Procedures'.

It is perhaps unsurprising that the Professionals & Managers group were a little higher than average on characteristics related to leadership, and the individual contributors who have no management responsibility being higher on following procedures.

The normative data helps to provide reassurance about the consistency of measurement across international samples and levels that would be expected of a tool to be used for selection in and across different regions and nationalities.

Further information on Work Strengths norms can be found in the Appendices of this handbook.

9.0 Reliability

When people are tested on different occasions or on different versions of the same test, why do they get different scores? Because we cannot measure people's traits with perfect reliability.

Reliability of any test or assessment is concerned with how precisely the instrument measures particular characteristics or traits.

Reliability estimates provide an index of how precise and error free a tool is in measuring the desired constructs. The reliability of a test or assessment is an important prerequisite to allowing the test user to draw accurate inferences from assessment scores. The observed scores on the assessment are intended to provide an approximation of the individual's true scores. If test or profile scores are unreliable they provide a less precise and less accurate reflection of the individual's true scores. Higher reliability means less error and a greater likelihood that the observed scores are an accurate reflection of the individual's true scores.

Reliability is merely a stepping stone or prerequisite of test or questionnaire validity. If a test user is to draw a correct and meaningful inference from assessment scores, the assessment must first be reliable. That is not enough, however, as the assessment should also be supported by appropriate validity data. A questionnaire must first measure a construct reliably for it to be a valid indicator from which a test user can draw appropriate inferences and make accurate decisions. In essence, the greater the reliability, the greater the chance of high validity.

There are several methods of estimating test reliability. Three common approaches are detailed below.

Alternate Form Reliability

Where two or more versions of the test or assessment have been developed by the same developers, it is possible to estimate the reliability between the versions.

A group of people complete both versions of the test or assessment and a correlation coefficient (Pearson product-moment) is calculated. This correlation provides an index of alternate form reliability. In other words, people who score high on one version also score high on the alternate version, and low scorers score low on both. When an assessment has high alternate form reliability, it means we can be confident that a person would achieve a similar score irrespective of which version of the assessment was used. A development aim of Work Strengths was that this form of reliability should be as high as possible.

Test-Retest Reliability

Another way to estimate reliability is to look at the stability of test scores over time. This can be accomplished by a group of individuals completing the test or assessment on two separate occasions. The Pearson product-moment correlation coefficient between how the group scores on a scale on one occasion and then on the second occasion provides this estimate of reliability. A development aim of Work Strengths was that this form of reliability should be as high as possible.

Internal Consistency Reliability

This form of reliability is an index of how the items in a test (or a personality scale) relate to one another. Where alternate form and test-retest are available, these are preferable to internal consistency. This is particularly true where the reliability of short scales is being estimated, as is the case with Strengths.

9.1 Work Strengths Reliability Overview

Alternate Form Reliability

The alternate form reliability of Saville Consulting Work Strengths is based on the Invited Access (IA) version of Work Strengths and an alternative version (AV) which is not commercially available. Alternate form reliabilities of .70 and above are regarded as acceptable levels of reliability for a trait measure, although higher levels than this are desirable. Tables 9.1 and 9.3 display the means and standard deviations for both versions of the Work Strengths questionnaire, along with their alternate form reliability coefficients (r_t) at the dimension and section levels respectively. At dimension level, the mean and the median reliability of the scales are .82, with reliability estimates for any dimension ranging between .72 and .90.

Construct independence between the scales is demonstrated by the 'Other Highest Correlation' and 'Other Dimension/Section' columns, which show the highest correlation (other than that with the parallel version of the dimension/section of the same name) of one dimension/section in one version with the dimension/section in another (the off diagonals in a correlation matrix).

As can be seen from Tables 9.1 and 9.3, these correlations are substantially lower than the alternate form correlations between the same scales, demonstrating good construct independence of the dimensions/sections at the individual dimension/section level. The highest correlation between different dimensions across the two versions is between Establishing Rapport (IA) and Interacting with People (AV) with a correlation between the scales of .68. However, the respective alternate form reliability estimates of the two dimensions are .85 in both cases. The highest correlations between the different sections across the two versions are between Providing Leadership (IA) and Driving Success (AV), and between Processing Details (IA) and Structuring Tasks (AV), with a correlation between the scales of .69. The respective alternate form reliability estimates of the four sections are .89 for Providing Leadership, .90 for Driving Success, .93 for Processing Details and .87 for Structuring Tasks.

Test-Retest Reliability

Tables 9.2 and 9.4 provide the test-retest reliability of Saville Consulting Work Strengths administered at an eighteen month interval for the dimension and section levels respectively. At the dimension level coefficients ranged from .54 (Examining Information) to .82 (Interpreting Data), and the mean and median coefficients were .72.

9.2 Reliability Tables

Table 9.1 Work Strengths Alternate Form Reliability - Invited Access (IA) vs. Alternative Version (AV) (dimension level) (N=1153)

Work Strengths Competency Potential (Predictor)	(IA) Mean	(IA) SD	(SA) Mean	(SA) SD	SEm (stens)	r_t	Other Highest Correlation	Other Dimension
Examining Information	1522.46	254.80	1528.57	263.23	.93	**.78**	.50	Providing Insights
Documenting Facts	1495.07	226.22	1466.41	247.80	1.02	**.74**	.40	Examining Information
Interpreting Data	1406.12	335.29	1352.48	333.76	.65	**.89**	.45	Examining Information
Developing Expertise	1501.06	274.34	1563.64	235.46	1.06	**.72**	.50	Exploring Possibilities
Adopting Practical Approaches	1554.60	220.10	1571.95	211.56	1.04	**.73**	.29	Providing Insights
Providing Insights	1574.26	231.28	1561.48	245.53	.93	**.79**	.56	Directing People
Generating Ideas	1225.42	329.86	1191.54	346.26	.70	**.88**	.63	Developing Strategy
Exploring Possibilities	1385.65	271.41	1304.46	290.37	.94	**.78**	.58	Generating Ideas
Developing Strategies	1325.54	282.35	1273.42	274.27	.91	**.79**	.61	Generating Ideas
Interacting with People	1303.04	288.31	1301.57	279.79	.78	**.85**	.65	Establishing Rapport
Establishing Rapport	1487.74	329.29	1490.00	330.59	.79	**.85**	.68	Interacting with People
Impressing People	1064.22	307.39	1049.08	290.90	.68	**.88**	.45	Interacting with People
Convincing People	1302.85	298.94	1282.86	309.33	.80	**.84**	.53	Seizing Opportunities
Articulating Information	1286.22	314.09	1281.91	311.64	.72	**.87**	.54	Convincing People
Challenging Ideas	1285.04	280.90	1232.05	299.23	.87	**.81**	.44	Generating Ideas
Making Decisions	1340.63	275.58	1358.81	276.50	.86	**.81**	.60	Directing People
Directing People	1411.11	316.30	1424.88	317.45	.74	**.86**	.61	Making Decisions
Empowering Individuals	1415.92	292.09	1347.24	310.07	.89	**.80**	.48	Convincing People
Conveying Self-Confidence	1287.34	313.99	1379.62	317.12	.85	**.82**	.52	Directing People
Showing Composure	1392.55	292.37	1392.21	294.90	.80	**.84**	.50	Embracing Change
Resolving Conflict	1497.74	271.56	1428.30	278.41	.87	**.81**	.58	Understanding People
Thinking Positively	1515.81	272.75	1452.14	275.04	.92	**.79**	.41	Establishing Rapport
Embracing Change	1380.19	290.44	1384.14	284.55	.86	**.82**	.52	Taking Action
Inviting Feedback	1425.23	244.50	1498.15	240.34	1.04	**.73**	.28	Embracing Change
Understanding People	1574.59	317.63	1523.74	322.37	.81	**.84**	.67	Valuing Individuals
Team Working	1579.18	238.50	1551.27	248.06	.94	**.78**	.57	Valuing Individuals
Valuing Individuals	1523.92	309.21	1536.98	294.27	.91	**.79**	.63	Understanding People
Meeting Timescales	1585.34	358.98	1574.98	356.87	.65	**.89**	.63	Checking Things
Checking Things	1552.77	352.93	1573.54	332.85	.69	**.88**	.63	Meeting Timescales
Following Procedures	1480.25	370.32	1485.13	361.32	.67	**.89**	.65	Checking Things
Managing Tasks	1511.21	274.99	1503.52	282.97	.81	**.84**	.57	Meeting Timescales
Upholding Standards	1653.25	265.79	1766.68	252.51	.95	**.78**	.54	Valuing Individuals
Producing Output	1618.47	273.51	1579.43	280.38	.76	**.86**	.63	Meeting Timescales
Taking Action	1375.47	273.44	1433.95	277.58	.86	**.81**	.55	Directing People
Seizing Opportunities	1276.81	359.06	1277.64	350.92	.64	**.90**	.66	Pursuing Goals
Pursuing Goals	1384.48	283.51	1425.93	295.95	.85	**.82**	.64	Seizing Opportunities
Mean	1430.60	291.45	1426.38	292.23	.84	**.82**	.55	
Median	1420.57	285.91	1431.13	290.63	.85	**.82**	.57	
Min	1064.22	220.10	1049.08	211.56	.64	**.72**	.28	
Max	1653.25	370.32	1766.68	361.32	1.06	**.90**	.68	

Table 9.2 Test-Retest Reliability of Work Strengths over an eighteen-month interval (dimension level) (N=100)

Work Strengths Competency Potential (Predictor)	Mean t1	SD t1	Mean t2	SD t2	SEm (Sten)	r_t
Examining Information	1473.86	249.97	1459.55	237.31	1.36	**.54**
Documenting Facts	1546.10	233.83	1530.26	262.99	1.19	**.65**
Interpreting Data	1381.55	350.10	1376.00	325.94	.86	**.82**
Developing Expertise	1560.42	261.46	1519.53	233.05	1.05	**.72**
Adopting Practical Approaches	1552.70	256.48	1577.07	229.28	.99	**.76**
Providing Insights	1538.57	244.92	1556.03	234.95	1.35	**.55**
Generating Ideas	1249.23	343.12	1297.67	364.45	1.09	**.70**
Exploring Possibilities	1379.24	278.76	1367.99	269.84	1.18	**.65**
Developing Strategies	1355.99	271.91	1377.33	302.46	1.09	**.70**
Interacting with People	1290.78	305.77	1267.97	316.77	.92	**.79**
Establishing Rapport	1451.31	355.13	1411.28	357.10	.85	**.82**
Impressing People	1087.38	309.47	1066.62	298.28	1.04	**.73**
Convincing People	1250.07	276.96	1247.45	306.60	1.10	**.70**
Articulating Information	1286.39	300.92	1272.69	322.02	.92	**.79**
Challenging Ideas	1235.82	316.31	1233.02	281.75	1.08	**.71**
Making Decisions	1344.90	282.98	1366.46	312.20	1.18	**.65**
Directing People	1425.03	348.46	1467.54	354.36	1.06	**.72**
Empowering Individuals	1414.40	280.85	1404.39	302.10	1.27	**.60**
Conveying Self-Confidence	1334.64	300.76	1354.28	293.87	.88	**.81**
Showing Composure	1341.11	289.98	1338.90	301.66	1.05	**.72**
Resolving Conflict	1495.55	275.19	1469.69	292.55	1.00	**.75**
Thinking Positively	1437.66	289.12	1380.18	289.96	1.10	**.70**
Embracing Change	1306.13	314.52	1317.50	343.78	.92	**.79**
Inviting Feedback	1432.98	260.38	1409.69	239.56	1.15	**.67**
Understanding People	1569.66	342.77	1525.47	345.22	.94	**.78**
Team Working	1510.82	238.33	1491.78	275.32	1.18	**.65**
Valuing Individuals	1461.75	285.85	1437.77	302.76	1.05	**.72**
Meeting Timescales	1655.01	326.04	1644.32	328.36	.93	**.78**
Checking Things	1615.92	326.46	1637.39	310.79	.97	**.77**
Following Procedures	1515.23	328.94	1519.86	341.90	1.05	**.72**
Managing Tasks	1591.65	265.02	1602.17	261.48	1.01	**.75**
Upholding Standards	1654.41	241.20	1629.63	245.11	1.22	**.63**
Producing Output	1672.46	271.83	1672.62	285.23	.87	**.81**
Taking Action	1403.61	270.91	1448.27	282.47	1.22	**.63**
Seizing Opportunities	1235.72	334.06	1247.13	348.68	.88	**.81**
Pursuing Goals	1424.37	290.86	1403.67	297.31	.97	**.76**
Mean	1430.07	292.21	1425.81	297.15	1.05	**.72**
Median	1429.01	287.49	1410.48	299.97	1.05	**.72**
Min	1087.38	233.83	1066.62	229.28	.85	**.54**
Max	1672.46	355.13	1672.62	364.45	1.36	**.82**

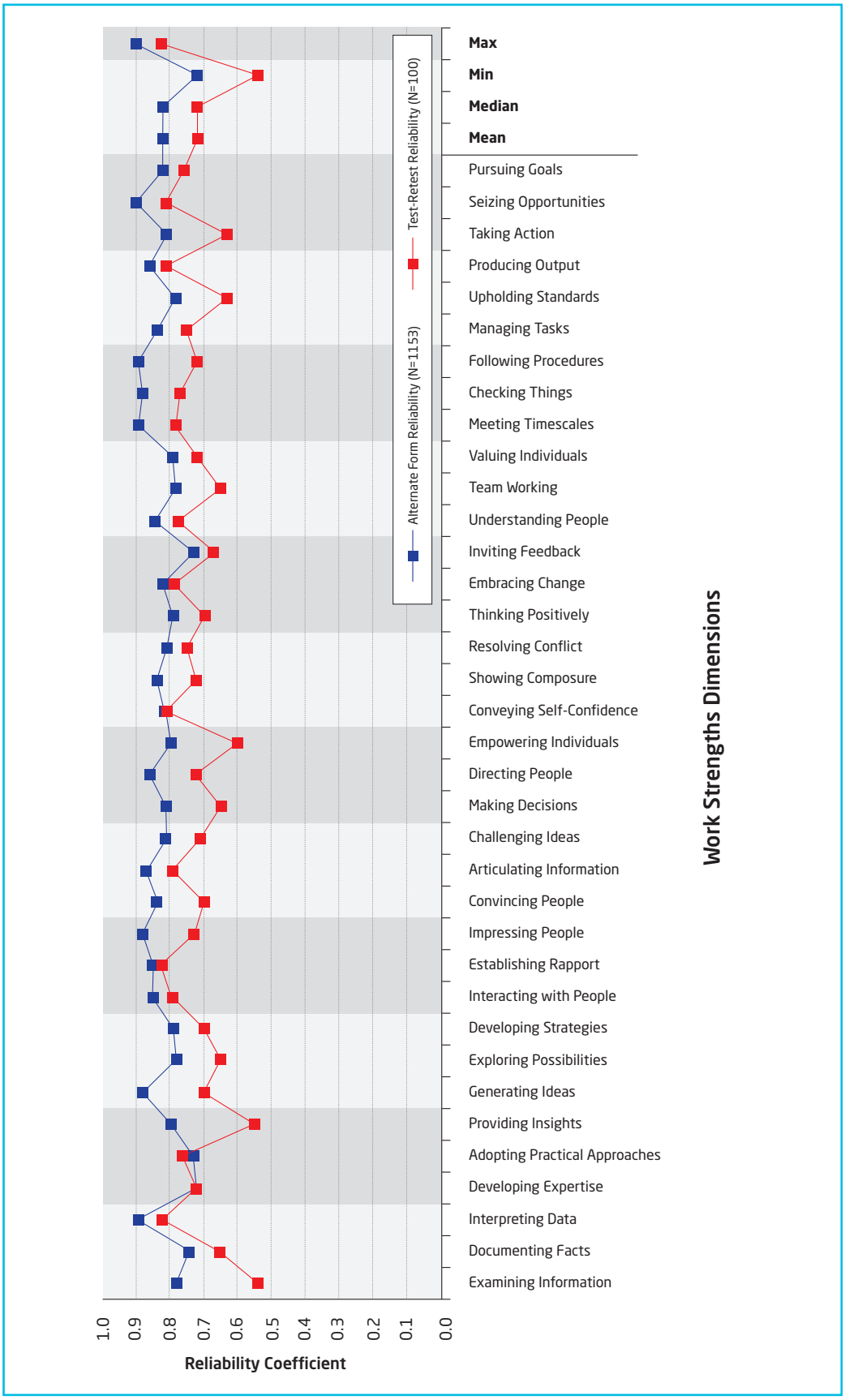
Table 9.3 Work Strengths Alternate Form Reliability - Invited Access (IA) vs. Alternative Version (AV) (section level) (N=1153)

Work Strengths Competency Potential (Predictor)	(IA) Mean	(IA) SD	(SA) Mean	(SA) SD	SEm (stens)	r_t	Other Highest Correlation	Other Dimension
Evaluating Problems	4423.66	618.34	4347.46	644.73	.64	**.90**	.47	Investigating Issues
Investigating Issues	4629.91	476.53	4697.07	456.62	.94	**.78**	.49	Creating Innovation
Creating Innovation	3936.61	740.87	3769.42	793.25	.66	**.89**	.45	Investigating Issues
Building Relationships	3855.00	756.47	3840.66	751.28	.58	**.92**	.44	Communicating Information
Communicating Information	3874.11	687.88	3796.82	707.66	.64	**.90**	.59	Providing Leadership
Providing Leadership	4167.66	695.68	4130.93	702.99	.65	**.89**	.69	Driving Success
Showing Resilience	4177.63	580.95	4200.13	582.90	.72	**.87**	.51	Providing Leadership
Adjusting to Change	4321.22	578.78	4334.44	554.98	.79	**.85**	.48	Showing Resilience
Giving Support	4677.69	755.16	4612.00	755.46	.72	**.87**	.11	Showing Resilience
Processing Details	4618.36	938.56	4633.65	921.90	.53	**.93**	.69	Structuring Tasks
Structuring Tasks	4782.93	537.17	4849.63	528.36	.72	**.87**	.65	Processing Details
Driving Success	4036.76	777.66	4137.53	798.07	.62	**.90**	.71	Providing Leadership
Mean	4291.80	678.67	4279.14	683.18	.68	**.88**	.52	
Median	4249.43	691.78	4267.28	705.33	.66	**.89**	.50	
Min	3855.00	476.53	3769.42	456.62	.53	**.78**	.11	
Max	4782.93	938.56	4849.63	921.90	.94	**.93**	.71	

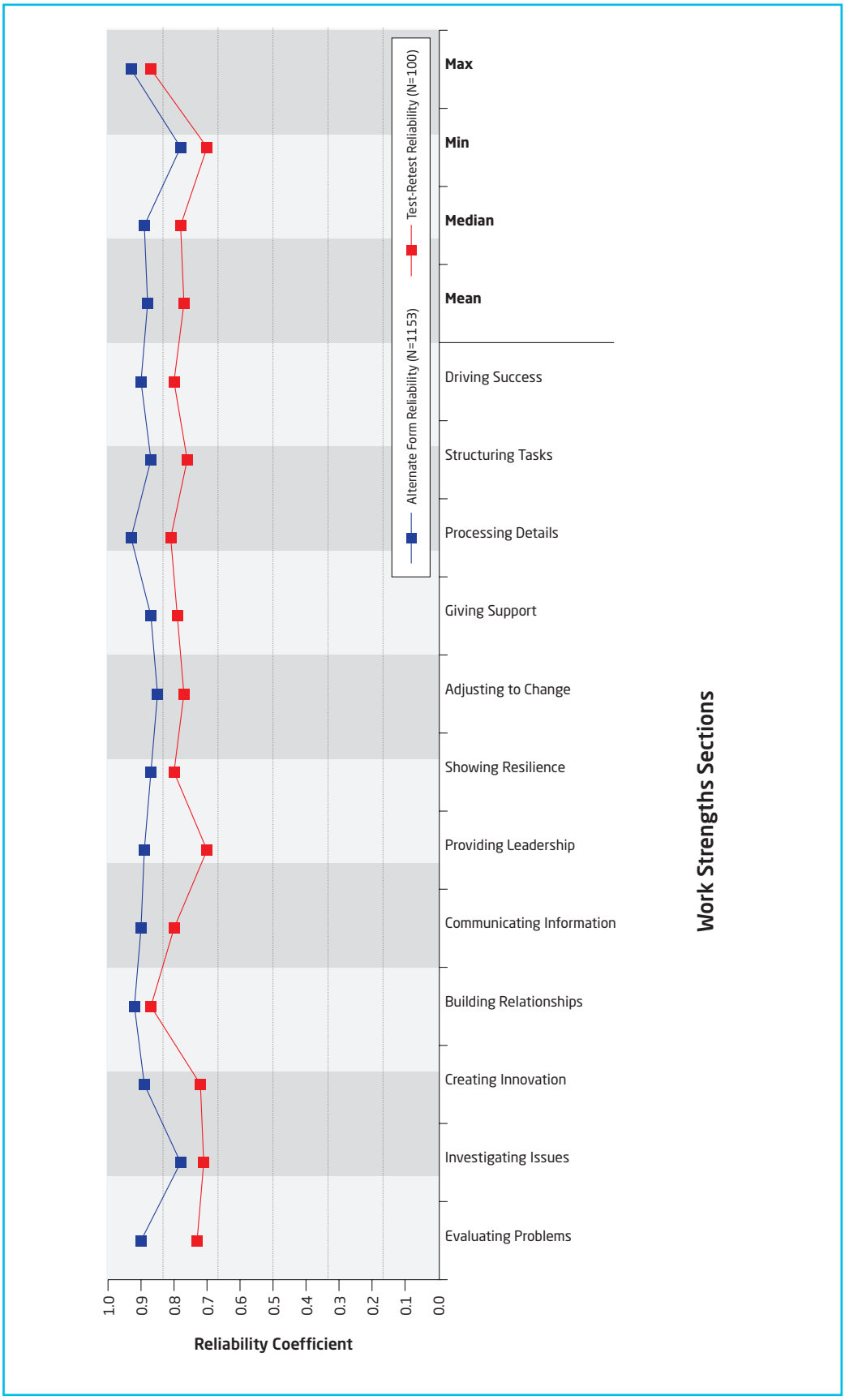
Table 9.4 Test-Retest Reliability of Work Strengths (section level) (N=100)

Work Strengths Competency Potential (Predictor)	Mean t1	SD t1	Mean t2	SD t2	SEm (Sten)	r_t
Evaluating Problems	4401.50	617.47	4365.80	623.22	1.04	**.73**
Investigating Issues	4651.68	508.03	4652.63	494.00	1.07	**.71**
Creating Innovation	3984.45	754.12	4042.98	796.75	1.06	**.72**
Building Relationships	3829.47	837.19	3745.86	821.51	.73	**.87**
Communicating Information	3772.28	658.60	3753.15	705.47	.90	**.80**
Providing Leadership	4184.33	649.35	4238.39	704.37	1.09	**.70**
Showing Resilience	4171.29	557.24	4162.86	538.99	.90	**.80**
Adjusting to Change	4176.77	581.14	4107.36	623.81	.97	**.77**
Giving Support	4542.23	766.25	4455.02	811.31	.92	**.79**
Processing Details	4786.16	840.83	4801.56	805.28	.87	**.81**
Structuring Tasks	4918.52	510.02	4904.42	517.43	.99	**.76**
Driving Success	4063.70	764.64	4099.07	803.84	.88	**.80**
Mean	4290.20	670.41	4277.42	687.17	.95	**.77**
Median	4180.55	653.98	4200.62	704.92	.94	**.78**
Min	3772.28	508.03	3745.86	494.00	.73	**.70**
Max	4918.52	840.83	4904.42	821.51	1.09	**.87**

Graph 9.1 Alternate Form and Test-Retest Reliability of Work Strengths (dimension level)



Graph 9.2 Alternate Form and Test-Retest Reliability of Work Strengths (section level)



9.3 Summary of Reliability

No measure of human traits has perfect reliability, yet good reliability of measurement is an important property of any assessment. This chapter highlights, given the design of Work Strengths, the importance of alternate form reliability as an appropriate method for the estimation of reliability.

Alternate form median at standardization was .82 (no corrections applied). A Test-Retest was conducted with a month's interval between original test and retest during development and achieved a median of .72 for the dimensions.

Alternate form also provides a method of investigating construct separation, and the Work Strengths dimensions provide clear evidence supporting this separation.

Further information can be found in the 'Work Strengths Norms' chapter, 'Fairness' chapter, and the appendices of this Handbook, as well as in the Wave Professional Styles Handbook.

10.0 Validity

If making better decisions about people is important, then it is essential for an assessment instrument to provide evidence of its validity.

This chapter is divided into two parts: the first part focuses on criterion-related validity evidence and the second concentrates on construct-related validity evidence. Because validity is central to effective test application, this chapter begins with a general discussion of the subject. It continues by offering perspectives on validity which are important underpinnings for the user in understanding what makes the Strengths questionnaires different from other personality questionnaires.

How do we know that a test or an assessment works and actually does what it claims to do? How do we know if the inferences and decisions made using one assessment are any better than another? How can we know which assessment tools are most accurate and will maximize the amount of benefit derived from the information provided? Which tool is the best investment for our organization?

These and other related questions are fundamental to the development and continuous improvement of assessment practices and tools in the workplace as they directly relate to the validity of a test or assessment.

What is Validity?

Saville Consulting Wave® Strengths assessments have been designed to maximize validity in forecasting overall effectiveness at work and key workplace competencies.

> Validity is a unitary concept. It is the degree to which all the accumulated evidence supports the intended interpretation of the test scores for proposed purpose.
>
> *Standards for Educational and Psychological Measurement, American Psychological Association 1999*

Accumulated evidence can come from many places. Today's understanding of validity evolved from the notion that there are different types of validity evidence. It is important to understand these aspects of validity evidence and how they relate to Strengths assessments as they help to support different inferences that can be made from test scores.

Predictive validity is a type of criterion-related validity evidence. It is particularly applicable when one wishes to make an inference from a test or assessment score about the test-taker's position on another independently evaluated criterion variable at a later date.

An example of a predictive validation study would be to investigate if an assessment designed to forecast sales potential correlated with future sales performance. Such a validation study might be based on the identification of critical sales behaviors through a job analysis study. This leads to an assessment being selected that purports to measure the sales behaviors in question. This measure is then administered to applicants for a sales job – but the assessment scores are not used to decide which sales applicants are

actually hired. The job analysis and the selection of the test lead directly to an a priori hypothesis that higher test scores will be related to better sales performance (which could be measured, for example, by sales revenue generated in a quarter). Time goes by and the newly selected sales staff get on with their jobs. A year later (or at an appropriate time to judge) sales performance is collated and analyzed to see if higher test scores do generate more sales revenue. The presence of an association or correlation between assessment results and how the sales staff later performs can then be evaluated. Typically, the organizer of the study may consider how likely the correlation is to assume a different range of values, including whether it is not likely to be a zero correlation (statistical significance). This also might be followed by an examination of aspects of the study that might have an effect on the size of the association (e.g., restriction of range, inter-rater reliability being less than perfect).

Note that often a 'hard' criterion such as sales performance is not practically achievable in many jobs. And even 'hard' job performance criteria can have systematic biases, e.g., being given a geographical region that has historically poor sales.

Supervisor ratings are an alternative method of job assessment which are often collected (see the Criterion Problem Revisited in the Validity chapter of the Wave Professional Styles Handbook).

Sometimes predictive validation studies are run on a well-established test being actively used by an organization. Under these circumstances, the organization's selection process may have removed low scorers based on the results of the assessment, and it is therefore not possible to later assess how these low scorers on the test or assessment might subsequently perform in the job. This restriction of range will reduce the size of the association seen between the assessment and the job performance measure and consequently underestimate the usefulness of the test.

Concurrent validity is another type of criterion-related validity evidence. It is similar to a predictive validation design in that a predictor assessment is correlated with a criterion outcome of performance in the job. The difference is that there is no time lag between the initial assessment and the independent evaluation of performance on the job (the assessment score and job performance measure are collected concurrently).

One advantage of a concurrent validation study is that users don't have to administer a test at time one and then wait until time two before examining the relationship between the test and job performance. If a relationship is found between the test scores and current levels of performance, then concurrent validation evidence provides support for the test to be used with job applicants to identify those who are more likely to perform better. For practical reasons, organizations rarely want to have a substantial delay before seeing if a test works for them.

As with a predictive design, a potential difficulty in running this type of study is the need for a sufficiently large sample of participants to make the interpretation of the association between the predictor and criteria statistically meaningful.

Another problem is that poor performers (or indeed good performers) may have already left the organization or have been promoted (leading to potential restriction of range).

A common confusion is the use of benchmarking studies as a means to validate a test. Benchmarking is a useful exercise where, for example, the characteristics of top performers are identified. The objective is typically to identify what top performers have in common (e.g., which personality traits) so that future hires can be selected using this "top performer" scoring template.

The problem with this approach is that, while it tells us what top performers have in common, it fails to tell us what makes them different from average or poor performers. A benchmarking study is useful in identifying the characteristics that top performers share, but it does not tell us which characteristics are unique to top performers only. An associated problem is that it may just be coincidental that the top performers tend to be high on certain characteristics and not related to their superior performance. Such benchmarking studies used in isolation (without being used alongside a concurrent or predictive design and job analysis) carry particular dangers for organizations as they may lead to the use of a spurious 'scoring key' which is not associated with superior performance (lacks criterion-related validity). The result could not only be that the organization selects many poor performers, but it is likely to lay itself open to an increased risk of litigation if the assessment process is perceived as unfair.

Content validity is related to the appropriateness of the content of the assessment. It seems obvious that a typing test is a 'valid' test for a typist job because the content of the test matches closely the content of the job. Giving a typing test to a CEO candidate, however, might appear odd, because the content of the test does not seem appropriate given the content of a typical CEO position.

Unlike the types of criterion-related validity described above, a content validation study does not rely upon a statistical analysis. Rather, it uses a rationale approach to linking job content to test content. A job analysis study is required to identify and document the critical work behaviors and competencies tied to job success. Once identified, assessment tools that measure that same domain of content (i.e., tasks, behaviors, skills, knowledge) are identified. Job simulation exercises or situational judgment tests are often considered job-relevant and content-valid when the exercises or situations presented resemble those found on the job.

Likewise, a job analysis may identify certain behaviors such as Team Working or Empowering Others to be critical to job success, and Strengths scales can be identified that are similar to the 'behavioral domain' identified in the job analysis. In this way, the Strengths scales can be mapped to a job for the purposes of predicting Person-Job Fit. The Strengths scales can also be mapped to client competency or values models.

One way to identify and document critical workplace competencies, behaviors and aptitudes is to use the Wave Job Profiler or the Wave Performance Culture Framework Cards. Job experts make ratings online or sort behavior cards to specify which competencies are important. This semi-structured approach is a valuable addition to any job analysis study.

Content validity evidence by itself is sufficient to justify an assessment program even for high stakes situations like pre-employment selection and is an accepted validation strategy by regulatory commissions (i.e., Uniform Guidelines on Employee Selection Procedures published by Equal Employment Opportunity Commission of the US Government). However, it is but one type of validity evidence and we recommend the collection of empirical data using criterion-related validation studies in addition to content validation studies.

Construct validity measures how well a test or questionnaire measures the psychological construct that it purports to measure. It is important because it impacts how a test score is interpreted. If a questionnaire claims to measure extroversion, how do we know it actually measures extroversion and not emotional stability? If an assessment claims to measure extroversion but does not, then any interpretation of that score would be wrong and could cause harm to the respondent and to the organization.

An assessment instrument, its items, internal structure and design, along with the responses test-takers give, all lead to scores to be interpreted as representations of underlying psychological constructs. Inferences made on these scores are based on the proposed psychological construct and its relationship with other constructs, both theoretically and empirically. In essence, all validity evidence contributes to an understanding of an assessment instrument's construct validity. Evidence of criterion-related and content validity are therefore subordinate to construct validity – all forms of validity contribute to construct validity. Construct validity is therefore a continuing scientific pursuit to build up a body of evidence about how an assessment instrument works rather than simply something that a test possesses or does not possess (see for example, Landy, 1985).

The following validity analysis is based on the Work Strengths assessment, which is just one of the assessments from the Strengths suite.

10.1 Work Strengths Predictive Validity

Predictive Validity: Work Strengths and Job Performance

In order to assess predictive validity of Work Strengths, a criterion measure must be completed at a later point in time than the predictor measure. In this study, 108 participants completed Work Strengths at time one, and at time two (six months later) were rated on their work performance by external raters. For the rating task, external raters completed the Wave Performance 360 questionnaire, a tool for assessing an individual's job performance across a number of work domains.

The predictive validity of the 12 sections of Work Strengths against their related job performance criteria can be seen in Table 10.1.

Table 10.1 Predictive validity of Work Strengths 12 Sections against independent criteria (external ratings of work performance competencies), both unadjusted and adjusted for criterion unreliability. (N=108)

Work Strengths Section (Predictor)	Work Performance Competency (Criterion)	Criterion Mean	Criterion SD	r	r_c
Evaluating Problems	Evaluating Problems	16.62	2.74	.07	**.14**
Investigating Issues	Investigating Issues	16.79	2.64	-.04	**-.08**
Creating Innovation	Creating Innovation	15.56	2.91	.08	**.18**
Building Relationships	Building Relationships	16.89	2.79	.28	**.50**
Communicating Information	Communicating Information	15.98	2.82	.25	**.48**
Providing Leadership	Providing Leadership	16.14	2.83	.14	**.25**
Showing Resilience	Showing Resilience	15.66	2.96	.22	**.39**
Adjusting to Change	Adjusting to Change	15.71	2.89	.17	**.36**
Giving Support	Giving Support	16.61	2.89	.12	**.23**
Processing Details	Processing Details	17.03	2.77	.21	**.37**
Structuring Tasks	Structuring Tasks	17.53	2.24	.19	**.44**
Driving Success	Driving Success	16.36	2.51	.20	**.37**
	Mean	**16.41**	**2.75**	**.16**	**.30**
	Median	**16.49**	**2.80**	**.18**	**.36**
	Min	**15.56**	**2.24**	**-.04**	**-.08**
	Max	**17.53**	**2.96**	**.28**	**.50**

r is the unadjusted validity coefficient. r_c validities have been adjusted for attenuation based on the reliability of the criteria (based on 263 pairs of criterion ratings). No further corrections were applied (e.g., restriction of range, predictor unreliability).

Note: Any raw correlation higher than .19 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .16 is statistically significant at the p<.05 level (one-tailed). N=108.

Table 10.1 provides evidence to support the predictive validity of Work Strengths with a mean correlation of .30 (adjusted for criterion unreliability). As only a restricted subset (N=108) was available predictive validity analysis was conducted at the section level due to fewer degrees of freedom.

10.2 Work Strengths Concurrent Validity

Concurrent Validity: Work Strengths and Job Performance

Standardization Data

Individuals' self-report scores on the Work Strengths dimension scales were correlated with independent ratings of individuals' work performance competencies.

For in-depth information about the Standardization sample, refer to the 'Norm' and 'Construction' chapters of the Wave Professional Styles Handbook.

*Table 10.2 Concurrent Validity of Work Strengths Dimensions against independent criteria (external ratings of work performance competencies), both unadjusted and adjusted for criterion unreliability. (N=500-632)**

Work Strengths Dimension (Predictor)	Work Performance Competency (Criterion)	Criterion Mean	Criterion SD	r	r_c*
Examining Information	Examining Information	5.03	1.01	.24	.48
Documenting Facts	Documenting Facts	5.10	1.03	.26	.45
Interpreting Data	Interpreting Data	5.06	1.00	.26	.51
Developing Expertise	Developing Expertise	5.17	1.10	.10	.17
Adopting Practical Approaches	Adopting Practical Approaches	5.40	.91	.09	.17
Providing Insights	Providing Insights	5.05	1.00	.18	.35
Generating Ideas	Generating Ideas	4.83	1.04	.32	.48
Exploring Possibilities	Exploring Possibilities	4.88	1.03	.12	.20
Developing Strategies	Developing Strategies	4.53	1.08	.30	.60
Interacting with People	Interacting with People	4.98	1.15	.26	.51
Establishing Rapport	Establishing Rapport	5.32	1.14	.34	.67
Impressing People	Impressing People	4.57	1.16	.23	.43
Convincing People	Convincing People	4.73	.99	.23	.46
Articulating Information	Articulating Information	4.85	1.18	.40	.80
Challenging Ideas	Challenging Ideas	5.04	1.03	.31	.51
Making Decisions	Making Decisions	5.00	1.03	.30	.61
Directing People	Directing People	4.71	1.21	.38	.75
Empowering Individuals	Empowering Individuals	4.68	1.21	.30	.60
Conveying Self-Confidence	Conveying Self-Confidence	4.81	1.11	.36	.73
Showing Composure	Showing Composure	4.90	1.10	.22	.43
Resolving Conflict	Resolving Conflict	4.88	1.04	.24	.49
Thinking Positively	Thinking Positively	5.04	1.11	.25	.50
Embracing Change	Embracing Change	5.10	1.08	.27	.54
Inviting Feedback	Inviting Feedback	4.71	1.10	.17	.33
Understanding People	Understanding People	5.07	1.11	.19	.35
Team Working	Team Working	5.18	1.11	.24	.49
Valuing Individuals	Valuing Individuals	5.19	1.11	.21	.42
Meeting Timescales	Meeting Timescales	5.23	1.15	.37	.50
Checking Things	Checking Things	5.25	1.07	.25	.41
Following Procedures	Following Procedures	5.44	.95	.23	.35
Managing Tasks	Managing Tasks	5.05	1.07	.31	.49
Upholding Standards	Upholding Standards	5.84	.98	.08	.13
Producing Output	Producing Output	5.26	1.13	.24	.35
Taking Action	Taking Action	5.10	1.04	.26	.52
Seizing Opportunities	Seizing Opportunities	4.66	1.14	.34	.55
Pursuing Goals	Pursuing Goals	5.19	1.01	.22	.45
Mean	1430.07	5.02	1.08	.25	.47
Median	1429.01	5.05	1.08	.25	.48
Min	1087.38	4.53	.91	.08	.13
Max	1672.46	5.84	1.21	.40	.80

**Sample size varied due to no evidence option on criterion ratings.*

r is the unadjusted validity coefficient. rc validities have been adjusted for attenuation based on the reliability of the criteria (based on 236 pairs of criterion ratings).

Note: Any raw correlation higher than .09 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .07 is statistically significant at the p<.05 level (one-tailed). This is based on statistical significance values for the lowest sample size of N=501 to give a conservative estimate of significance.

Table 10.2 provides evidence to support the concurrent validity of the Work Strengths Dimensions, displaying a mean correlation of .36 (corrected for criterion unreliability).

Project Epsom

Project Epsom was a major research initiative by Saville Consulting's Research and Development team. The aim was to compare the validities of a range of the most popular personality questionnaires on the market while attending to some of the problems with research in this field. One important problem of validity research is that it is difficult to integrate validity data and compare tests on their validity when each study inevitably uses different methodologies, measures against different criteria and uses different samples. In choosing a test to use, practitioners are faced with a vast array of information on the validity of different tests, but how can you compare the usefulness of tests if they are all compared against different criteria? Project Epsom was set up to address these very issues.

All the personality questionnaires used in Project Epsom were validated using the same sample and the same work performance measures. The criteria used to measure the validity of the tools was the externally-developed SHL Great Eight competency framework (Kurz & Bartram, 2002) along with a global performance measure, in order to ensure fairness of comparison and to avoid content bias towards the Saville Consulting questionnaires. The content of the global performance measure originates with the work of Nyfield et al. (1995) and covers three key areas: Applying Specialist Expertise, Accomplishing Objectives and Demonstrating Potential.

Co-validation, such as that carried out in this project, allows for a more meaningful comparison of the validity of different tests on the same criteria and sample.

For more information about Project Epsom refer to the 'Validity' chapter of the Wave Professional Styles Handbook.

Project Epsom Data

A sample of employees from a range of business sectors completed Work Strengths and were simultaneously rated by external raters on their job performance. External raters completed a questionnaire asking them to rate the participant on several Work Performance Competencies.

The concurrent validity of the 36 dimensions and 12 sections of Work Strengths against their related job performance criteria can be found in Tables 10.3 and 10.4 respectively.

Table 10.3 Concurrent Validity of Work Strengths Dimensions against independent criteria (external ratings of work performance competencies), both unadjusted and adjusted for criterion unreliability. (N=308)

Work Strengths Dimension (Predictor)	Work Performance Competency (Criterion)	Criterion Mean	Criterion SD	r	r_c
Examining Information	Examining Information	5.77	.88	.17	**.34**
Documenting Facts	Documenting Facts	5.57	1.06	.21	**.41**
Interpreting Data	Interpreting Data	5.48	1.04	.12	**.24**
Developing Expertise	Developing Expertise	5.69	1.04	.05	**.10**
Adopting Practical Approaches	Adopting Practical Approaches	5.86	1.00	.22	**.43**
Providing Insights	Providing Insights	5.62	1.01	.21	**.41**
Generating Ideas	Generating Ideas	5.33	1.02	.19	**.37**
Exploring Possibilities	Exploring Possibilities	5.15	1.07	.04	**.08**
Developing Strategies	Developing Strategies	5.06	1.14	.19	**.39**
Interacting with People	Interacting with People	5.94	1.11	.29	**.51**
Establishing Rapport	Establishing Rapport	6.03	1.09	.25	**.43**
Impressing People	Impressing People	5.26	1.36	.23	**.46**
Convincing People	Convincing People	5.32	1.03	.28	**.56**
Articulating Information	Articulating Information	5.32	1.24	.38	**.66**
Challenging Ideas	Challenging Ideas	5.46	1.11	.27	**.53**
Making Decisions	Making Decisions	5.55	1.05	.21	**.43**
Directing People	Directing People	5.25	1.22	.37	**.65**
Empowering Individuals	Empowering Individuals	5.40	1.20	.25	**.46**
Conveying Self-Confidence	Conveying Self-Confidence	5.30	1.22	.25	**.50**
Showing Composure	Showing Composure	5.19	1.41	.17	**.32**
Resolving Conflict	Resolving Conflict	5.27	1.20	.24	**.47**
Thinking Positively	Thinking Positively	5.48	1.17	.17	**.31**
Embracing Change	Embracing Change	5.42	1.06	.24	**.48**
Inviting Feedback	Inviting Feedback	5.11	1.25	.09	**.19**
Understanding People	Understanding People	5.72	1.16	.27	**.54**
Team Working	Team Working	5.69	1.09	.17	**.34**
Valuing Individuals	Valuing Individuals	5.71	1.03	.12	**.23**
Meeting Timescales	Meeting Timescales	5.81	1.19	.30	**.58**
Checking Things	Checking Things	5.76	1.01	.19	**.34**
Following Procedures	Following Procedures	5.62	1.15	.32	**.65**
Managing Tasks	Managing Tasks	5.73	1.03	.25	**.50**
Upholding Standards	Upholding Standards	6.05	.94	.14	**.28**
Producing Output	Producing Output	5.92	.98	.34	**.68**
Taking Action	Taking Action	5.63	1.00	.28	**.56**
Seizing Opportunities	Seizing Opportunities	4.91	1.29	.34	**.68**
Pursuing Goals	Pursuing Goals	5.63	1.02	.29	**.58**
	Mean	5.53	1.11	.22	**.44**
	Median	5.55	1.09	.23	**.44**
	Min	4.91	.88	.04	**.08**
	Max	6.05	1.41	.38	**.68**

r is the unadjusted validity coefficient. r_c validities have been corrected for attenuation based on the reliability of the criteria (based on 263 pairs of criterion ratings). As single item criteria were used items with inter-rater reliabilities of .25 or less were set to .25 to limit the degree of adjustment. No further corrections were applied (e.g., restriction of range, predictor unreliability).

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308

Concurrent validity of the Work Strengths dimensions based on the Project Epsom sample is illustrated in Table 10.3, with a mean corrected correlation of .44 between dimension scores and external ratings of work performance.

Table 10.4 Concurrent Validity of Work Strengths Sections against independent criteria (external ratings of work performance competencies), both unadjusted and adjusted for criterion unreliability. (N=308)

Work Strengths Section (Predictor)	Work Performance Competency (Criterion)	Criterion Mean	Criterion SD	r	r_c
Evaluating Problems	Evaluating Problems	16.82	2.49	.14	**.29**
Investigating Issues	Investigating Issues	17.18	2.45	.18	**.39**
Creating Innovation	Creating Innovation	15.54	2.64	.16	**.36**
Building Relationships	Building Relationships	17.24	2.92	.29	**.51**
Communicating Information	Communicating Information	16.10	2.63	.39	**.73**
Providing Leadership	Providing Leadership	16.20	2.80	.33	**.59**
Showing Resilience	Showing Resilience	15.76	2.93	.23	**.41**
Adjusting to Change	Adjusting to Change	16.01	2.81	.19	**.40**
Giving Support	Giving Support	17.12	2.78	.20	**.38**
Processing Details	Processing Details	17.19	2.74	.29	**.52**
Structuring Tasks	Structuring Tasks	17.69	2.31	.31	**.74**
Driving Success	Driving Success	16.17	2.71	.39	**.72**
	Mean	16.59	2.68	.26	**.50**
	Median	16.51	2.73	.26	**.46**
	Min	15.54	2.31	.14	**.29**
	Max	17.69	2.93	.39	**.73**

r is the unadjusted validity coefficient. r_c validities have been adjusted for attenuation based on the reliability of the criteria (based on 263 pairs of criterion ratings). No further corrections were applied (e.g., restriction of range, predictor unreliability).

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308.

Table 10.4 displays the concurrent validity of the 12 Work Strengths sections against external ratings of work performance. A mean corrected correlation of .50 demonstrates good validity for the sections.

Concurrent Validity: Work Strengths and other Personality Assessments

Project Epsom Data

The major co-validation study carried out by Saville Consulting (Project Epsom) measured participants on a range of personality assessments, as well as collecting independent ratings of these individuals' job performance. This section is concerned with the concurrent, criterion-related validity of a number of these personality tools – looking at how well they relate to independent criterion measures of job performance.

A primary development goal of Saville Consulting Strengths was to maximize validity in order to better forecast performance at work. The outcome of this study was of fundamental importance to Work Strengths achieving its design goals.

The seven personality assessments used in this study were: Work Strengths, Wave Professional Styles, Wave Focus Styles, OPQ32i, NEO-PI-R, Hogan Personality Inventory (HPI) and 16PF-5.

Measuring Global Overall Work Performance

Saville Consulting's Performance Culture Framework consists of the BAG – Behavior, Ability and Global – model. Global Overall Effectiveness at work is measured by three subcomponents: 'Applying Specialist Expertise,' 'Accomplishing Objectives' and 'Demonstrating Potential.' 'Overall Total Performance' consists of the sum of the three sub-components.

Individuals in this study were rated on the Overall Performance measures by external raters. Both the raw and adjusted validity coefficients are included here for comparison. The raw validity coefficients for each of the seven measures included in the study are shown in Table 10.5. To allow for the unreliability of criterion ratings, validity coefficients can be adjusted for 'criterion unreliability'. These adjusted validity coefficients are shown in Table 10.6.

Creation of Overall Score from Each Personality Assessment

The Great Eight model is an independent criterion-centric model of work performance developed by Rainer Kurz and Dave Bartram (Kurz and Bartram, 2002). The 'Great Eight' are eight broad competency factors which reflect psychological constructs relating to effective work performance. The eight competencies are:

- **Analyzing & Interpreting**
- **Creating & Conceptualizing**
- **Interacting & Presenting**
- **Leading & Deciding**
- **Supporting & Cooperating**
- **Adapting & Coping**
- **Organizing & Executing**
- **Enterprising & Performing**

In order to compare personality assessments on the Great Eight competencies, composite Great Eight Predictor scales were created using the Great Eight model as a framework. These were aggregated with unit weights to provide an overall score from each personality assessment.

For in-depth information on the scales used from each assessment to create the composite Great Eight scales see the 'Validity' chapter of the Wave Professional Styles Handbook.

Table 10.5 Concurrent validity of seven personality assessments against ratings of Global Overall Performance, unadjusted for criterion unreliability. (N=308)

Personality Assessment	Applying Specialist Expertise	Accomplishing Objectives	Demonstrating Potential	Overall Total Performance	Overall Total Performance (excl. Expertise)
Wave Professional Styles*	.15	.24	.34	.32	**.34**
Wave Work Strengths	.17	.22	.30	.30	**.31**
Wave Focus Styles*	.15	.15	.26	.25	**.25**
OPQ32i	.08	.11	.19	.17	**.18**
NEO-PI-R	.13	.16	.17	.20	**.20**
Hogan Personality Inventory (HPI)	.13	.11	.17	.18	**.17**
16PF-5	.04	.19	.18	.18	**.21**

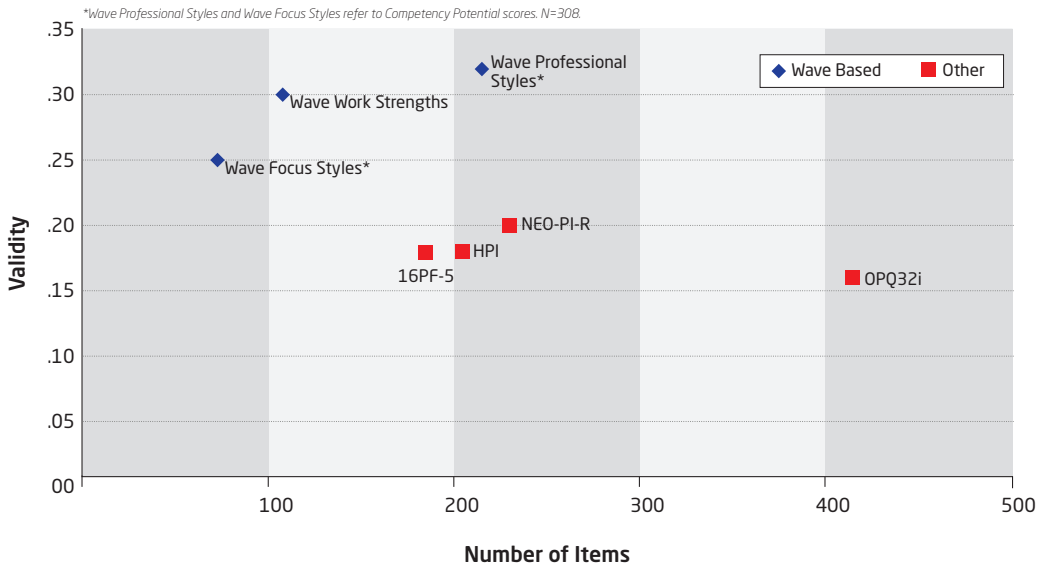
**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

These validities are unadjusted for any statistical artifacts.

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308

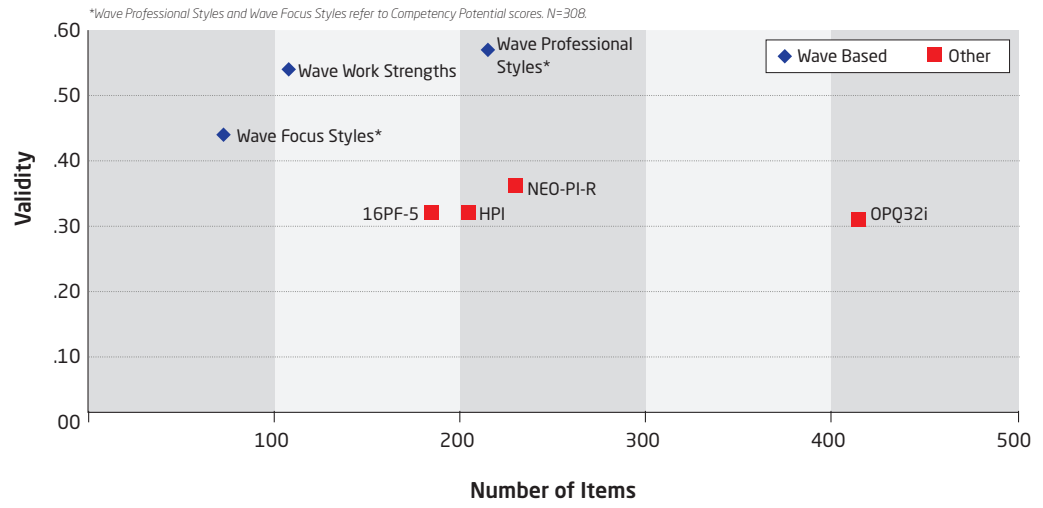
Table 10.5 illustrates the success of Wave assessments in forecasting the Great Eight measures of work performance. The high validity of Wave assessments is due to a number of factors in the development of Wave, including the integrated inductive and deductive development program, validity based item choice, and the dynamic online rate-rank format.

Graph 10.1 'Overall Total Performance' concurrent validity by development method, unadjusted for criterion unreliability. (N=308)



**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Graph 10.2 'Overall Total Performance' concurrent validity by development method, adjusted for criterion unreliability. (N=308)



**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Results displayed on the top left of graphs 10.1 and 10.2 demonstrate the high level of validity which Wave Work Strengths retains, without asking a large number of questions.

Table 10.6 Concurrent validity of seven personality assessments against ratings of Global Overall Performance, adjusted for criterion unreliability. (N=308)

Personality Assessment	Applying Specialist Expertise	Accomplishing Objectives	Demonstrating Potential	Overall Total Performance	Overall Total Performance (excl. Expertise)
Wave Professional Styles*	.33	.50	.54	.57	.58
Wave Work Strengths	.38	.46	.49	.54	.54
Wave Focus Styles*	.33	.32	.42	.44	.42
OPQ32i	.17	.24	.31	.31	.31
NEO-PI-R	.29	.34	.28	.36	.33
Hogan Personality Inventory (HPI)	.29	.23	.27	.32	.28
16PF-5	.10	.40	.29	.32	.36

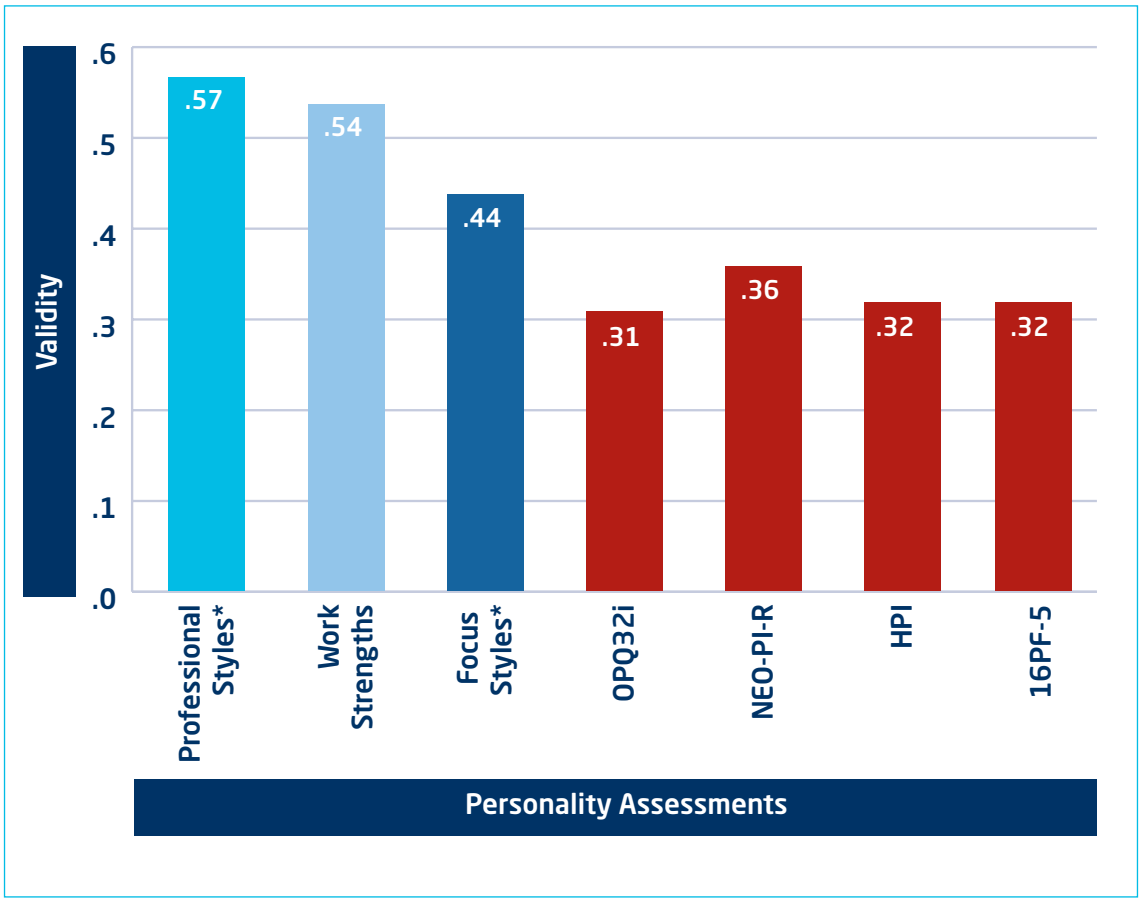
**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Validities have been adjusted for attenuation based on the reliability of the criteria (based on 263 pairs of criterion ratings). No further corrections were applied (e.g., restriction of range, predictor unreliability).

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308

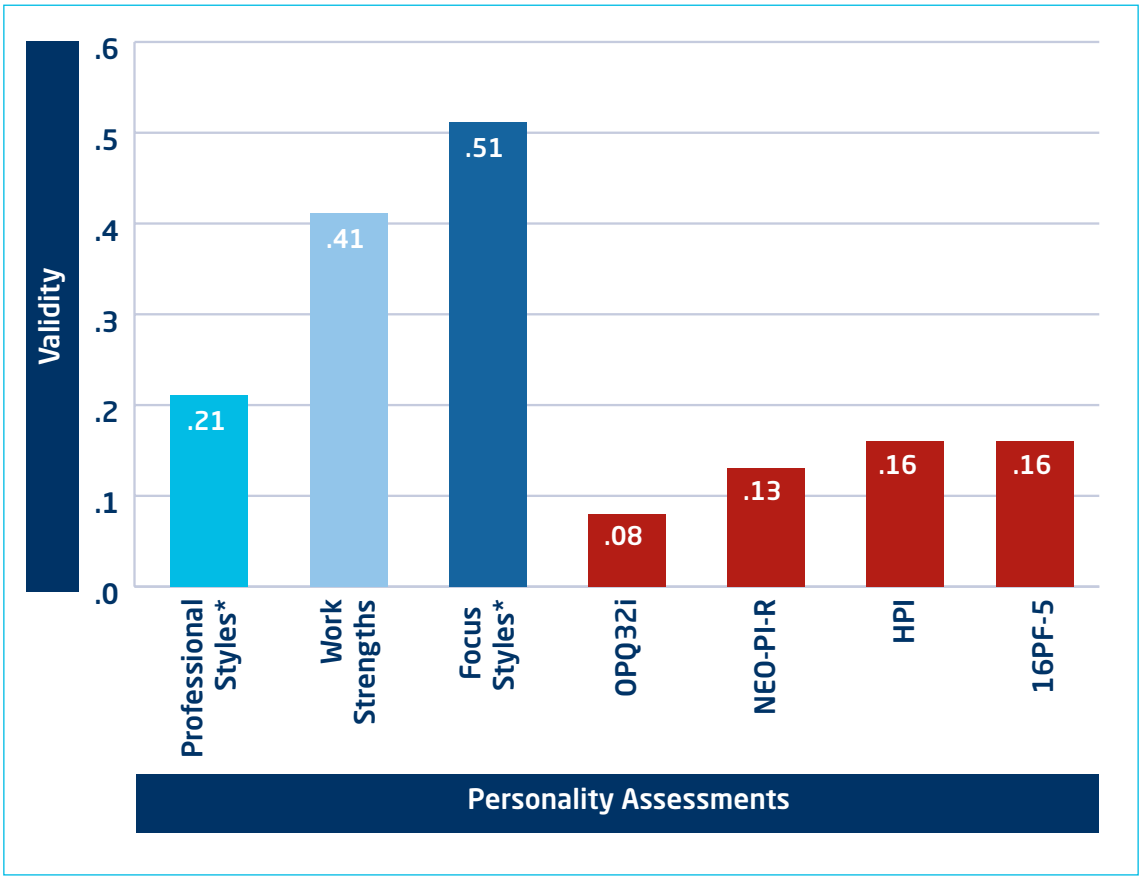
Tables 10.5 and 10.6 show the validity of Work Strengths against Overall Total Performance, which is statistically significantly higher than all non-performance driven, non-validation centric tools (NEO-PI-R, OPQ32i, HPI and 16PF-5). Graphs 10.3 and 10.4 provide a graphical representation of the validity and power of Work Strengths and other instruments.

Graph 10.3 Average (mean) validity of personality assessments against independent ratings of Overall Total Performance, adjusted for criterion unreliability. (N=308)



**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores. N=308.*

Graph 10.4 Average Power of personality assessments against independent ratings of Overall Total Performance, adjusted for criterion unreliability. (N=308)



**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Measuring Work Performance Competencies – The 'Great Eight'

The eight composite 'Great Eight Predictor' scales used to create the overall scores for each personality assessment were also studied separately. Each composite scale for each test was correlated with ratings of work performance on the relative competency. For example the composite scale Analyzing & Interpreting created from each test was correlated with ratings of candidates' workplace performance in 'Analyzing & Interpreting'. Tables 10.7 and 10.8 illustrate the success of the various assessments in predicting workplace performance in the eight areas.

Table 10.7 Concurrent validity of personality assessments against ratings on the 'Great Eight' work performance competencies, unadjusted for criterion unreliability. (N=308)

	Work Performance Competency (Criterion) 'Great Eight' Criteria											
Personality Assessment	**Analyzing & Interpreting**	**Creating & Conceptualizing**	**Interacting & Presenting**	**Leading & Deciding**	**Supporting & Cooperating**	**Adapting & Coping**	**Organizing & Executing**	**Enterprising & Performing**	**Mean**	**Median**	**Min**	**Max**
Wave Professional Styles*	.09	.20	.33	.30	.09	.22	.22	.34	**.22**	.22	.09	.34
Wave Work Strengths	.07	.18	.31	.33	.09	.20	.21	.34	**.22**	.20	.07	.34
Wave Focus Styles*	.10	.18	.31	.25	.12	.19	.18	.28	**.20**	.19	.10	.31
OPQ32i	.10	.12	.18	.28	.13	.12	.16	.23	**.17**	.15	.10	.28
NEO-PI-R	.06	.03	.22	.33	.14	.20	.16	.26	**.18**	.18	.03	.33
Hogan Personality Inventory (HPI)	.16	.10	.16	.28	.06	.12	.09	.20	**.15**	.14	.06	.28
16PF-5	.10	.04	.22	.27	.08	.14	.09	.13	**.13**	.12	.04	.27

**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

These validities are unadjusted for any statistical artifacts.

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308

Table 10.7 provides evidence to support the prediction of Great Eight competencies with six out of eight areas of Work Strengths reaching significance. All eight areas reach significance in one or other Wave instruments. The rank order of the average validity runs from Work Strengths and Wave Professional Styles Competency Potentials, followed by Wave Focus Styles Competency Potentials, then NEO-PI-R, with the lowest averages for OPQ32i, HPI and 16PF-5 in forecasting the 'Great Eight'.

Graph 10.5 below displays the average (mean) validities of the seven personality assessments against the amount of items used, as well as indicating the development method employed by each assessment.

Graph 10.5 Average (mean) concurrent validity of personality assessments by development method, against ratings on the 'Great Eight' work performance competencies, unadjusted for criterion unreliability. (N=308)

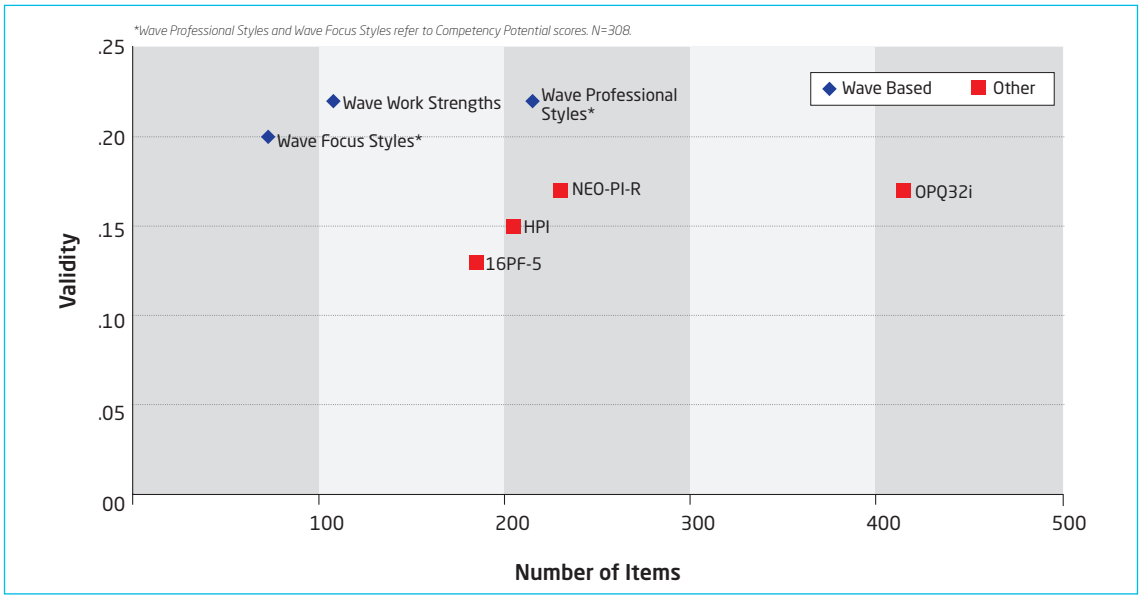


Table 10.8 Concurrent validity of personality assessments against ratings on the 'Great Eight' work performance competencies, adjusted for criterion unreliability. (N=308)

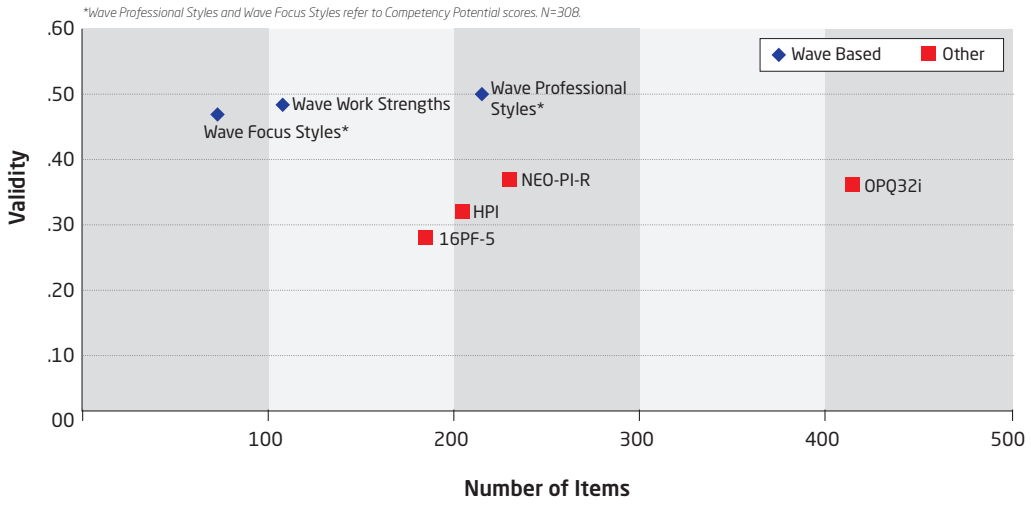
	Work Performance Competency (Criterion) 'Great Eight' Criteria											
Personality Assessment	Analyzing & Interpreting	Creating & Conceptualizing	Interacting & Presenting	Leading & Deciding	Supporting & Cooperating	Adapting & Coping	Organizing & Executing	Enterprising & Performing	Mean	Median	Min	Max
Wave Professional Styles*	.20	.61	.69	.55	.21	.46	.51	.76	**.50**	.53	.20	.76
Wave Work Strengths	.15	.54	.65	.61	.20	.42	.48	.76	**.48**	.51	.15	.76
Wave Focus Styles*	.21	.57	.65	.46	.27	.41	.42	.63	**.45**	.44	.21	.65
OPQ32i	.22	.37	.38	.52	.29	.25	.37	.51	**.36**	.37	.22	.52
NEO-PI-R	.13	.09	.46	.61	.31	.42	.37	.57	**.37**	.40	.09	.61
Hogan Personality Inventory (HPI)	.35	.31	.34	.52	.13	.25	.21	.44	**.32**	.32	.13	.52
16PF-5	.22	.12	.46	.50	.18	.30	.21	.29	**.28**	.25	.12	.50

**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Validities have been adjusted for attenuation based on the reliability of the criteria (based on 263 pairs of criterion ratings). No further corrections were applied (e.g., restriction of range, predictor unreliability).

Note: Any raw correlation higher than .12 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .10 is statistically significant at the p<.05 level (one-tailed). N=308

Graph 10.6 Average (mean) concurrent validity of personality assessments by development method, against ratings on the 'Great Eight' work performance competencies, adjusted for criterion unreliability. (N=308)



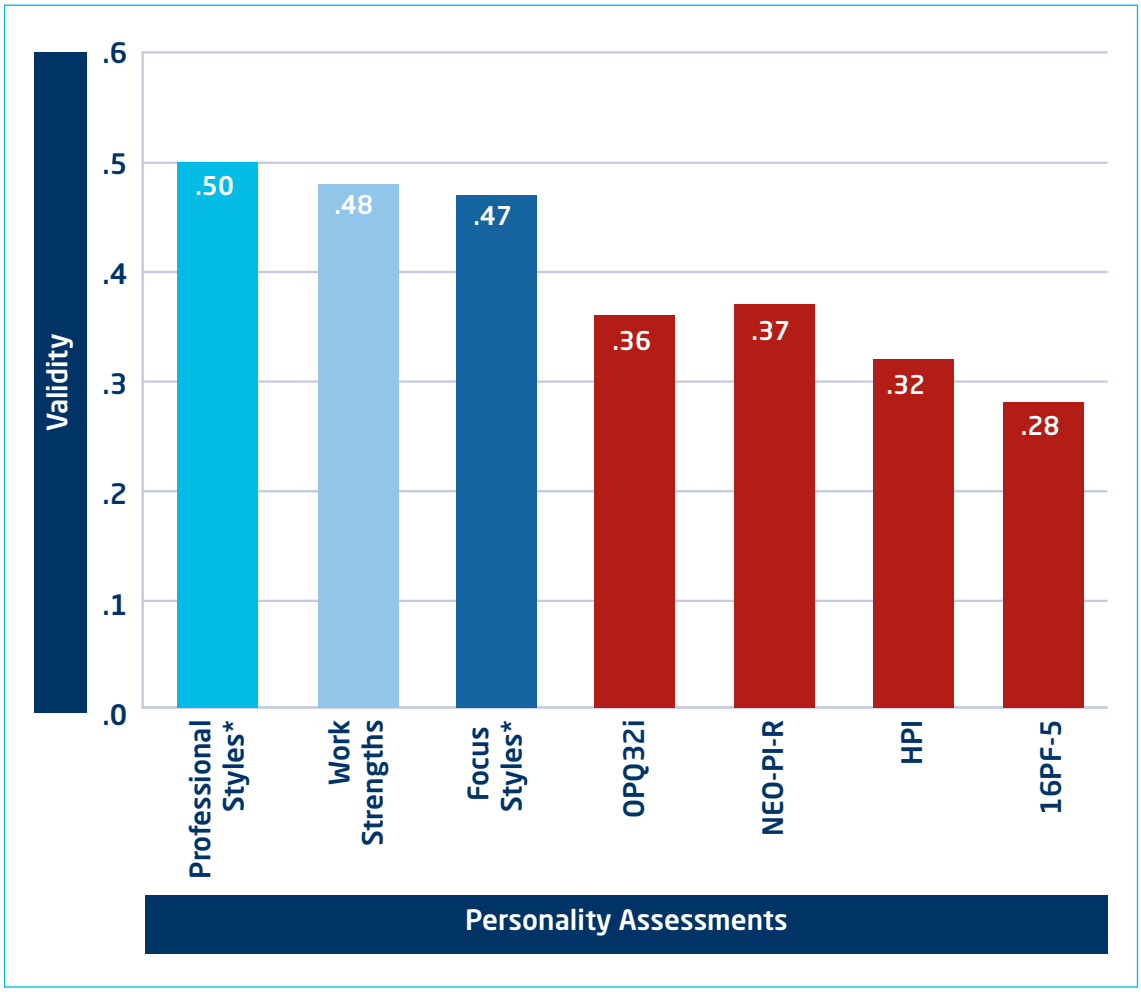
**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores*

Graph 10.6 demonstrates that Wave Work Strengths (which can be seen in the top left of this graph) retains a high level of validity, despite having fewer items than other comparative personality assessments.

While the pattern in the graph points to a decline for non-Wave instruments that have fewer items, this could also be due to differences in the work relatedness of the items in the other questionnaires.

Below is a bar chart which illustrates the data in table 10.8.

Graph 10.7 Average (mean) concurrent validity of personality assessments based on external ratings of 'Great Eight' work performance criteria, adjusted for criterion unreliability. (N=308)



**Wave Professional Styles and Wave Focus Styles refer to Competency Potential scores. N=308.*

10.3 Work Strengths Construct Validity

Fuller construct validity evidence for the Wave suite can be found in the Wave Professional Styles Handbook.

Construct Validity: Work Strengths and Wave Professional Styles Supervised Access (SA)

In order to assess the construct validity of Work Strengths, analysis could not be conducted using the Wave Professional Styles (IA) instrument as certain items were used in the creation of scales across both assessments.

As discussed in the 'Construction' chapter, the Work Strengths scales are created using weighted equations of talent based items. However, these items, along with a number of other equivalent 'motive' items, were also used in the creation of the Wave Professional Styles (IA) scales. Measuring the construct validity of Work Strengths against Wave Professional Styles (IA) would therefore be misleading due to a degree of overlap between the scales.

In light of this, the Supervised Access (SA) version of Wave Professional Styles can be used as it is an alternative form of Wave Professional Styles (IA). Although no items are shared between the two versions, the mean alternate form reliability is .86.

In addition, the Styles scales of the SA instrument are constructed using a different method to the Work Strengths scales; motive and talent items are combined without applying any weighting. This is reflected in the differences in the means and standard deviations in table 10.9.

The 36 dimensions of Work Strengths were correlated with the 36 Styles dimensions of Wave Professional Styles (SA). Table 10.9 shows the mean and standard deviation for both instruments, along with their construct validity coefficient (r).

Table 10.9 Work Strengths Dimensions against Wave Professional Styles Supervised Access (SA) Dimensions (N=1153)

Work Strengths Dimension	Professional Styles Dimension (SA)	Work Strengths Mean	Work Strengths SD	Professional Styles (SA) Mean	Professional Styles (SA) SD	r
Examining Information	Analytical	1522.46	254.80	62.82	9.95	.71
Documenting Facts	Factual	1495.07	226.22	64.93	9.56	.62
Interpreting Data	Rational	1406.12	335.29	52.80	13.55	.84
Developing Expertise	Learning Oriented	1501.06	274.34	64.42	10.99	.73
Adopting Practical Approaches	Practically Minded	1554.60	220.10	67.57	9.49	.66
Providing Insights	Insightful	1574.26	231.28	66.00	8.87	.67
Generating Ideas	Inventive	1225.42	329.86	52.36	13.32	.85
Exploring Possibilities	Abstract	1385.65	271.41	55.69	12.04	.72
Developing Strategies	Strategic	1325.54	282.35	53.61	12.08	.79
Interacting with People	Interactive	1303.04	288.31	52.31	12.50	.82
Establishing Rapport	Engaging	1487.74	329.29	67.07	11.49	.77
Impressing People	Self-promoting	1064.22	307.39	43.85	12.34	.80
Convincing People	Convincing	1302.85	298.94	51.20	10.63	.70
Articulating Information	Articulate	1286.22	314.09	56.56	11.89	.79
Challenging Ideas	Challenging	1285.04	280.90	49.96	12.09	.75
Making Decisions	Purposeful	1340.63	275.58	54.91	11.03	.77
Directing People	Directing	1411.11	316.30	56.22	12.65	.80
Empowering Individuals	Empowering	1415.92	292.09	59.31	13.17	.76
Conveying Self-Confidence	Self-assured	1287.34	313.99	61.62	12.28	.66
Showing Composure	Composed	1392.55	292.37	52.16	14.09	.80
Resolving Conflict	Resolving	1497.74	271.56	55.50	13.05	.74
Thinking Positively	Positive	1515.81	272.75	64.91	10.17	.76
Embracing Change	Change Oriented	1380.19	290.44	61.49	11.59	.73
Inviting Feedback	Receptive	1425.23	244.50	58.63	9.50	.57
Understanding People	Attentive	1574.59	317.63	63.77	11.68	.74
Team Working	Involving	1579.18	238.50	63.02	9.51	.69
Valuing Individuals	Accepting	1523.92	309.21	65.51	10.84	.72
Meeting Timescales	Reliable	1585.34	358.98	66.00	12.47	.81
Checking Things	Meticulous	1552.77	352.93	64.65	13.04	.80
Following Procedures	Conforming	1480.25	370.32	54.12	14.65	.82
Managing Tasks	Organised	1511.21	274.99	65.44	11.43	.76
Upholding Standards	Principled	1653.25	265.79	74.38	9.78	.67
Producing Output	Activity Oriented	1618.47	273.51	64.47	11.07	.74
Taking Action	Dynamic	1375.47	273.44	57.09	10.92	.74
Seizing Opportunities	Enterprising	1276.81	359.06	52.80	15.00	.84
Pursuing Goals	Striving	1384.48	283.51	62.10	10.63	.72
	Mean	1430.60	291.45	59.42	11.65	.75
	Median	1420.57	285.91	60.40	11.64	.75
	Min	1064.22	220.10	43.85	8.87	.57
	Max	1653.25	370.32	74.38	15.00	.85

Note: Any raw correlation higher than .05 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .04 is statistically significant at the p<.05 level (one-tailed). N=1153

The median correlation between the Work Strengths dimensions and Professional Styles (SA) Styles dimensions was .75. The minimum correlation found was .57 between the Work Strengths dimension 'Inviting Feedback' and the Professional Styles (SA) dimension 'Receptive', while a maximum correlation of .85 was observed between the Work Strengths dimension 'Generating Ideas' and the Professional Styles (SA) dimension 'Inventive'. The correlations have not been adjusted for any statistical artifacts such as the reliability of the two measures.

The 12 sections of Work Strengths were correlated with the 12 Styles sections of Wave Professional Styles (SA). Table 10.10 shows the mean and standard deviation for both instruments, along with their construct validity coefficient (r).

Table 10.10 Work Strengths Sections against Wave Professional Styles Supervised Access (SA) Sections (N=1153)

Work Strengths Section	Professional Styles Section (SA)	Work Strengths Mean	Work Strengths SD	Professional Styles (SA) Mean	Professional Styles (SA) SD	r
Evaluating Problems	Evaluative	4423.66	618.34	180.56	25.35	**.83**
Investigating Issues	Investigative	4629.91	476.53	197.99	18.62	**.71**
Creating Innovation	Imaginative	3936.61	740.87	161.67	31.11	**.87**
Building Relationships	Sociable	3855.00	756.47	163.23	28.71	**.87**
Communicating Information	Impactful	3874.11	687.88	157.73	26.06	**.81**
Providing Leadership	Assertive	4167.66	695.68	170.44	29.53	**.87**
Showing Resilience	Resilient	4177.63	580.95	169.28	25.08	**.80**
Adjusting to Change	Flexible	4321.22	578.78	185.03	20.98	**.73**
Giving Support	Supportive	4677.69	755.16	192.31	26.38	**.81**
Processing Details	Conscientious	4618.36	938.56	184.77	32.27	**.86**
Structuring Tasks	Structured	4782.93	537.17	204.29	21.37	**.81**
Driving Success	Driven	4036.76	777.66	171.99	29.39	**.83**
	Mean	4291.80	678.67	178.27	26.24	**.82**
	Median	4249.43	691.78	176.27	26.22	**.82**
	Min	3855.00	476.53	157.73	18.62	**.71**
	Max	4782.93	938.56	204.29	32.27	**.87**

Note: Any raw correlation higher than .05 is statistically significant at the p<.05 level (two-tailed) and any raw correlation higher than .04 is statistically significant at the p<.05 level (one-tailed). N=1153

As can be seen from the table, these coefficients are slightly larger than for Work Strengths dimensions, consistent with their greater average criterion-related validity. The mean coefficient between the two measures was .82, with a minimum correlation of .71 found between the Work Strengths section 'Investigating Issues' and the Professional Styles (SA) Styles section 'Investigative', and a maximum correlation of .87 between three of the Work Strengths and Professional Styles (SA) sections.

The construct validity data illustrates that the Work Strengths scales align closely with the Styles scales of Wave Professional Styles Supervised Access (SA). Given the convergence between the two measures, it is advised that interested users reflect upon the wider evidence of the construct validity associated with Wave Professional Styles. Full information on the construct validity of Wave Professional Styles (IA) can be found in the 'Validity' chapter of the Wave Professional Styles Handbook.

10.4 Validity Summary

The validity evidence presented within this chapter (predictive, concurrent and construct), provides clear evidence that Saville Consulting Work Strengths can accurately forecast competencies, as well as overall performance and potential across different job roles.

Furthermore, it demonstrates that with a short assessment of just 20 minutes, it is possible to forecast these measures more effectively when compared to a variety of other well established personality assessments.

11.0 Fairness

11.1 Overview

This chapter focuses on the issue of fairness in the use of Saville Consulting Wave® Strengths and in particular presents data on group trends across different groups. Key features and steps taken to increase fairness of Strengths and their application included:

Criterion-related validity – If tests are forecasting what they are designed to forecast, this allows the assessment to select on merit rather than using predictor measures that are unrelated to performance and potential at work. The validation-centric approach to development and the subsequent cross-validations of the aligned model provide a basis for this (refer to 'Validity' and 'Construction' chapters). In particular, the aligned model is designed to make the validity in Strengths more transparent and allow for improved merit based decision making, which will lead to improved effectiveness of individuals at work.

Work-related content – The content of Strengths was specifically designed to be work-relevant and to focus on attributes (talents) which underpin behavioral and overall effectiveness at work.

Writing and review – The items were specifically reviewed, for example to avoid content which was clinical, idiomatic, or requiring specific knowledge which would be available to one subgroup such as gender, age or ethnic subgroup and not to another (see 'Construction' chapter).

Job analysis and mapping capability – Another aim of the aligned model has been to increase the fairness and benefit attained in performance in application by creating mechanisms to increase the alignment between Strengths and what job analysis identifies as characteristics underpinning success (either for a particular job specification or for an organizational competency, or capability framework). The Saville Consulting Wave Job Profiler and the Saville Consulting Performance Culture Framework (which has the capacity to map to the 147 components of the underpinning Behavior, Ability, Global (BAG) model) are designed to supplement job analysis and provide a precise and detailed mapping to organizational frameworks.

Local validation studies – The mechanism is also available using the Saville Consulting Wave Performance 360 to quickly conduct online validation studies for particular jobs. The 10-minute online questionnaire provides a fast and effective mechanism for collecting data on the effectiveness of employees in terms of behavioral, ability and global (overall effectiveness) by different raters.

Monitoring – Saville Consulting has an ongoing process of monitoring differences in data from different subgroups.

Fairness in Use

It is one thing for an assessment to be designed to be fair and valid and another for it to be used fairly. The more consistent the process created to align Strengths to the job the better. Criteria for decision-making based on job analysis and where possible validation data are more likely to result in the assessments being fairly applied using consistent and appropriate standards for candidates across different groups.

Group Trends

The rest of this chapter is devoted to presenting group trends on the Saville Consulting Work Strengths assessment, including age, gender and ethnicity. Trends are presented for mean scores and internal consistency reliabilities.

Mean Scores

The information presented here is from actual usage data of Work Strengths and as a result the differences may reflect differences in composition of the groups on other variables. For example age differences; as well as being caused by maturational effects, these could be related to longer tenure in organizations or generational differences among other factors. Similarly, gender and ethnic differences variations could reflect other biographical differences in the composition of these groups.

When looking at differences it is useful to remind ourselves of the scale of the differences and the impact, if any, there should be on profile interpretation.

In the following graphs and supporting text, Cohen's d is referred to, where .20 of an SD (.40 of a sten) is a small effect, .50 of an SD (1 sten) is a medium or moderate effect size and .80 of an SD (1.60 stens) is a large effect size.

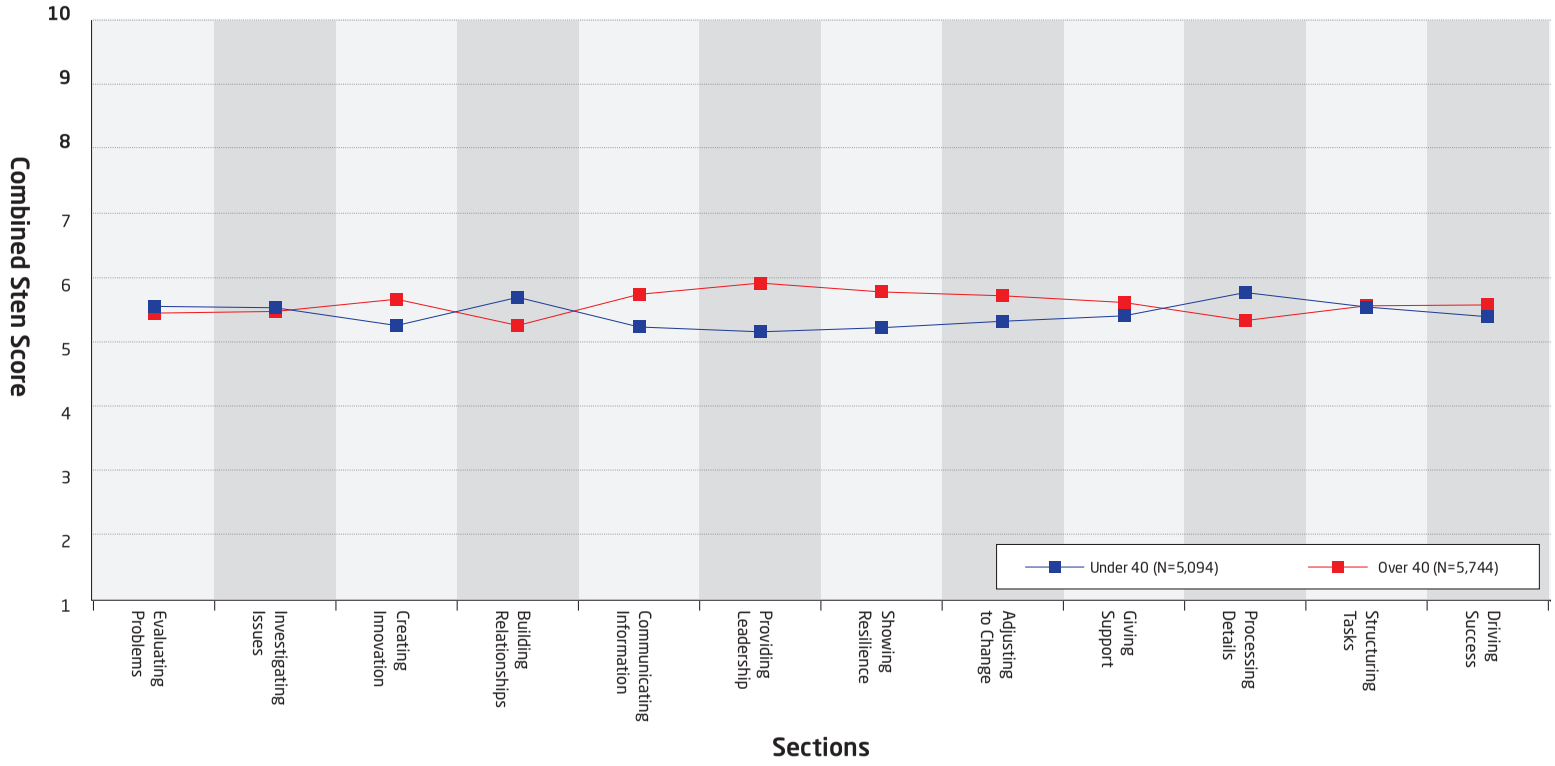
It should be remembered that differences whether small, moderate or large do not by themselves indicate bias in a test or a questionnaire that could lead to an individual from one protected or minority group being treated less favorably than others.

The first thing to consider is the direction and size of the difference. As can be seen for example in the US gender data, there are small or even moderate differences with the female and male groups tending to score slightly higher on certain sections. Such differences in scores on the predictor assessments may or may not be reflected in the performance domain, i.e., how well an individual is performing in the job or a particular aspect of a job, such as a competency.

To establish whether differences are demonstrated in actual performance, ideally we would have matched criterion data to understand the relationship between test and questionnaires and external criterion data. In the absence of this data on large samples we have to rely on looking at differences between mean scores between groups and considering the size of these differences, the direction of these differences and whether the differences are likely to provide an underestimate or overestimate of an individual's performance at work for that particular group, given what information we have on known differences (if any) in terms of these groups' effectiveness.

11.2 Work Strengths Age Trends UK - Sten Profile

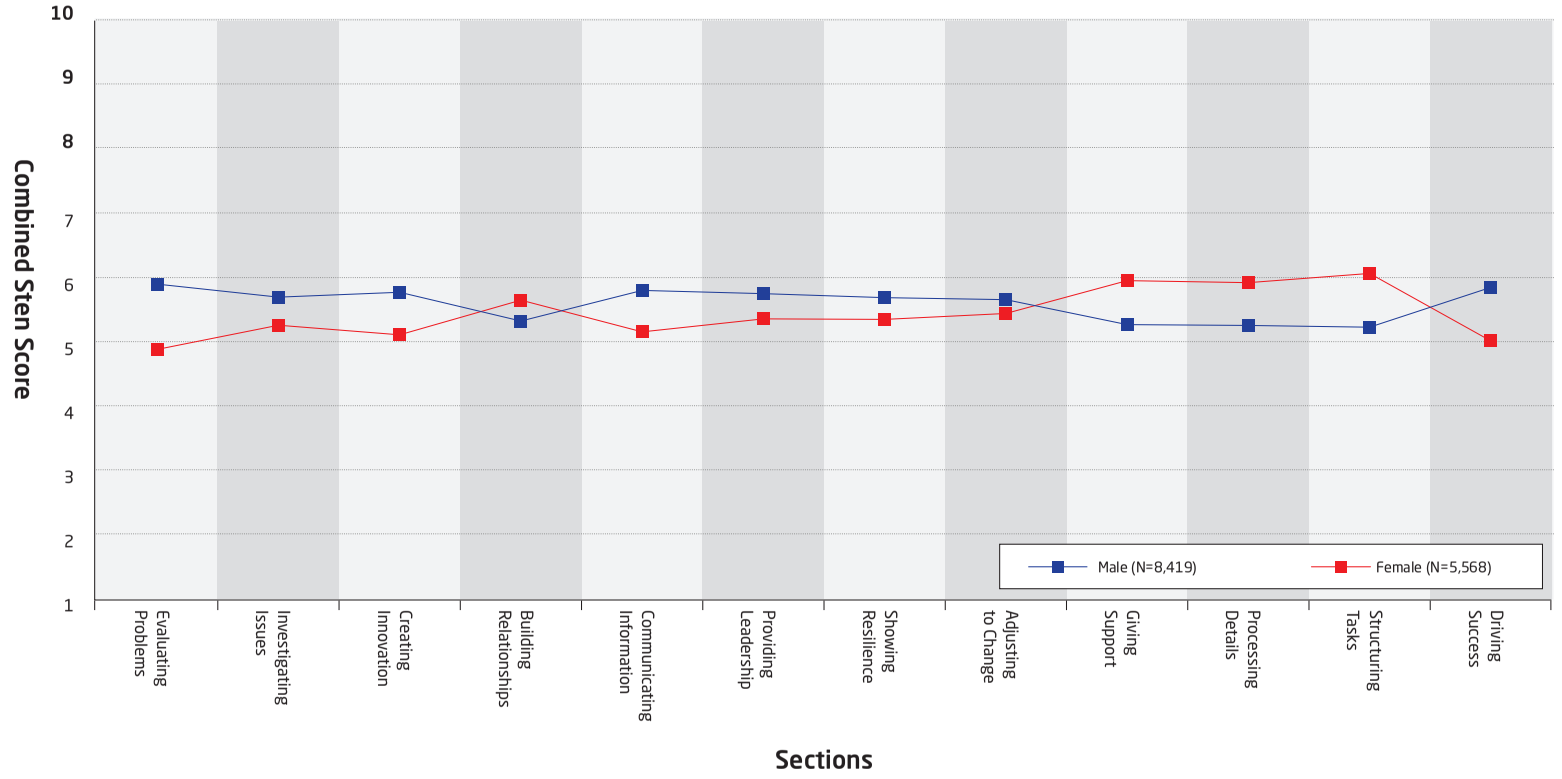
Age Trends UK - Sten Profile (N=10,838)



People under the age of 40 (N=5,094) were compared to people over 40 (N=5,744). Differences ranged from non-existent to small; no moderate or large differences were found.

11.3 Work Strengths Gender Trends UK - Sten Profile

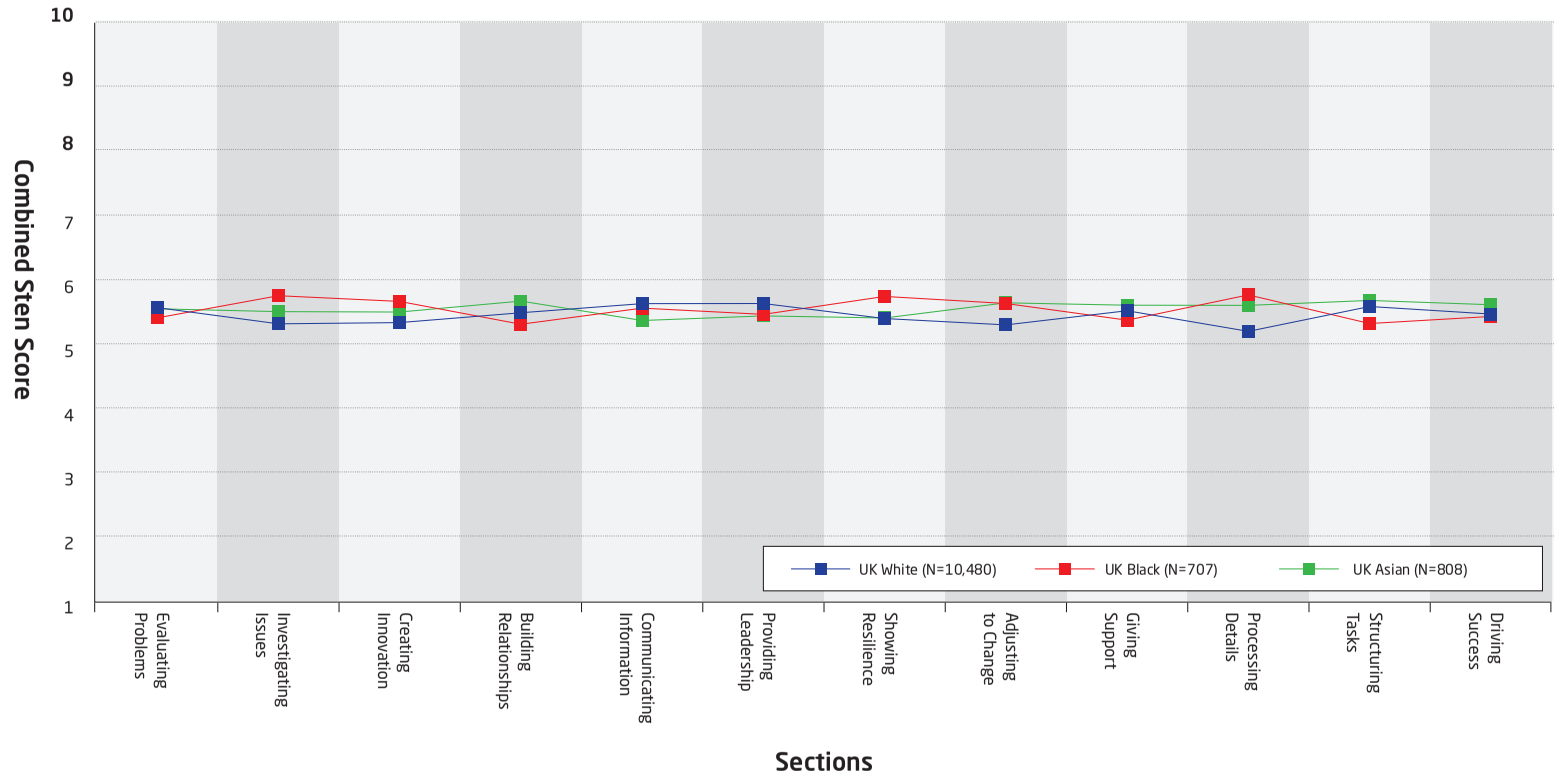
Gender Trends UK - Sten Profile (N=13,987)



Mean scores for male individuals (N=8,419) were compared to mean scores for female individuals (N=5,568). 11 of the 12 sections showed no appreciable mean differences between men and women. One section where a moderate difference was observed between men and women was *Evaluating Problems*, with men rating themselves higher than women. No large differences were found.

11.4 Work Strengths Ethnic Background Trends UK - Sten Profile

Ethnic Background Trends UK (N=10,838)

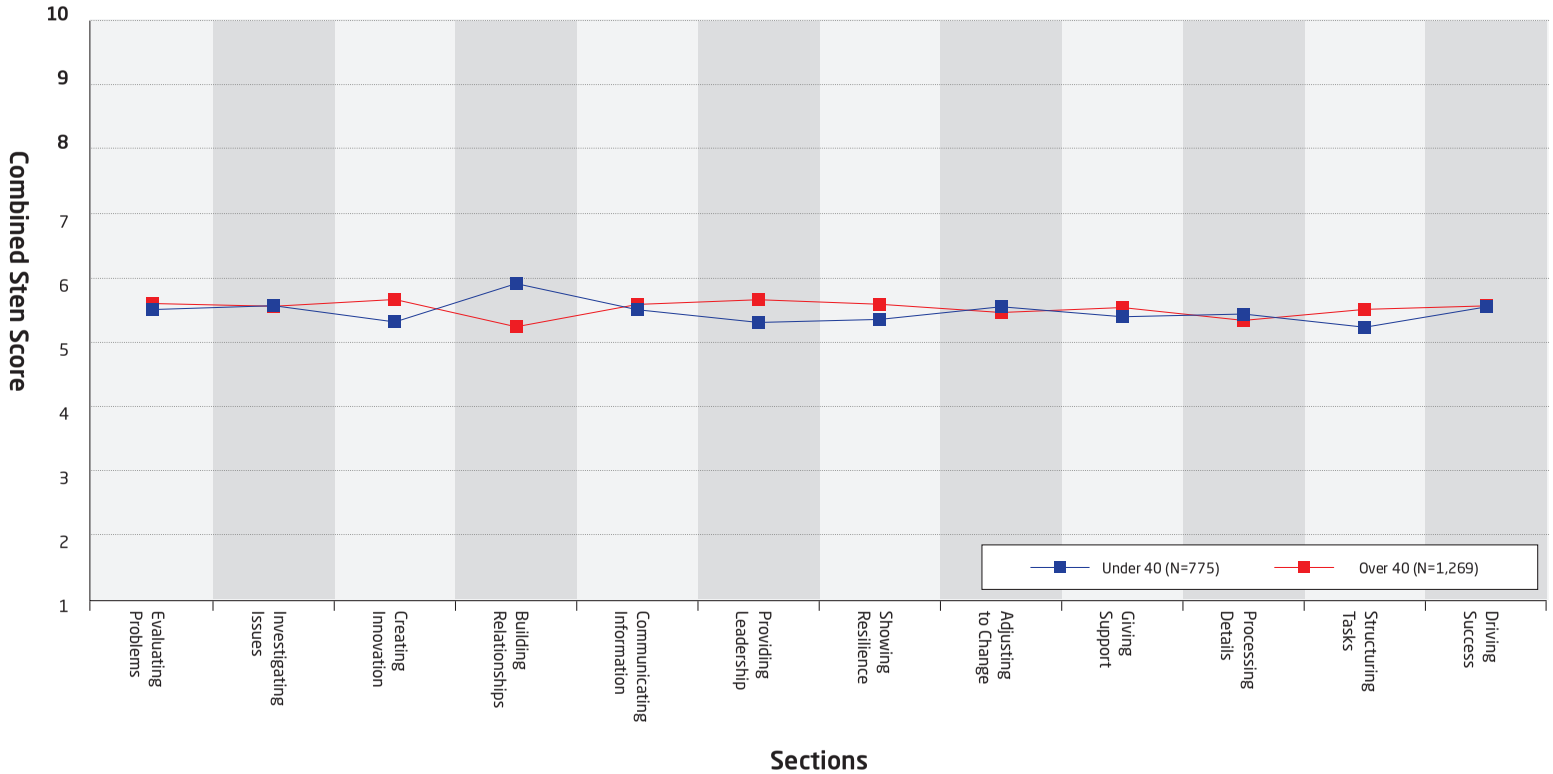


The White group (N=10,480) was compared to the Black (N=707) and Asian (N=808) groups in terms of their mean scores. There were no notable differences displayed between the three ethnic subgroups on any of the 12 sections. This provides support that Strengths would not give a biased underestimation of Black and Asian individuals' likely performance and potential.

Note: Due to the large differences of sample sizes, the groups were weighted to be of equal size.

11.5 Work Strengths Age Trends US - Sten Profile

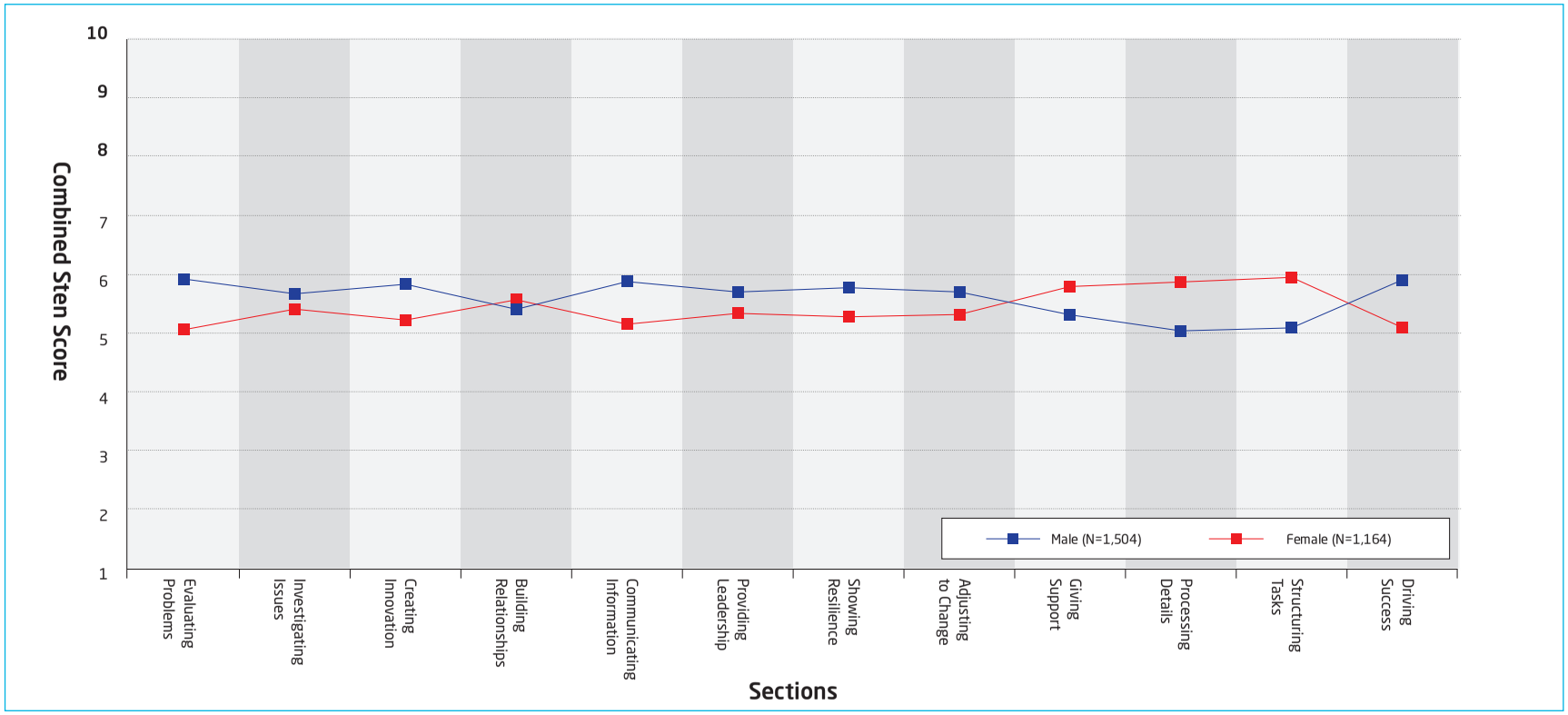
Age Trends US (N=2,044)



There were no appreciable differences on 11 of the 12 sections. The only notable group difference for age is on *Building Relationships*, with the 'Under 40' age group reporting, on average, scores of .68 of a sten (.34 of an SD) higher than the 'Over 40' age group.

11.6 Work Strengths Gender Trends US - Sten Profile

Gender Trends US (N=2,668)

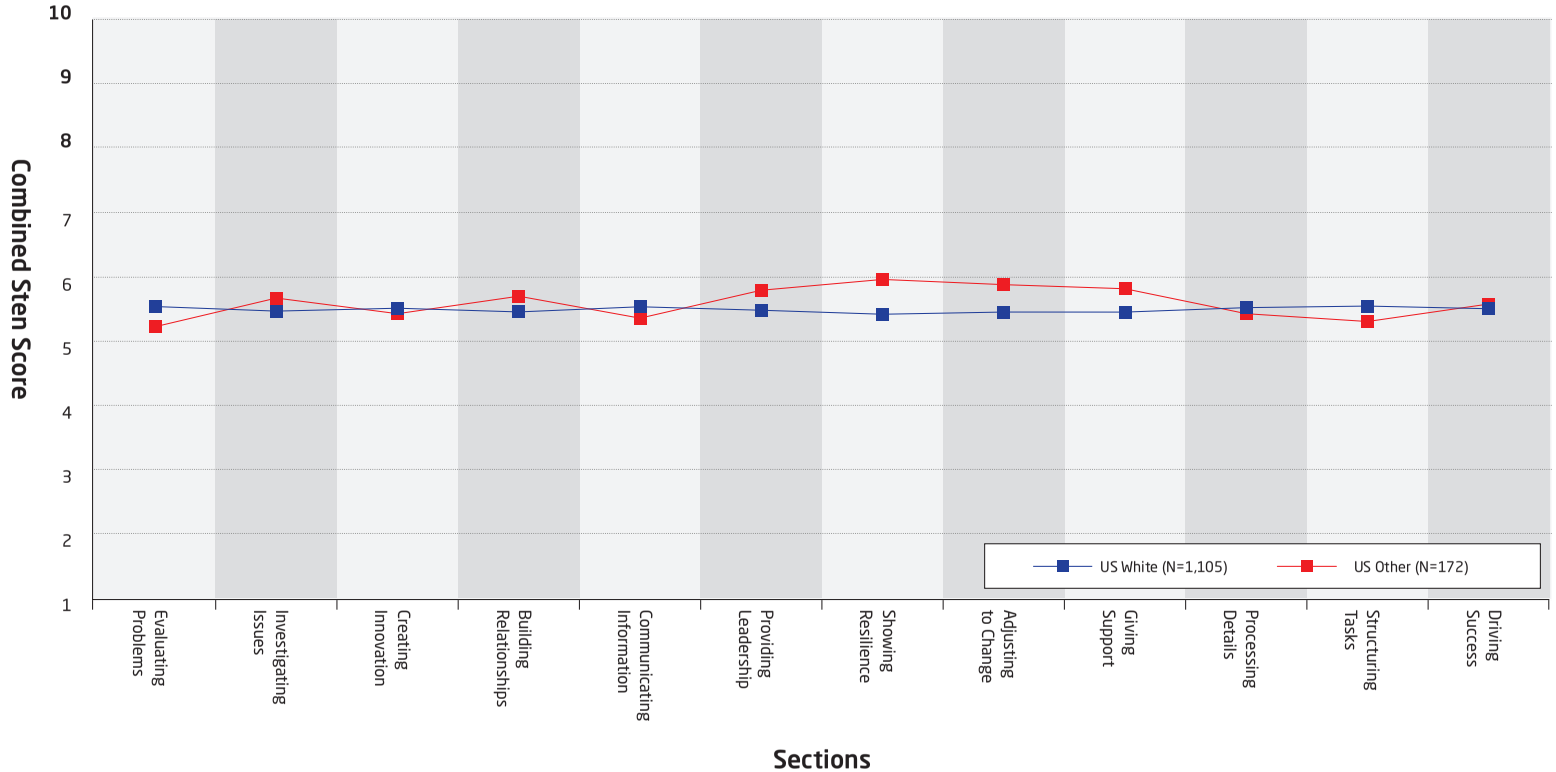


No group trends are greater than one sten.

The most notable group difference for gender is on *Structuring Tasks*, with the female group reporting, on average, scores of .90 of a sten (.45 of an SD) higher than the male group. The other sections which show group trends for gender are *Evaluating Problems* (.88 of a sten) and *Driving Success* (.84 of a sten), both of which show higher mean scores on average for the male group, and *Processing Details* (.84 of a sten) which shows higher mean scores on average for the female group. All other group trends by dimension are below .76 of a sten.

11.7 Work Strengths Ethnic Background Trends US - Sten Profile

Ethnicity Trends US (N=1,277)



No group trends are greater than .5 of a sten, indicating no notable group trends on any of the 12 sections.

Note: Due to the large differences of sample sizes for these groups, the groups were weighted to be of equal size.

N.B. For the purposes of the analysis, because of small sample sizes, those from ethnic groups other than White /Caucasian were included as one group in the analysis. For a full breakdown of Ethnic Group in this sample, please refer to Table 11.1.

Table 11.1 Breakdown of Ethnic Group in US Sample (N=1,277)

Ethnic Group Composition	N	%
Asian/Pacific Islander	37	3%
Black/African American	57	4%
Hispanic	71	6%
Native American/Alaskan Native	4	0%
Other	3	0%
White/Caucasian	1,105	87%
Total	**1,277**	**100%**

11.8 Fairness Summary

This chapter provides information on the fair application of Work Strengths. To be applied fairly we give examples of appropriate and inappropriate uses of Strengths in the 'Applications' chapter. At the beginning of the chapter the key steps and features of Strengths are highlighted that contribute to it being applied as a performance-driven tool which can be used fairly for the screening and selection of staff in the workplace.

The data presented on the differences between the means for different groups generally show no, small or moderate differences between groups. In each case, whether these differences are attributable to differences in the population means of these groups or are reflective of other variables is not readily discernible. However, some interesting observations can be drawn from the data.

The generally non-appreciable or small differences of the size demonstrated here do not justify treating age, gender or ethnic subgroups differently, and, as a result, we do not recommend using different norms for these age, gender or ethnic groups. On the contrary, they reinforce the case for using Work Strengths fairly by using one group and consistent method for a particular job across age, gender and ethnicity. As a result, no such norms are available on Oasys for these separate groups.

The differences between age, gender and ethnicity are not such that we advise that they should impact on profile interpretation. The lack of any appreciable difference on ethnicity in the UK and US samples, for example, make it unlikely that the scales of Work Strengths will underestimate the performance and potential of the Black and Asian groups and therefore will avoid disadvantaging these groups in screening or selection at work. In fact, the addition of Work Strengths to a selection procedure is likely to increase the fairness of the selection procedure and reduce adverse impact against minority groups.

We advise that the choice of norm group should be appropriate to the level of management of the role being considered. To reiterate discussion in the 'Work Strengths Norms' chapter of this handbook, International Norms are available for occasions where it is less appropriate or not possible to apply a comparison group from an individual country. Where a group is international, users may want to reflect on the composition of these norms (information provided in the Appendices) to decide on whether they are appropriate. There is, in fact, a great deal of similarity between the scores based on International norms and UK and US norms, the biggest impact is on the face validity of the norm.

More detailed information on the fairness of Saville Consulting Wave assessments can be found in the Wave Professional Styles Handbook.

Appendix A

Work Strengths

UK Professionals & Managers Group Description

This sample consisted of 9,884 participants employed in a variety of job functions across a wide range of sectors. Of these, 80% worked in the following sectors: local government, telecommunications, healthcare, education/training, financial services, construction, information technology, consultancy and manufacturing and production. The remaining 20% worked in other industry sectors including consumer and retail services, insurance, tourism and travel, arts and entertainment, human resources, environment and sciences, leisure and hospitality, property development and social services or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

36% of the sample were female and 64% were male.

Age[2]

The age of the group ranged from 19 to 81 years old, with a mean age of 41.

Education (highest qualification)[3]

30% had a postgraduate degree as their highest qualification, 24% had a first/undergraduate degree, 35% had a professional qualification, 8% had school level or some college qualifications, with the remaining 3% of the group having 'Other' or no formal qualifications.

Work Experience[4]

53% of the group had more than 20 years' experience, 34% had between 10 and 20 years' work experience, 9% had between 6 and 9 years', 3% had between 3 and 5 years' and the remaining 1% had less than 3 years' work experience.

Cultural Background[5]

79% of the sample described themselves as White or White British and 8% as Other White backgrounds (including European, American, Canadian, Australian, New Zealander and White Caribbean), with the remaining 13% coming from a wide range of other backgrounds[6].

1 *Based on 98% sample response*
2 *Based on 82% sample response*
3 *Based on 96% sample response*
4 *Based on 98% sample response*
5 *Based on 88% sample response*
6 *Other backgrounds included Other Caribbean, India, Africa, Pakistan, China, Bangladesh, Korea, Malaysia, Cyprus, Japan, Iran and Oman.*

Appendix B

Work Strengths

UK Graduates Group Description

This sample consisted of 4,021 participants employed in a variety of job functions across a wide range of sectors. Of these, 60% worked in the following sectors: telecommunications, local government, healthcare, consumer and retail services, information technology, education and training, financial and legal services, community and social services, manufacturing and production, consulting and arts and entertainment. The remaining 40% worked in other industry sectors including engineering, insurance, human resources, customer service, tourism and travel and environment and sciences, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

44% of the sample were female and 56% were male.

Age[2]

The age of the group ranged from 19 to 62 years old, with a mean age of 33.

Education (highest qualification)[3]

48% had a postgraduate degree as their highest qualification, while 52% had a first/undergraduate degree.

Work Experience[4]

58% of the group had between 10 and 20 years' work experience, 21% had between 6 and 9 years', 13% had between 3 and 5 years', 5% had between 1 and 2 years', 1% had between 6 months' and one year, and 2% had less than 6 months' experience.

Cultural Background[5]

56% of the sample described themselves as White or White British and 9% as Other White backgrounds (including European, American, Canadian, Australian, New Zealander, White Chinese and White Caribbean), with the remaining 35% coming from a wide range of other backgrounds[6].

1 *Based on 99% sample response*
2 *Based on 78% sample response*
3 *Based on 100% sample response*
4 *Based on 100% sample response*
5 *Based on 100% sample response*
6 *Other backgrounds included India, Africa, China, Other Caribbean, Pakistan, Bangladesh, Oman, Korea, Japan and Iran.*

Appendix C

Work Strengths

UK Individual Contributors Group Description

This sample consisted of 3,190 participants employed in a variety of job functions across a wide range of sectors. Of these, 65% worked in the following sectors: human resources, finance, sales, consulting, administration, engineering, information technology, health, education and construction. The remaining 35% worked in other industry sectors including operations, marketing, customer service, law, production, science/research, call center, design, hospitality, media, distribution, public safety, transport, public relations, security, travel, welfare or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

47% of the sample were female and 53% were male.

Age[2]

The age of the group ranged from 18 to 70 years old, with a mean age of 34.

Education (highest qualification)[3]

26% had a postgraduate degree as their highest qualification, 29% had a first/undergraduate degree, 21% had a professional qualification and 20% had school level or some college qualifications, with the remaining 4% of the group having 'Other' or no formal qualifications.

Work Experience[4]

27% of the group had more than 20 years' experience, 32% had between 10 and 20 years' work experience, 19% had between 6 and 9 years', 14% had between 3 and 5 years', 5% had between 1 and 2 years' and the remaining 3% had less than 1 year of work experience.

Cultural Background[5]

61% of the sample described themselves as White or White British, 18% as Other White backgrounds (including European, American, Canadian, Australian, New Zealander and South African), 8% as Asian (including Indian, Chinese, Bangladeshi, Japanese, Malaysian and Korean) and 6% as Black (including African, Caribbean, American and Asian), with the remaining 7% coming from a range of other backgrounds[6].

1 *Based on 97% sample response*
2 *Based on 81% sample response*
3 *Based on 96% sample response*
4 *Based on 95% sample response*
5 *Based on 85% sample response*
6 *Other backgrounds included Arabic, Other Caribbean, Hispanic, Pacific Islander and mixed race.*

Appendix D

Work Strengths

UK Mixed Occupational Group Description

This sample consisted of 10,953 participants employed in a variety of job functions across a wide range of sectors. Of these, 80% worked in the following sectors: local government, telecommunications, healthcare, financial services, education/training, construction, information technology, consultancy and manufacturing and production. The remaining 20% worked in other industry sectors including community/social services, consumer and retail services, insurance, tourism and travel, human resources, environment and sciences, arts and entertainment and property development or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

38% of the sample were female and 62% were male.

Age[2]

The age of the group ranged from 16 to 81 years old, with a mean age of 40.

Education (highest qualification)[3]

29% had a postgraduate degree as their highest qualification, 25% had a first/undergraduate degree, 34% had a professional qualification, 9% had school level or some college qualifications, 2% had 'Other qualifications, with the remaining 1% of the group having no formal qualifications.

Work Experience[4]

50% of the group had more than 20 years' experience, 33% had between 10 and 20 years work experience, 10% had between 6 and 9 years, 5% had between 3 and 5 years and 2% had less than 3 years' work experience.

Cultural Background[5]

77% of the sample described themselves as White or White British, 8% as Other White backgrounds (including European, American, Canadian, Australian, New Zealander and white Caribbean), with the remaining 15% coming from a wide range of other backgrounds[6].

1 *Based on 98% sample response*
2 *Based on 98% sample response*
3 *Based on 96% sample response*
4 *Based on 97% sample response*
5 *Based on 87% sample response*
6 *Other backgrounds included India, Other Caribbean, Africa, Pakistan, China, Bangladesh, Malaysia, Korea, Iran, Omani, Japan and Cyprus.*

Appendix E

Work Strengths

US Professionals & Managers Group Description

This sample consisted of 1,849 participants employed in a variety of job functions across a wide range of sectors. Of these, 60% worked in the following sectors: financial and legal services, human resources, consulting, leisure and hospitality, operation, marketing and information technology. The remaining 40% worked in other industry sectors including administration, engineering, customer services, education and training, construction, arts and media, healthcare, transport and logistics, manufacturing and production and environment and sciences, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

39% of the sample were female and 61% were male.

Age[2]

The age of the group ranged from 21 to 78 years old, with a mean age of 44.

Education (highest qualification)[3]

58% had a postgraduate degree as their highest qualification, 32% had a first/undergraduate degree, 7% had a professional qualification and 2% had school level or some college qualifications, with the remaining 1% of the group having 'Other' qualifications.

Work Experience[4]

54% of the group had more than 20 years' experience, 35% had between 10 and 20 years' work experience, 9% had between 6 and 9 years' and 2% had less than 6 years' work experience.

Cultural Background[5]

83% of the sample described themselves as White/Caucasian (including European, American, Australian and White Caribbean), 9% as Hispanic, 3% as Black/African American, with the remaining 5% of the sample coming from a range of other backgrounds[6].

1 *Based on 99% sample response*
2 *Based on 81% sample response*
3 *Based on 67% sample response*
4 *Based on 99% sample response*
5 *Based on 48% sample response*
6 *Other backgrounds included Asian/Pacific Islander, Indian, African-Caribbean, Chinese, Native American, Afghan and Korean.*

Appendix F

Work Strengths

US Graduates Group Description

This sample consisted of 685 participants employed in a variety of job functions across a wide range of sectors. Of these, 60% worked in the following sectors: sales, consulting, financial services, education and training, operations, human resources, marketing, administration and customer service. The remaining 40% worked in other industry sectors including leisure and hospitality, arts and media, engineering, information technology, healthcare, tourism and travel, manufacturing and production, environment and sciences, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

43% of the sample were female and 57% were male.

Age[2]

The age of the group ranged from 22 to 57 years old, with a mean age of 36.

Education (highest qualification)[3]

57% had a postgraduate degree as their highest qualification and 43% had a first/undergraduate degree.

Work Experience[4]

70% of the group had between 10 and 20 years' work experience, 20% had between 6 and 9 years', 6% had between 3 and 5 years', 1% had between 1 and 2 years', with the remaining 3% having had less than 12 months' work experience.

Cultural Background[5]

80% of the sample described themselves as White/Caucasian (European and American), 12% as Hispanic, 3% as Black/African American, 2% as Asian/Pacific Islander, with the remaining 3% of the sample coming from a range of other backgrounds[6].

1 *Based on 99% sample response*
2 *Based on 83% sample response*
3 *Based on 100% sample response*
4 *Based on 100% sample response*
5 *Based on 76% sample response*
6 *Other backgrounds included Caribbean, Indian, Chinese, Native American and Korean.*

Appendix G

Work Strengths

US Individual Contributors Group Description

This sample consisted of 323 participants employed in a variety of job functions across a wide range of sectors. Of these, 80% worked in the following sectors: consulting, human resources, sales, education, engineering, information technology, finance, administration, marketing and purchasing. The remaining 20% worked in other industry sectors including health, operations, law, customer service, travel, call center, production and research or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

55% of the sample were female and 45% were male.

Age[2]

The age of the group ranged from 18 to 68 years old, with a mean age of 38.

Education (highest qualification)[3]

37% had a postgraduate degree as their highest qualification, 45% had a first/undergraduate degree, 14% had school level or some college qualification and 3% had a professional qualification, with the remaining 1% of the group having 'Other' or no formal qualifications.

Work Experience[4]

31% of the group had more than 20 years' experience, 36% had between 10 and 20 years' work experience, 16% had between 6 and 9 years', 13% had between 3 and 5 years' and the remaining 4% had less than 3 years' work experience.

Cultural Background[5]

81% of the sample described themselves as White/Caucasian (including American and European), 6% as Hispanic, 6% as Black (including American, African and Caribbean), with the remaining 7% coming from a range of other backgrounds[6].

1 *Based on 97% sample response*
2 *Based on 77% sample response*
3 *Based on 84% sample response*
4 *Based on 98% sample response*
5 *Based on 72% sample response*
6 *Other backgrounds included India, Africa, China, Other Caribbean, Pakistan, Bangladesh, Oman, Korea, Japan and Iran.*

Appendix H

Work Strengths

US Mixed Occupational Group Description

This sample consisted of 2,143 participants employed in a variety of job functions across a wide range of sectors. Of these, 60% worked in the following sectors: sales, financial services, operations, human resources, consulting, leisure and hospitality, administration, marketing and engineering. The remaining 40% worked in other industry sectors including information technology, education and training, legal services, construction, arts and media, healthcare, transport and logistics, manufacturing and production, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

42% of the sample were female and 58% were male.

Age[2]

The age of the group ranged from 20 to 78 years old, with a mean age of 43.

Education (highest qualification)[3]

55% had a postgraduate degree as their highest qualification, 34% had a first/undergraduate degree, 8% had a professional qualification, 2% had school level or some college qualifications, with the remaining 1% of the group having 'Other' qualifications.

Work Experience[4]

52% of the group had more than 20 years' experience, 35% had between 10 and 20 years' work experience, 9% had between 6 and 9 years', 3% had between 3 and 5 years, with the remaining 1% having had less than 3 years' work experience.

Cultural Background[5]

84% of the sample described themselves as White/Caucasian (including European, American, Australian and white Caribbean), 9% as Hispanic, 3% as Black/African American, 2% as Asian/Pacific Islander, with the remaining 2% of the sample coming from a range of other backgrounds[6].

1 *Based on 98% sample response*
2 *Based on 81% sample response*
3 *Based on 70% sample response*
4 *Based on 99% sample response*
5 *Based on 49% sample response*
6 *Other backgrounds included Indian, African-Caribbean, Chinese, Native America, Afghan and Korean.*

Appendix I

Work Strengths

International Professionals & Managers Group Description

This sample consisted of 2,600 participants employed in a variety of job functions across a wide range of sectors. Of these, 70% worked in the following sectors: financial and legal services, insurance, telecommunications, consulting, healthcare, government and public services and engineering. The remaining 30% worked in other industry sectors including information technology, manufacturing and production, education and training, consulting, oil/gas/utilities, consumer products, retail and tourism and travel, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

40% of the sample were female and 60% were male.

Age[2]

The age of the group ranged from 21 to 69 years old, with a mean age of 40.

Education (highest qualification)[3]

37% had a postgraduate degree as their highest qualification, 25% had a first/undergraduate degree, 28% had a professional qualification, 8% had school level or some college qualifications, with 2% of the group having 'Other' or no formal qualifications.

Work Experience[4]

40% of the group had more than 20 years' experience, 42% had between 10 and 20 years' work experience, 11% had between 6 and 9 years', 5% had between 3 and 5 years', with the remaining 2% having had less than 3 years' work experience.

Cultural Background[5]

73% of the sample described themselves as White/Caucasian (including European, Asian, American, Australian and White Caribbean), 9% as Black, 8% as Hispanic, 3% as Indian, with the remaining 7% of the sample coming from a range of other backgrounds[6].

Country of Completion[7]

20% of respondents completed Professional Styles in the UK, 20% in the US, 20% in South Africa, 19% in Mexico, 8% in Australia, 3% in Bulgaria, 3% in Denmark, 2% in France, 2% in Spain, with the remaining 3% having completed the questionnaire in various other countries (namely Germany, Canada, Italy, Netherlands, Brazil and Sweden).

1 *Based on 99% sample response*
2 *Based on 79% sample response*
3 *Based on 85% sample response*
4 *Based on 99% sample response*
5 *Based on 62% sample response*
6 *Other backgrounds included Asian/Pacific Islander, Native American, Chinese, Pakistani, Other Caribbean, Japanese and Afghan*
7 *Based on 100% sample response*

Appendix J

Work Strengths

International Graduates Group Description

This sample consisted of 1,423 participants employed in a variety of job functions across a wide range of sectors. Of these, 60% worked in the following sectors: financial and legal services, insurance, consulting, and telecommunications. The remaining 40% worked in other industry sectors including education/training, healthcare, government and public services, manufacturing and production, retail, information technology, consumer products, agriculture, construction, oil/gas/utilities, community and social services, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

49% of the sample were female and 51% were male.

Age[2]

The age of the group ranged from 19 to 59 years old, with a mean age of 33.

Education (highest qualification)[3]

51% had a postgraduate degree as their highest qualification, 49% had a first/undergraduate degree.

Work Experience[4]

53% of the group had between 10 and 20 years' work experience, 18% had between 6 and 9 years', 14% had between 3 and 5 years', 7% had between 1 and 2 years', 4% had between 6 and 12 months', with the remaining 4% having had less than 6 months' work experience.

Cultural Background[5]

59% of the sample described themselves as White/Caucasian (including European, American, Australian and White Caribbean), 21% as Black, 8% as Hispanic, 6% as Indian, with the remaining 6% of the sample coming from a range of other backgrounds[6].

Country of Completion[7]

18% of respondents completed Professional Styles in the UK, 17% in the US, 26% in South Africa, 16% in Mexico, 7% in Australia, 5% in Germany, 3% in Spain, 2% in France, 2% in Denmark, 2% in Bulgaria, with the remaining 2% having completed the questionnaire in various other countries (namely Canada, Italy, Netherlands and Brazil).

1 *Based on 99% sample response*
2 *Based on 80% sample response*
3 *Based on 100% sample response*
4 *Based on 100% sample response*
5 *Based on 72% sample response*
6 *Other backgrounds included Chinese, Asian/Pacific Islander, Native American, Pakistani, Bangladeshi, Korean, Caribbean and Arab/Middle Eastern*
7 *Based on 100% sample response*

Appendix K

Work Strengths

International Individual Contributors Group Description

This sample consisted of 2,202 participants, employed in a variety of job functions across a wide range of industry sectors. Of these, 70% worked in the following sectors: human resources, finance, administration, sales, consulting, information technology, customer service, engineering, law, marketing, education, health and production. The remaining 30% worked in other industry sectors including operations, construction, data processing, purchasing, research, travel, media, hospitality, distribution and call center or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

57% of the sample were female and 43% were male.

Age[2]

The age of the group ranged from 18 to 70 years old, with a mean age of 34.

Education (highest qualification)[3]

28% had a postgraduate degree as their highest qualification, 31% had a first/undergraduate degree, 19% had school level or some college qualification, 10% had a professional qualification, with the remaining 12% of the group having 'Other' or no formal qualifications.

Work Experience[4]

20% of the group had more than 20 years' experience, 30% had between 10 and 20 years' work experience, 19% had between 6 and 9 years', 18% had between 3 and 5 years', 8% had between 1 and 2 years' and the remaining 5% had less than 1 year's work experience.

Cultural Background[5]

43% of the sample described themselves as White/Caucasian or White British, 21% as Other White backgrounds (including European, Australian, American, Canadian, New Zealander and South African), 18% as Black (including African, Caribbean and American), 6% as Asian (including Indian, Chinese, Japanese and Malaysian), 5% as Hispanic, with the remaining 7% coming from a range of other backgrounds[6].

1 *Based on 92% sample response*
2 *Based on 65% sample response*
3 *Based on 93% sample response*
4 *Based on 94% sample response*
5 *Based on 62% sample response*
6 *Other backgrounds included Arabic, Other Caribbean, Pacific Islander and mixed race*

Appendix L

Work Strengths

International Mixed Occupational Group Description

This sample consisted of 3,095 participants employed in a variety of job functions across a wide range of sectors. Of these, 70% worked in the following sectors: insurance, financial and legal services, healthcare, telecommunications, government and public services, consulting, information technology, education/training and engineering. The remaining 30% worked in other industry sectors including manufacturing and production, oil/gas/utilities, construction, administration, community and social services, consumer products, retail, customer services, sales, tourism and travel, human resources and electronics, or described their industry sector as 'other'.

The breakdown of the group is provided below (with response rates for each biographical section given in the footnotes).

Gender[1]

43% of the sample were female and 57% were male.

Age[2]

The age of the group ranged from 19 to 69 years old, with a mean age of 39.

Education (highest qualification)[3]

33% had a postgraduate degree as their highest qualification, 27% had a first/undergraduate degree, 25% had a professional qualification, 12% had school level or some college qualifications, with 3% of the group having 'Other' or no formal qualifications.

Work Experience[4]

37% of the group had more than 20 years' experience, 38% had between 10 and 20 years' work experience, 12% had between 6 and 9 years', 7% had between 3 and 5 years' and 3% had between 1 and 2 years', with the remaining 3% having had less than 12 months' work experience.

Cultural Background[5]

68% of the sample described themselves as White/Caucasian (including European, Asian, American, Australian, New Zealander and White Caribbean), 14% as Black, 7% as Hispanic, 4% as Indian, with the remaining 7% of the sample coming from a range of other backgrounds[6].

1 *Based on 99% sample response*
2 *Based on 78% sample response*
3 *Based on 86% sample response*
4 *Based on 98% sample response*
5 *Based on 63% sample response*
6 *Other backgrounds included Asian/Pacific Islander, Caribbean, Chinese, Native American, Pakistani, Afghan and Japanese*

Country of Completion[7]

20% of respondents completed Professional Styles in the UK, 20% in the US, 22% in South Africa, 16% in Mexico, 8% in Australia, 4% in Denmark, 3% in Bulgaria, 2% in Spain, 2% in France, with the remaining 3% having completed the questionnaire in various other countries (namely Germany, Canada, Italy, Netherlands, Brazil and Sweden).

[7] *Based on 100% sample response*

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