



Profiles Sales Assessment®

User Training Manual



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Unit 1: Introduction to the PSA



LEARNING OBJECTIVES

- List the theories underlying the three sections of the PSA
- List the sections of the PSA and distinguish them from one another
- List the scales measured by the PSA
- Define STEN score
- Convert raw scores to STEN scores

What is the PSA?

The PSA is a human resources assessment that helps identify people who fit most accurately in jobs. The PSA has been administered to over 1.5 million job applicants and incumbents.

A multi-dimensional assessment program, the PSA evaluates a person's behavioral traits, interests, and cognitive abilities (Thinking Style). These three areas of assessment are used to identify characteristics that can lead to a better fit between person and job.

Results from the three assessment domains determine the job match. The job match process compares the characteristics of the individual with those individuals who have demonstrated success on the specific job. Although some overlap exists, the three assessed domains each contribute to a richer understanding of the individual and their match to the job.

The PSA® relies on the results from nine behavioral scales, six interest scales, and five cognitive scales to study the potential match between an applicant and a job. This complex task is accomplished through the use of the PSA software. The analysis produces information that guides

the decision maker to consider information about the applicant and how well he/she fits to the job. The software generates interview questions and coaching comments providing detailed information for making informed decisions.

Theoretical Foundation

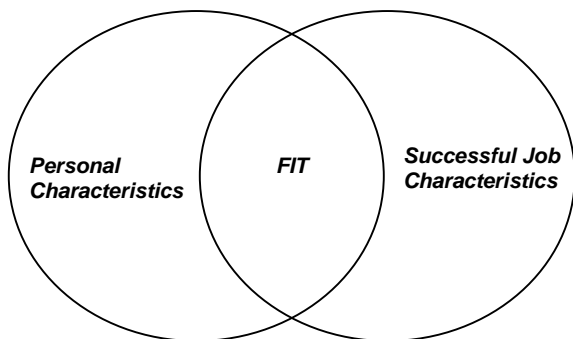
The PSA helps to determine the congruence between a person and a job so employers may capitalize on the person-job relationship. Empirical evidence supports this proposition.

Research studies show that individuals prefer jobs that are compatible with their personalities and abilities (Bretz, Ash, and Dreher, 1989; Burke and Deszca, 1982; Cable and Judge, 1994; Judge and Bretz, 1992; Turban and Keon, 1993). Employees who enjoy a good job fit report high job satisfaction and performance and are less likely to separate prematurely from the position (Bretz and Judge, 1993; Chatman, 1989, 1991; Meglino, Ravlin, and Adkins, 1989). In a study of various occupational groups, Caldwell and O'reilly (1990) found that overall person-job fit is strongly related to a number of outcomes, including job performance and satisfaction.

A survey of occupational assessment research emphasizes an approach that uses multiple measures. One multidimensional approach assesses the work-related qualities of a person on three levels -- personality, interests, and ability. The works of Ackerman and Heggestad (1997), and Ackerman and Beier (2003) provide evidence of a strong relationship among personality, interest, and ability.

Person-environment Fit

The conceptual framework of the PSA draws primarily from the Person-Job Fit research of Ackerman and Heggestad (1997), Ackerman and Beier (2003), Parsons (1909), and Tett, Jackson, and Rothstein, (1994).



The research of Ackerman and Heggestad (1997) concludes that intelligence, personality, and interests are overlapping traits that help explain the total person. [Cited in reference section, p. 38]

They state:

It seems to be reasonable to propose that development of personality-interest-intelligence traits proceeds along mutually causal lines. That is, abilities, interests, and personality develop in tandem, such that ability level and personality dispositions

determine the probability of success in a particular task domain, and interests determine the motivation to attempt the task (p. 239).

Further, Ackerman and Beier (2003) found that these traits worked in concert to help with career choices and vocational guidance. *The Standards for Educational and Psychological Testing*, (AERA, 1999) also points out that behavior in work settings is influenced by individual characteristics such as abilities, personality, and attitudes (p. 155).

The early work of Parsons (1909) in the area of person-environment fit supports the use of personality characteristics as predictors of occupational success. Tett, Jackson, and Rothstein (1991) concluded that personality is a key factor in job performance. Foster (2003) found that combining personality scales (e.g., interaction effects, profile analysis) is more effective than using scales in isolation and better describes how personality scales may be used in personnel selection settings.

Person-environment Typology

Holland's person-environment typology theory, "one's motivation for work can be associated with various interest categories," has withstood the test of time in the literature. Holland's theory has been described as internally consistent and easy to apply to most positions (Gottfredson, Holland, and Ogawa, 1982). The ease of understanding has its roots in Holland's division of the world of work into six comprehensive themes.

Correlates of Ability and Job Success

The assessment of cognitive abilities is common in job selection because research shows ability affects job success (Hunter &

Hunter, 1984). The seminal work of Hunter and Hunter found that "... ability tests are valid across all jobs in predicting job proficiency," (p. 80). The works of Ghisell (1973) and Vinebery, and Joyner (1982) corroborate the findings of Hunter and Hunter

PSA Sections

The PSA is made up of three sections designed to measure individual characteristics which are the building blocks of competencies. The PSA, in itself, does not measure competencies but rather measures those behavioral, interest, and cognitive traits that allow a person to become competent at a particular task or job.

The Thinking Style (Cognitive) Section

The early work of researchers (Thurstone 1938, Wechsler 1944, Terman 1960) provides important information about the relationship between job success and cognitive abilities. Recent studies reveal a link between results of standardized cognitive abilities tests and work behavior (Dilchert, Ones, Davis, and Rostow, 2007). The PSA measures cognitive abilities because it is important that the cognitive demands of the job align with the abilities of the individual. The research of Rode, Arthaud-Day, Mooney, Near, and Baldwin (2008) points to general mental ability as one of the strongest predictors of job performance.

Thinking Style Scales

- Learning Index
- Verbal Skill
- Verbal Reasoning
- Numerical Ability
- Numeric Reasoning

Behavioral Traits

A growing body of literature demonstrates the efficacy of using personality or behavioral characteristics to predict job success. In the early 1990s, the use of personality assessments in job selection received encouragement when the U. S. Government examined the adverse impact of job selection methods. Measures of behavioral characteristics tend to have less adverse impact than other assessment methods (Hattrup, Rock, and Scalia, 1997; Murphy and Shiarella, 1997; Schmitt, Rogers, Chan, Sheppard, and Jennings, 1997).

In isolation, the presence of a particular personality trait is not necessarily good or bad. The degree to which a personality trait is found in an individual can significantly influence his or her success in a job. Individuals who possess the desired traits for a job tend to be more comfortable in the position than those who are forced to behave in a manner inconsistent with their personality. Parsons (1909) asserts that a good fit between the individual and his environment results in positive outcomes not only for the individual but also for the organization. More recently, studies have shown person-job fit is a good predictor of effective employee commitment as well as effective and productive job performance (Greguras and Diefendorff, 2009).

Behavioral Scales

- Energy
- Assertiveness/Self-assurance*
- Sociability
- Manageability/Conformity*
- Attitude/Optimism*
- Decisiveness*
- Accommodating
- Independence/Self-reliance*
- Objective Judgment/Objectivity*

**Behavioral scale names with asterisks are also measured in the Profiles Management Fit (PMF).*

The Interests Section

The PSA uses Holland's six constructs: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional to measure occupational interest. Holland's "Vocational Preference Inventory" (1985) and the body of supporting research have emerged as the standard for measuring one's work interest. The PSA Interests section is Holland influenced and measures an individual's level of interest in six major occupational themes.

Interests Scales

- Enterprising
- Financial/Administrative
- People Service
- Technical
- Mechanical
- Creative

Scoring the PSA

The STEN Scale

In the PSA scoring system, raw scores are converted to scaled scores and reported as STEN (Standard, base Ten) scores distributed across the working population. The raw scores are converted so that the scores of approximately two-thirds (68%) of the population will fall between 4 and 7, 16% will fall above 7 and 16% below 4. This produces a normal distribution of scores.

STEN scores are used to define the relative level of a given characteristics found in the assessment-taker. A score range that correlates best with high job performance is used to build the Performance Model.

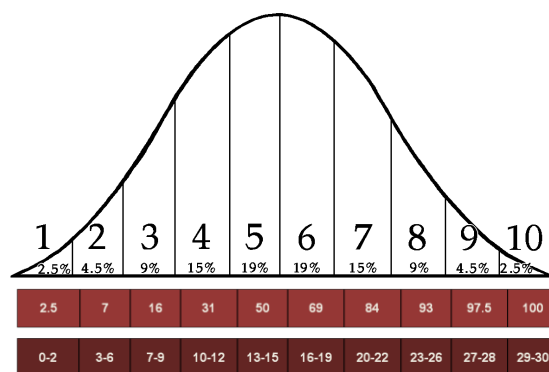
Norming

As we discussed previously, the PSA is scored on a STEN scale. The purpose of converting raw scores to STEN scores is to standardize the scores so that scales with different numbers of items and hence, different possible raw scores may be accurately compared. The process of converting raw scores to STEN scores is called norming. To do this, the population raw scores are converted to fit the normal distribution or bell-shaped curve.

The Normal Distribution

In simple terms, in a normal distribution most individuals are around average, and extreme scores are relatively rare. This shape describes many common variables such as adult heights, intelligence scores, and personality scores (Gravetter and Wallnau, 1988).

Normal Distribution



One of the major assumptions of psychometrics is that all levels of typical human characteristics, when measured for magnitude in every member of a population, will fall in a frequency distribution that approximates this Normal Distribution Curve. For instance, if we measure the assertiveness of all people in the United States and rate their magnitude on a 1 to 10 scale, 68% of the people in the population

will fall between the scores 4 and 7. The rest will fall equally below 4 and above 7. The area under the curve and between the STEN scores of 4 and 7 will always reflect 1 standard deviation unit on either side of the mean. This is the nature of the normal distribution.

As an example, the following table shows the conversion of raw scores to a scale score (STEN) for a typical Behavioral Trait scale from the U.S. PSA. There are 30 questions in this example scale.

PSA raw score to STEN score conversion example (United States)

Raw Score	STEN Score
0 to 2	1 (2.5%)
3 to 6	2 (4.5%)
7 to 9	3 (9.0%)
10 to 12	4 (15%)
13 to 15	5 (19%)
16 to 19	6 (19%)
20 to 22	7 (15%)
23 to 26	8 (9.0%)
27 to 28	9 (4.5%)
29 to 30	10 (2.5%)

The PSA used in North America is normed on the general working population. This means that the people who have taken the PSA and whose scores were used to establish the STEN score norms, represent all education levels, ethnicities, ages, genders and other aspects of the entire population of working people in the U.S.

Unit 1 Review

1. List the theory underlying each section of the PSA.

- Behavioral Traits:

- Interests:

- Thinking Styles:

2. Complete the list of Behavioral scales measured by the PSA.

- Energy

- _____

- Sociability

- _____

- _____

- Decisiveness

- Accommodating

- Independence

- _____

3. Fill in the blank

A _____ scale divides raw scores into a standardized scale of ten units.

4. Briefly explain the Person-job Fit theory.

Unit 2: The PSA Scales



LEARNING OBJECTIVES

- Define the PSA Thinking Style scales
- Distinguish between ability and reasoning scales
- Explain the derivation of the Learning Index
- Define the PSA Behavioral Traits scales
- Define the PSA Interests scales
- Distinguish between ipsative and normative questions
- Explain how the Interests scale is both ipsative and normative
- Define the Distortion scale
- Define the appropriate use of the Distortion scale.

The PSA Thinking Style Scales

The early work of researchers (Thurstone 1938, Wechsler 1944, Terman 1960) provides important information about the relationship between job success and cognitive abilities. Recent studies reveal a link between results of standardized cognitive abilities tests and work behavior (Dilchert, Ones, Davis, and Rostow, 2007). The PSA measures cognitive abilities (Thinking Style) because it is important that the cognitive demands of the job align with the abilities of the individual. The research of Rode, Arthaud-Day, Mooney, Near, and Baldwin (2008) points to general mental ability as one of the strongest predictors of job performance. The scales measured in the Thinking Style section of the PSA are listed and briefly defined below.

Scale	Definition
Verbal Skill	Vocabulary proficiency.
Verbal Reasoning	Fluency in the use of words as a basis in problem solving.
Numerical Ability	Numeric calculation proficiency.
Numeric Reasoning	Ability to use numbers as a basis in analysis.
Learning Index	Composite of questions from Verbal Skill, Verbal reasoning, Numerical Ability, and Numeric Reasoning.

Note: The Learning Index is a fifth scale derived by combining the raw scores for each

of the four Thinking Style scales and converting that sum to a STEN score.

Skill and Ability vs. Reasoning

The PSA measures learned skills and basic reasoning ability in both the verbal and numeric domains. Data from thousands of individual PSA administrations have shown that while basic skills and reasoning abilities often run hand in hand, the specific sections measure different things.

As an example, Numerical Ability reflects working with numbers and computations while Numerical Reasoning is more about what the numbers are saying about a specific situation.

The simplest example of this is a person who has a very good memory and can remember formulas and mathematical rules, but has never had to apply any mathematics to a real-world problem. For this person, the Numerical Ability section of the PSA may be simple because it basically requires one to calculate an answer from a mathematical equation.

The skill required to successfully complete this task is generally remembering all the rules associated with math problems (e.g. two negatives multiplied equals a positive) or how to convert a fraction into a decimal. However, this same person, when faced with Numeric Reasoning items which may require reading about a situation and setting up an equation to solve a problem, may have great difficulty. The individual may score 9 out of 10 on the skills portion while scoring 5 on the reasoning.

One sample item from each of the Thinking Style sections is provided below.

Verbal Skill: Identify the synonym

Repair

- A. break
- B. damage
- C. design
- D. fix

Verbal Reasoning: Complete the analogy

drive : energy :: patience :

- A. tolerance
- B. clarity
- C. verve
- D. impulsivity

Numerical Ability: Solve the equation

$$8(6-5) + 10 =$$

- A. 29
- B. 18
- C. 9.3
- D. 19

Numeric Reasoning: Solve the problem

What will the last payment be to pay off a \$1,250 computer plus 8% sales tax with monthly payments of \$120?

- A. \$10
- B. \$11
- C. \$12
- D. \$20
- E. \$30

Note: the main difference between ability and skill questions and reasoning questions is that most things required to answer the skill questions can be learned by rote while application is required to solve the reasoning problems.

The PSA Behavioral Traits Scales

The PSA Behavioral scales measure nine scientifically derived characteristics of normal personality. These scales were derived using a factor analysis to determine the validity of the constructs to be measured. The scale names and a brief definition of each are listed below.

Behavioral Traits	Description
Energy	Tendency toward restlessness, activity, and drive. (Tends to be restless and driven).
Assertiveness / Self-assurance*	Generalized influence often associated with expressing confidence. (Tends to take charge of people and situations).
Sociability	Social presence relating to one's desire for group associations. (Engages others with ease and enjoys group settings).
Manageability / Conformity*	How one reacts to the limits placed by authority and the acceptance of established procedures.

Attitude / Optimism*	The degree to which one is willing to demonstrate trust toward others.
Decisiveness*	Confidence one has in accepting risk associated with making timely decisions using what information is available.
Accommodating	The degree to which one is willing to consider the needs of all group members.
Independence / Self-reliance*	The manner in which one prefers to be directed and one's potential to accomplish tasks with minimal supervision.
Objective Judgment / Objectivity*	The willingness one has to use either reason and logic or intuition.

**Also measured on the PMF*

PSA Critical Sales Behaviors

These behaviors are specific to sales situations and are reported separately in the Performance Model Comparison Report. *The Critical Sales Behaviors do not impact an individual's fit to a Performance Model.* The Critical Sales Behaviors and their definitions are:

<i>Critical Sales Behaviors</i>	<i>Description</i>		role of supporters and associates.
Prospecting	Highlights the preferred approach to engaging prospects for sales presentations. For example, those who are not easily deterred from a task may prefer the freedom to be original in their approach, while another could prefer the structure that results from having others set their schedule for them.		
Closing the Sale	Describes the approach one prefers to move a prospect to buy, whether quickly with an aggressive level of confidence or by taking a step-by-step, more diplomatic approach.	Self-starting	Illustrates the preferred approach a salesperson may utilize to initiate activity; describes his or her preferred tempo when conducting business. Some individuals are prone to progress without being prompted and others tend to move forward best when a supervisor provides the momentum to get underway.
Call Reluctance	Explains an individual's need for support to overcome hesitation in making calls. While some take an independent and self-motivated approach, others may prefer the added incentive and support a supervisor or team may provide.	Building and Maintaining Relationships	Illustrates the style by which a salesperson establishes and maintains relations with clients whether in a structured and somewhat modest manner or rapidly, in an open and outgoing way.
Compensation Preference	Focuses on the effectiveness of various kinds of rewards that serve to motivate the salesperson. While some seek security with a guaranteed, fixed income, others may prefer the opportunity to expand their income with commissions.		
Working with a Team	Emphasizes the level of openness an individual may have to cooperative and/or competitive participation in a team environment. While some make excellent leaders, demonstrating competitiveness and authority, others are best in the		

The PSA Interests Scales

The PSA uses six constructs: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional to measure interests. These are based on Holland's "Vocational Preference Inventory." Holland (1985) and the body of supporting research have emerged as a common standard for measuring one's work interest. The Holland constructs are also used in the U.S. Department of Labor O*Net career investigation system.

The PSA Interests section is Holland influenced and measures an individual's level of interest in six major occupational themes. The themes and the Holland constructs to which they relate are:

PSA Themes	Holland's Constructs
Enterprising	Enterprising
Financial/ Administrative	Conventional
People Service	Social
Technical	Investigative
Mechanical	Realistic
Creative	Artistic

These themes parallel those found in Holland's typology which are widely accepted as important factors in job success. The names of the themes in the PSA are updated to make them more relevant to modern business and industry.

Interests	Description
Enterprising	Interest in activities in which one uses persuasiveness and enjoys leading others.
Financial/ Administrative	Interest in activities that involve the organization or coordination of information.
People Service	Interest in activities that involve helping people and tending to the welfare of others.
Technical	Interest in activities that center on scientific and technical activities, research, and intellectual skills.
Mechanical	Interest in activities that involve applied vocations with tools and machinery,

	trades and outdoor activities.
Creative	Interest in activities where one may be imaginative, original, and aesthetic.

Scoring the Interests Section

When matching an individual's scores to a specific Performance Model, only the ordered ranking (not intensity) of the top three interest scales is considered, not the score on the individual scales. When the Performance Model's top three interests are the same as the individual's top three and the orders of these top three are the same, there is a very good match percent. As the individual's top three interest areas differ from the Performance Model, the actual scales and/or their ordering, the percent match decreases.

For matching to the job, the emphasis is on the individual's highest three interest areas and not the lesser three interest areas.

Ipsative vs. Normative

An ipsative scale is one in which the individual's characteristic behavior is used as the standard. The score on an ipsative scale is determined relative to the individual's baseline, rather than compared with other individuals as is a normative score (Goldenson, 1984).

The PSA Interests scales use ipsative items but scores are standardized and normed to the general working population. Ipsative format items are those in which an individual is asked to select one option over another or rank order items based on their own preferences. The way in which ipsative

items are answered is only relevant to the individual who answered the items.

The result of this ipsative ranking for each question set results in an ipsative rank-ordering of the six interest scales for the individual. This allows a clear presentation of how the individual's interests rank from top to bottom.

As an example, if two people (Ann and Bob) completed the Interests section of the PSA, their results would clearly show their top three interest themes. However, the only comparison between them would be similarities/differences in the order of their interest preferences. No information about the difference strengths of their interest in each theme could be revealed from these data.

Ipsative

Ann

1st Technical
2nd Mechanical
3rd Creative
4th People Service
5th Fin./Admin.
6th Enterprising

Bob

1st Technical
2nd Mechanical
3rd Creative
4th People Service
5th Fin./Admin.
6th Enterprising

It could be said that Technical was ranked as the top interest theme for both Ann and Bob and Mechanical was ranked second. However, we could not say which had the strongest interest in Technical because in each case a different self was used as a reference point.

If we wanted to know about the relative strength of the interest in Technical, we would have to compare the actual scores for both Ann and Bob to a common outside

group or standard. This would change the reference from ipsative (self) to normative (a reference group). Let's look at the normative score for each interest theme:

Normative

Ann

9 Technical
7 Mechanical
5 Creative
4 People Service
2 Fin./Admin.
1 Enterprising

Bob

7 Technical
6 Mechanical
4 Creative
3 People Service
2 Fin./Admin.
1 Enterprising

Now we may see that while the order remains the same for both, Ann has a stronger interest in Technical and Mechanical than Bob even though they are the strongest themes for both.

The Interests section of the PSA is scored with an ipsative approach. Individuals are asked to choose between pairs of activities that describe things in each of the six scales. Scores are then calculated for the activities in each scale the individual selected most often. These scores are standardized on a STEN scale which is normed upon thousands of respondents in the general working population.

Research has demonstrated that successful job matching may be accomplished using only the top three interest themes regardless of their STEN scores. Once we know the top three interests for the individual, we can determine their match to the Performance Model which will be discussed later.

The Distortion Scale

The Distortion scale evaluates the consistency of the individual's responses on the assessment. Too many inconsistent or statistically unusual responses can lead to an unacceptable rating and raise concern that the results may have been distorted and may not be truly representative of the individual.

Analysis consists of reviewing individual item responses for the entire population to show that the majority of subjects respond to an item in a specific way, thereby making the alternative responses highly uncommon. If the assessment-taker's responses on this scale are atypical, this unusual response style may be present throughout the assessment.

Only a low Distortion scale score points to an inconsistent response pattern. This will print a statement in the report that reads,

"The Distortion scale for this assessment suggests the results may not be useful in making a decision. Please consult the User's Guide for this product for further guidance."

To determine the validity of individual items in the Distortion scale, response rates are analyzed across the norm population. Unlike the normally distributed item response rates of the Behavioral Traits scales, selection rates of the Distortion scale questions should be relatively low for each item to be considered a valid component.

Other assessments use scales much like the Distortion scale. These scales may be referred to as Social Desirability or Consistency scales. Whatever they are called, the purpose of these measurements is to help ensure the data from each individual's assessment is accurate and valid.

Appropriate Use of the Distortion Scale

The Distortion score refers to the reliability of the results, not the honesty of the individual. A low score on this scale suggests that for some reason the applicant may have distorted their responses. This could possibly happen because of an attempt to portray how they would like to be seen, rather than an accurate picture of how they really are. The Distortion Score is about the RESULTS, NOT about the individual.

The Distortion results of an individual's PSA should never be used to determine whether or not that individual is considered for a job. The purpose of the Distortion result is solely to determine the usability of the PSA results.

Unit 2 Review

1. The _____ scale measures one's willingness to accept risk when selecting the best option to solve a problem.
2. A person with a high score on the _____ scale enjoys the act of discussing a topic even if they are not interested in the topic itself.
3. A person who is willing to tell anyone and everyone what he/she thinks of their wardrobe may score low on the _____ scale.
4. The Distortion scale is valuable in determining whether or not an individual is lying.

T / F

5. Distortion results should never be used to make decisions about the suitability of a candidate for a job.

T / F

6. The _____ scale indicates whether or not an individual will make decisions based on intuition alone.

- Decisiveness
- Independence
- _____
- Manageability

7. The Attitude scale does not indicate a person's tendency to be _____.

- trusting
- optimistic
- positive
- _____

8. A person who seems to thrive in a multi-tasking environment would likely score high on the _____ scale.

- _____
- Accommodating
- Manageability
- Attitude

9. The tendency to be bold and want to take charge is measured by the _____ scale.

10. The Verbal Reasoning scale requires more application of verbal knowledge than just memorization of definitions.

T / F

11. The Thinking Style scales of the PSA measure personality traits.

T / F

12. A person who scores low on the Verbal Skill scale will always score low on the Verbal Reasoning scale as well.

T / F

13. The Numerical Ability scale requires one to solve mathematical equations.

T / F

14. The _____ scale measures one's interest in artistic and imaginative pursuits.

15. A person with a high score on the _____ scale enjoys activities that involve organizing and filing information.

16. A person who enjoys public speaking and influencing others may score high on the _____ scale.

17. An ipsative scale asks questions that have right and wrong answers.

T / F

18. The _____ scale measures one's interest in tending to the welfare of others.

- _____
- Enterprising
- Creative
- Mechanical

19. An individual who enjoys restoring musical instruments is likely to score high on the _____ scale.

- Enterprising
- _____
- Financial/Administrative

- People Service

20. The results of the PSA report on an individual's top _____ interests.

- 2
- _____
- 4
- 5

21. Holland's Investigative construct relates most closely to the _____ scale on the PSA.

- Enterprising
- Creative
- _____
- Financial/Administrative

Unit 3: PSA Psychometrics



LEARNING OBJECTIVES

- Define Reliability
- List and explain three methods for estimating reliability
- Define the generally accepted reliability guidelines
- Define test validity
- List and define the three major types of test validity

Reliability

The reliability of an assessment instrument concerns the extent to which the instrument yields consistent results. Although unreliability is always present to a certain extent, there will generally be a good deal of consistency in the results of a quality instrument gathered at different times. The tendency toward consistency found in repeated measurements is referred to as reliability. Reliability always follows the instrument.

In employment assessment, accuracy in measurement is of great importance. Scientific research normally measures physical attributes (e.g. height and weight) which can easily be assigned a precise value. Although we understand that the values assigned to physical attributes can never be completely precise, the imprecision is often looked upon as being too small to be of any practical concern. However, the magnitude of the imprecision is much greater in the measurement of mental and behavioral attributes. This fact makes it very important that the reliability of employment assessments be carefully considered.

Test-retest Method

One of the most straight-forward ways to determine the reliability of an assessment is by the test-retest method in which the same assessment is given to the same people after a period of time. The reliability of the assessment (instrument) can be estimated by examining the consistency of the responses between the two administrations.

Alternative Form Method

Like the retest method, this method also requires two administrations with the same people. However, the same test is not given each time. Each of the two tests must be designed to measure the same thing and should not differ in any systematic way. One way to help ensure this is to use random procedures to select items for the different tests.

Split-halves Method

This method is more practical in that it does not require two administrations of the same or an alternative form assessment. In the split-halves method, the total number of items is divided into halves, and a correlation taken between the two halves. This correlation only estimates the reliability of each half of the test. It is necessary then to use a statistical correction to estimate the reliability of the whole test.

Internal Consistency Method

This method requires neither the splitting of items into halves nor the multiple administrations of instruments. The internal consistency approach provides a unique estimate of reliability for the given test administration. The most popular internal consistency reliability estimate is given by Cronbach's alpha.

PSA Scales	Cronbach's Alpha
Energy	.75
Assertiveness	.79
Sociability	.87
Manageability	.77
Attitude	.82
Decisiveness	.77
Accommodating	.73
Independence	.83
Objective Judgment	.78
Enterprising	.84
Financial/Admin	.74
People Service	.77
Technical	.76
Mechanical	.81
Creative	.78
Verbal Skill	.80
Verbal Reasoning	.82
Numerical Ability	.84
Numeric Reasoning	.79

Cronbach's alpha yields a coefficient that ranges from 0 to 1. Generally, an alpha coefficient of .70 or higher is considered acceptable for employment assessments. It is important to note that while an alpha-coefficient may be calculated for an entire assessment, individual constructs or scales must also maintain acceptable internal consistency coefficients. The PSA meets or exceeds the .70 threshold on all scales.

Validity

Validity can be defined as the degree to which an assessment measures what it is supposed to measure. Validity always describes a specific application of an instrument. There are three basic approaches to assessment validity. These are Content Validity, Construct Validity, and Criterion-related Validity.

Construct Validity

Cronbach and Meehl (1955) indicated that, "Construct validity must be investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured." The term construct in this instance is defined as a property that is offered to explain some aspect of human behavior, such as mechanical ability, intelligence, or assertiveness. The construct validity approach concerns the degree to which the assessment measures the construct it was designed to measure. For example, scores on the PSA Thinking Style scales correlate highly with scores on the SAT. This relationship confirms that the Thinking Style constructs are valid based on comparison to an established standard.

Content Validity

This approach measures the degree to which the test items represent the domain or universe of the trait or property being measured. In order to establish the content validity of a measuring instrument, the researcher must identify the overall content (assessment questions) to be represented. Items must then be randomly chosen from this content that will accurately represent the information in all areas. By using this method the researcher should obtain a group of items which is representative of the content

of the trait or property to be measured.

Criterion-related Validity

This approach is concerned with detecting the presence or absence of one or more criteria considered to represent traits or constructs being investigated. One of the easiest ways to test for criterion-related validity is to administer the instrument to a group that is known to exhibit the trait to be measured (e.g. good job performance). This group may be identified by a panel of experts.

A wide range of items should be developed for the test with invalid questions culled after the control group has taken the test. Items should be omitted that are drastically inconsistent with respect to the responses made among individual members of the group. If the researcher has developed quality items for the instrument, the culling process should leave only those items that will consistently measure the trait or construct being studied.

For example, the PSA is used to identify individuals who have the characteristics that will lead to successful job performance. The constructs (e.g. Assertiveness, Sociability) have been established and items that measure those constructs identified. A criterion must now be applied to the results of the PSA to determine if it, in fact, does what it purports to do.

The first step is to identify a group of individuals who exhibit the criteria of interest. In this example, the criterion is successful job performance. These individuals, as well as those less successful at the job, are administered the PSA. Then data are analyzed to determine how the results of the PSA differ between the successful and less successful groups. The more effective the PSA is at differentiating

between the two groups, the better its criterion-related validity.

Validity studies of the PSA are conducted in both concurrent and predictive formats. More will be discussed about this in the next unit.

Validity and Reliability (SL-53)

Both concepts are important for any assessment instrument, and a few simple rules of thumb will help you remember the difference between reliability and validity.

1. Reliability is about the instrument and follows that instrument, regardless of its use.
2. An assessment may be reliable without being valid, but it cannot be valid without being reliable.

The PSA exhibits consistency of response patterns over time and internal consistency, hence it is considered reliable. As well, in situations where the job matching process is used correctly, the PSA has proven to be a good predictor of job success, hence it is valid for its intended use.

Unit 3 Review

1. The consistency with which individuals respond to items in an assessment is referred to as:
 - _____
 - Validity
 - Correlation
 - Psychometrics
2. _____ establishes the accuracy of an assessment in measuring some aspect of an individual.
 - Reliability
 - _____
 - Correlation

- Psychometrics
3. An assessment instrument may be valid without being reliable.

T / F

4. The most popular internal consistency estimate is expressed as:
- Construct Validity
 - Criterion Validity
 - Spearman Alpha
 - _____
5. Most general guidelines call for employment assessments to have internal consistency coefficients at or above _____.

Unit 4: Building and Using Performance Models



LEARNING OBJECTIVES

- List the data required to build a Performance Model and subsequent case study
- Define the types of performance data
- List methods for building Performance Models in the PSA system
- Identify data points needed for each method of building Performance Models
- Explain the impact of weighting scales through pattern widths
- Define concurrent and predictive validity
- Explain ways to report Performance Model effectiveness
- Briefly explain the origin of the Performance Model Library

Performance Models

Because the PSA scales measure different facets of job competency, a Performance Model is needed to help understand the importance of each characteristic (scale) with each specific job. A specific model depends on the requirements of a given job and work setting. By standardizing the job match process, the Performance Model reveals more than individual scale scores. The job matching process for the PSA minimizes the time required to describe jobs, people, and how well they fit together. The process starts with an examination of the score patterns of incumbents who are most successful and those who are least successful for a specific job. The identified pattern of scores across the PSA scales serves as the initial model, or benchmark, upon which the job matching is based.

For a given position, all 20 scales of the PSA are available for job matching; however, only a few of the scales are typically most critical for a given job. The scores on these critical scales differentiate individuals of varying levels of job performance. The composition

of this subset of critical scales will differ across jobs.

The PSA software performs the job matching task. This process matches an individual's performance measures with his/her PSA results. The analysis leads to the construction of Performance Models. By using the appropriate job performance criterion, the models help differentiate between top and bottom job performers. The client (assessment-user) provides the job performance criterion. The assessment-user may be the manager or supervisor of the incumbents who were tested. The assumption is that the client possesses the necessary expertise and knowledge about the job and the work performance of the incumbents to provide meaningful information about good job performance.

The client is tasked with building the Performance Model for his/her organization. They apply the PSA results from two groups of incumbents with different job performance levels to build a Performance Model. This model identifies the characteristics that differentiate these two groups. All incumbents in the position are then matched

against this benchmark to validate the Performance Model for the position. This Performance Model may then be used to provide additional information about job applicants. The Performance Model exercise is conducted periodically to ensure the currency of the model.

Using a Performance Model makes it easy to identify the degree of fit between individuals and the expectations of the job. This information is useful for job placement, job training, and individual development. The models also help to determine when more information may be required. In these instances, interview questions are provided for use with the applicants (Performance Model Comparison report) and comments for discussion for the supervisors of incumbents.

Building Performance Models

The Performance Model, or benchmark, identifies the characteristics that differentiate between top and bottom performers for a given job.

The first step requires the client to identify the criterion for good job performance. The client defines quantitatively the performance expected from employees. Some examples of quantifiable job performance measures include sales quota efficiency, error rates, product production levels, and customer complaints. Often the job performance measures relate to the present problem with which the client is concerned (e.g., poor productivity, high turnover, frequent customer complaints).

With good job performance measures and the use of criterion validity studies, (e.g., concurrent investigations), it is possible to separate the top performers from others in a given position.

The next step is to identify the characteristics of both the top performers and bottom performers using the PSA software. This is done in a two-step process. Once top performers are identified, the software produces a preliminary Performance Model that considers the various characteristics of the top performers' scores. The bottom performers are also identified and the software builds a preliminary Performance Model for this group. The resulting Performance Models are then compared to help identify the characteristics which differentiate the two groups. With these data, an effective Performance Model is developed for use in assessing applicants for the position.

Examples of the results from this process are shown in the Figures 4.1 to 4.3. Figure 4.1 displays the distribution of the results for the top performers by indicating how many scored at each STEN level (i.e., 1 scored a 5, 2 scored a 6, 3 scored a 7, etc), and Figure 4.2 shows the distribution of the results for the bottom performers (i.e., 1 scored a 2, 2 scored a 3, etc). These results are graphed in Figure 6.3 with the results for bottom performers' shaded red and the results for top performers shaded blue. The computer-generated preliminary Performance Model is indicated as 5, 6, 7, and 8 (shown shaded in yellow).

Figure 4.1: Representation of Top Performer STEN Scale

For the top performers, the computer-generated Performance Model (blue) is toward the high end for this trait. Note that the STEN scores are shown in the top row and the number of subjects who scored at each STEN level in the bottom row.

STEN Scores	1	2	3	4	5	6	7	8	9	10
Subjects					1	2	3	3	2	1

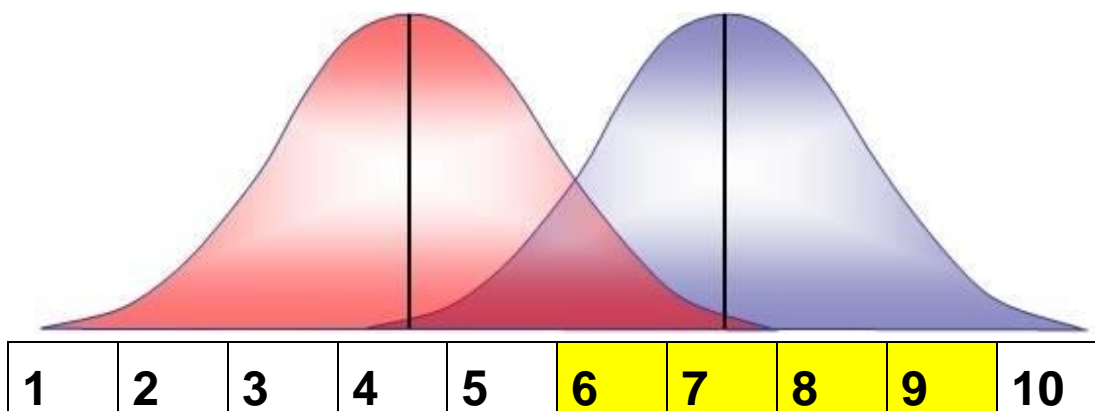
Figure 4.2: Representation of Bottom Performer STEN Scale

The computer-generated Performance Model for bottom performers (red) is toward the low end of this trait.

STEN Scores	1	2	3	4	5	6	7	8	9	10
Subjects		1	2	3	3	2	1			

Figure 4.3: Representation of STEN scores for two groups of employees

The results for bottom performers are shaded red and the results for the top performers shaded blue.



While there is an overlap of scoring for these two groups, it is clear the top performers scored higher on this particular scale. In this example, the analysis suggests a Performance Model STEN score range of 6 to 9 for this scale. In other words, the analysis expects those with a good match to this position to possess STEN scores of 6, 7, 8 or 9. This means the program will reduce the Job Match Percent for those

falling outside of this range of scores (6 to 9). While the range will include some bottom performers, the goal of the initial model is to be more inclusive until additional data allow greater differentiation.

These results define the amount of a particular trait an assessment-taker should possess for job success. Using this information, a Performance Model for each scale (or characteristic) in the PSA can be

built. This model consists of a range along each scale on which the scores of the most effective performers tend to fall. Because they are not absolute, the typical model will be three to five units wide. The more outside this range a score falls, the less likely there will be a good fit of the individual to the job and the resulting Job Match Percent will be lower.

Steps for Building a Performance Model

1. Select Position. The client selects a position for which to build a Performance Model. The position should be specific and easy to identify, such as route salesperson or counter salesperson, rather than the more generic title of salesperson.
2. Identify Employees in Position. Employees assigned to the identified position should be assessed.
3. Define Successful Performance Criterion. Define the criterion for job success in behavioral and quantifiable terms. A criterion such as “makes good sales” is ineffective because it lacks clarity and is not quantifiable. A better choice would be “sales greater than quota last year.”
4. Assign Job Performance Score. Assign a score to each employee based on his/her match to the performance criterion.
5. Classify Employees Based on Match to Criterion. Classify each employee into three groups: top performers, middle performers, and bottom performers according to the quantifiable criterion established in Step 3.

Note: While top and bottom performers are used to determine the Performance Model, middle performers are tracked to analyze the overall veracity of the benchmark.

6. Administer the PSA. Have all employees complete the PSA so their results are available for the remaining steps.
7. Create Top and Bottom Performance Model from PSA Results. Build separate Performance Models for the top performers and for the bottom performers. These will be used to identify the characteristics that help differentiate between the members of each group.
8. Create Preliminary Performance Model for Matching to Position. Once a Performance Model is built, all participants (top, middle, and bottom) are matched to the pattern. This process yields a Job Match Percent for each employee.

The next step is to inspect the Overall Job Match Percent for each employee in the position and combine this information with the criterion value established in Step 4. These two values are then analyzed to determine the strength of the relationship between job fit and performance.
9. Take PSA and Job Performance Scores for all Employees. The two general variables considered in the criterion study are job performance (from the employer’s assessment in Step 4) and the PSA scores for each employee.
10. and 11. Match each Employee to the Preliminary Performance Model (created in Step 8). Once each employee is matched to a Performance Model, a Job Match Percent is computed. This Job

Match Percent reflects the degree of fit for the employee to that particular Performance Model where the higher the percent match, the greater the match to the model. This Job Match Percent is the dependent variable for the criterion studies.

12. The Job Performance Score (from Step 4) for each employee is the independent variable for the criterion studies.
13. Correlate the Job Match Percent with Performance. Appropriate statistics are used to correlate the Job Match Percent scores and the job performance scores. This is the basic design of the validity studies conducted by PSA clients.

Data Needed to Build Performance Models

One of the main problems encountered in building effective Performance Models is the identification and collection of the appropriate job performance data from the client. If the Performance Model is not based on the measure most relevant to the job and most important to the decision maker, no amount of tinkering or adjustment will help.

Performance on the job may be determined in a number of different ways. The more objective and quantifiable this measure is, the more useful it is for building effective Performance Models. While employers may collect data on many aspects of a given job, there are typically one or two hard and fast measures that really matter.

Some examples are:

- Sales to Quota Ratio
- % production to Goal
- Customers Served per Hour
- Sales per Contact
- Dollars Collected per Call

These and many other data points may be used to determine an individual's performance level in a given job. The most important factor is to use the measure that is critical to success in the job as identified by the client. Some organizations may have 20 performance metrics they measure for each employee, but almost always, there are only one or two that are critical. It is imperative that these be identified and data from them gathered.

Levels of Performance Data

There are three levels of data typically encountered when gathering information on job performance. The type of data you have will dictate the analysis you are able to conduct in building and determining the effectiveness of a Performance Model. The three types of data are:

1. Nominal: Data which simply identifies a person as a member of a group.
 - a. Male / Female
 - b. Top / Bottom
2. Ordinal: Rank order data which assigns a numerical value identifying the relative placement in a group.
 - a. Supervisor Rating: 1 to 10
 - b. Performance Ranking
3. Ratio: Continuous numerical scale with a true zero.
 - a. Dollars Earned
 - b. Units Produced

Nominal Data [Buckets]

When performance data are in the form of a list of employees each identified as a top or bottom performer, the data are at the Nominal level. These types of data may be used to build a Performance Model, but are difficult to use in establishing the model's true effectiveness or predictive validity. Frequency distributions and proportional analyses, such as the table below may be generated with nominal data.

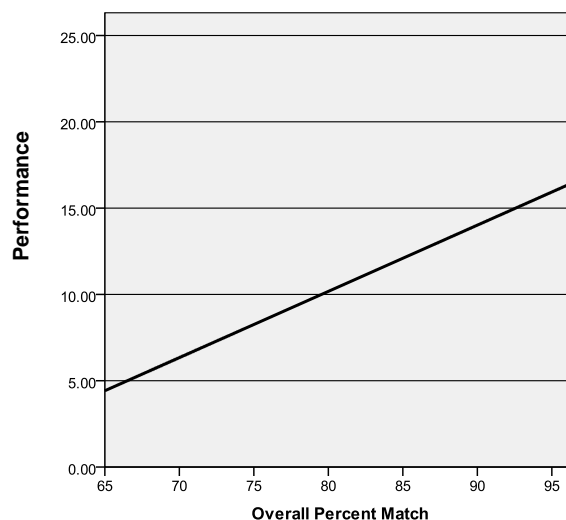
	High Match	Low Match
Top Performers	85%	15%
Bottom Performers	12%	88%

Ordinal Data [Supervisor Ratings]

Performance data presented in the form of a ranking within a group of individuals or as a point in a supervisor's rating scale are at the Ordinal level. It is generally acceptable to compute most statistics used in psychometrics with this level of data because rankings imply a changing level of magnitude. While various analyses are possible, it is important to remember that you cannot assume equal intervals between rankings and there is no true zero.

Ratio (Continuous) Data

This is the highest level of data, and all descriptive and inferential statistics may be applied. The Percent Match to a Performance Model is considered ratio level data and may be analyzed along with performance data such as percent sales quota met or units produced to determine the predictive validity of the model. Strength of relationship between the job match percent and performance may also be computed as displayed in the graph below.



Data analyzed in this way allows us to establish the actual predictive validity of the model for a particular application.

While any level of data may be used to create a performance model, it is best to collect ratio level data whenever possible...the better the data, the stronger the model.

System Tools for Building Performance Models

The Profiles International online system (Profiles Assessment Center or PAC) contains a variety of tools to help design an effective Performance Model for any job. The system is designed to allow the user to identify those individuals who perform well and use their characteristics to build the Performance Model. There are three main tools in the system which may be used individually or in combination. The three tools which provide a starting point for building Performance Models in the PAC system are:

1. Concurrent Study
2. Existing Pattern
3. Job Analysis Survey (JAS)

Concurrent Study

The Concurrent Study method is the development of a model by using information from existing employees whose job performance has been accurately identified. While the system only allows for the initial identification of top and bottom performers, it is always best to collect the performance data used for all employees.

Existing Model

An existing Performance Model, either from the client's previously created models or

The Job Analysis Survey (JAS) provides the user with a systematic way to identify the types of behaviors required for a particular job. This method must be used in concert with an existing model or concurrent study. Existing models and/or concurrent study data will always have more impact on the model than the JAS, and the number of Job Analysis Surveys has no effect on the impact. Here is a screen shot of the Performance Model Development site:

Profiles Assessment Center - Performance Model - Create - Windows Internet Explorer provided by Profiles International, Inc.

https://www2.profilesac.com/PerformanceModel.aspx

File Edit View Favorites Tools Help

Profiles Assessment Center - Performance Model - Cr...

Profiles International
imagine great people®

View Schedule Manage Configure

Create Performance Model

Current User: Ben Shaw

Performance Model - Create

Choose Product: PXT - ProfileXT

Please select one or more of the following

Creation Method

☐ Concurrent Study Use 3 or more individuals who will help define success in this position. You must have at least 3 individuals who have completed the assessment for this product. Their combined scores will give you a base Performance Model for this position. Less than 3 individuals can be used, but an Existing Performance Model and/or Job Analysis Survey must also be selected before continuing. This tool can be used alone or in combination with an Existing Performance Model and/or a Job Analysis Survey.

☐ Existing Performance Model You can use an existing Performance Model to help build a new one. You can select a model from the Performance Model Library or one from your set of Performance Models. This tool can be used with the Concurrent Study and/or the Job Analysis Survey.

☐ Job Analysis Survey This tool helps gather information from those who are very familiar with the position under construction. Several questions are asked in reference to job performance. The software takes the JAS(s) to formulate a reference for a high Performance Model. Select this checkbox in addition to Concurrent Study and/or Existing Performance Model.

Continue

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from the Profiles Performance Model Library, may be used as a basis upon which to design a new model. Typically, an existing model is used in conjunction with another method to create a new model.

Job Analysis Survey

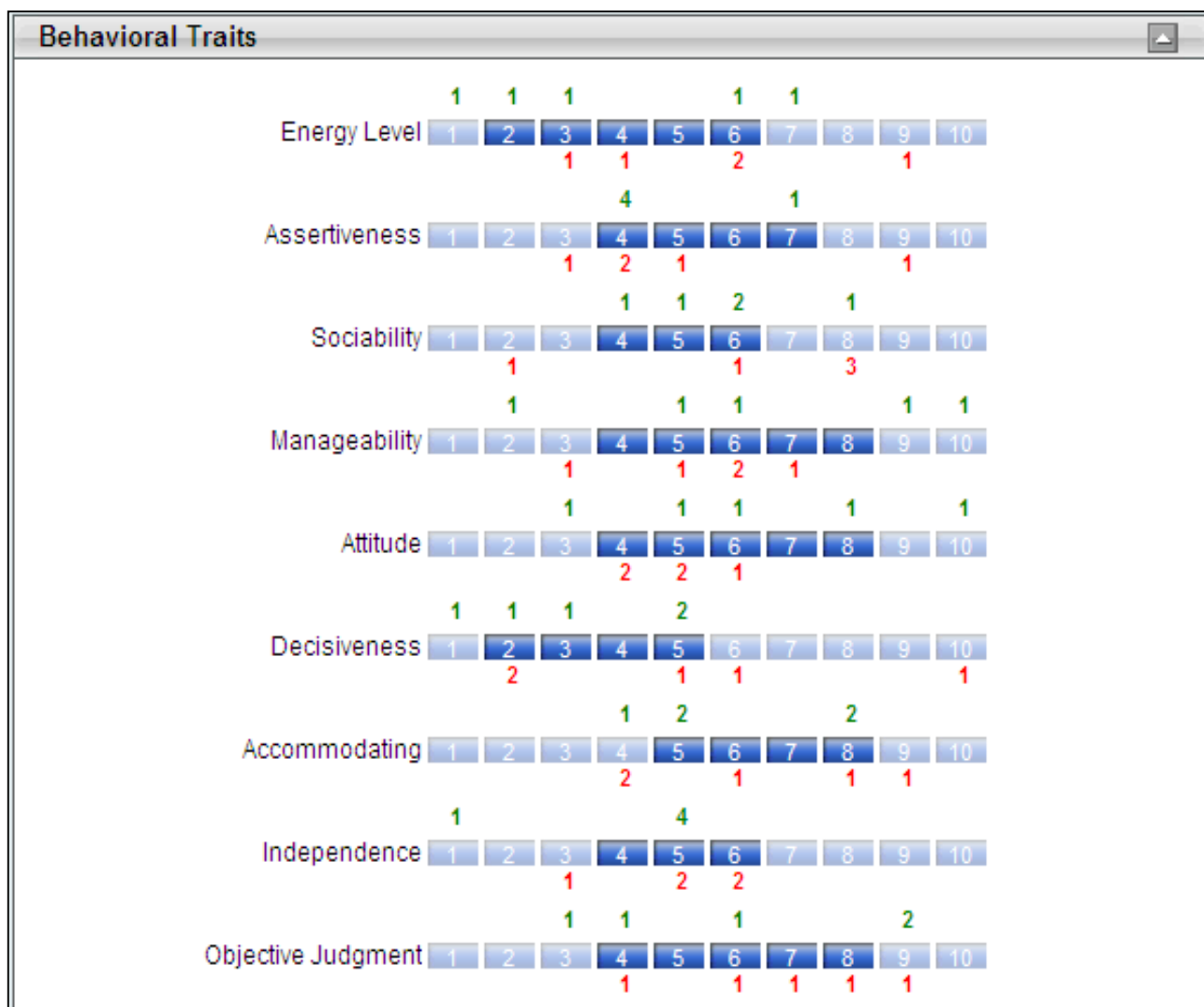
Scale Width

During the Performance Model development process, the system analyzes the data from the input provided (concurrent study, JAS, and/or existing model) and determines the best-fit for each scale on the PSA. Some scales will be wider than others, and none

may be less than 3 or more than 8 STEN scores wide.

The screen shot below provides information about the Behavioral Traits portions of a model developed from a concurrent study of 5 top (green) and 5 bottom (red) performers. Notice the pattern of scores selected for the model varies from 3 to 5 STEN scores wide. The narrower scales show a tighter grouping of top performers than the wider

does not necessarily denote a level of importance of one scale over another but it does reflect the probable impact of each scale on The Overall Job Match Percent. More narrow patterns suggest a greater potential impact.



The Job Match Percent

scales, but each width is determined to most effectively include as many top performers as possible while excluding some bottom performers. The width of individual scales

The Overall Job Match Percent is derived by pairing the assessment-taker's scores on each scale to a Performance Model for a specific position. If the scores fall outside the

benchmark, or model, for a scale, the impact lowers their Job Match Percent. The farther the score falls outside of the model, the greater the negative impact on the Job Match Percent. This applies whether the assessment takers score above or below the model. Thus, those assessment takers with scores closely matching the model of scores defined for the position are assigned a higher percent match than those whose scores fall outside of the model (Hamilton and Wilson, 2007).

In the PSA reports, job match is reported as a percent match to a specific Performance Model. A high STEN score on any specific scale does not necessarily lead to a better job match than a low STEN score on the scale; it is the congruence between the candidate's scores and the range of scores in the Performance Model that determines the candidate's Job Match Percent. This allows for variation between persons who may share a good fit to a job. See example below.

Once a good Performance Model is established, it may be used to evaluate

of scores for each scale. This range represents the area in which those who will fit most easily into the job actually score. The farther outside this range (model) a score falls, the less likely there is a good fit of the individual to the targeted job. Job Match Percentage points are deducted for scoring outside the model. As mentioned earlier, job match is reported as a percent match to a specific Performance Model.

The Overall Job Match Percent will range from 0% to 100%. A separate match will be provided for each of the three areas (Thinking Style, Interests, and Behavioral Traits), as well as the Overall Job Match Percent. The Overall Job Match Percent is especially useful to identify individuals who may be a good match for the job. The percent matches for the three subsections can be used for a more in depth analysis of job fit. The higher the reported match, the higher the expectancy the individual will fit well into the job under consideration.

Client-sponsored criterion validity studies (predictive) have demonstrated that those individuals with high Overall Job Match

This example illustrates the job matching process. The first figure shows a Performance Model of 6-8 with a score of 3 falling outside (below) the model. The second example shows a score of 7 falling within the Performance Model of 4-7.

Assertiveness

Tendency to take charge of people and situations. Leads more than follows.



Attitude

Tendency to have a positive attitude toward people and outcomes.



anyone who takes the PSA. The Performance Model is composed of a range

Percent scores have a greater probability of success in the targeted position than those with low Overall Job Match Percent scores.

Understanding the Percentage Match to a Performance Model

The PSA displays an Overall Job Match Percent to a selected Performance Model. This Job Match Percent number allows for the comparison of an individual's results with a theoretical individual who is an exact match to that same specified Performance Model.

A formula is used to calculate the overall match. The result of this computation is influenced by several factors including the number of scales under consideration, the width of the model for each scale and the number of scales in a given section (e.g. Thinking Style, Interests, and Behavioral Traits). For the Overall Percent Match, the Behavioral and Thinking Styles sections are each weighted at 40% while the Interests section is weighted at 20%. This weighting allows those characteristics research has shown to be most influential to job success to have an appropriate impact on the degree of job fit.

For the purpose of illustration, let's simplify the computations and just assume everyone starts with a percentage match of 100 to the model under consideration.

Initially, each Behavioral and Thinking Style scale is considered separately. If the individual's score falls anywhere inside the specified model, no action is taken; however, if they score outside the model percentage match points are subtracted from the overall match. As the obtained score falls farther from the model on any scale, more percentage match points are deducted from the original 100 points.

If the model was from 6 to 8, and the obtained score was a 6, 7, or 8, the overall match would not be affected. If the obtained score was a 5 (one STEN outside of the model), then two match points may be deducted while an obtained score of 4 might cause a deduction of three match points (the actual values subtracted would be a function of the analysis which considers all the models for all of the scales). Once each scale in a section has been considered, the total match for that section is computed.

Percent Match in the Interests Section

Determining the Interests percent match to a Performance Model is a process of finding the alignment of the individual's rank-ordered preference on the six Interests scales with the top three interests scales in the Performance Model. This is accomplished in the software through a rather complex algorithm. The highest percent match results when the individual's top three interests are identical to the model's top three interests...regardless of the STEN scores for either.

The lowest percent match results when the individual's lowest three interests are identical to the model's top three interests in reverse order. This would have the model's number 1 interests as the individual's number 6 interest. Basically, the further the individual's top interests drop below the Performance Model's top three interests, the lower the percent match to the model.

Because the overall match to a Performance Model may be part of placing an individual in a job, (up to 1/3 of the decision), comparing the overall match for several individuals who are also under consideration for the targeted job is appropriate. The greater the overall match percent number, the greater the probability

the individual will successfully fit to the job under consideration.

Overall match scores for applicants on a given assessment are compared with one another to provide information on relative job fit. This information is an important part of the process of making placement decisions.

For example, there might be four individuals under consideration for the same position. Their PSA results may result in Overall Job Match Percent scores of 94, 87, 72, and 68. It is easy to see which individual is the closest match to the Performance Model.

The reports provided by the PSA will help guide the assessment user by providing interview questions related to the scales when the applicant scores outside the Performance Model. In a placement situation, these interview questions can enrich the quality of the interview by providing focus on areas for potential difficulties associated with the fit to the job.

Effectiveness of Performance Models

Initially, the effectiveness of a Performance Model is determined by the concurrent study used to create it. If a concurrent study was not used to create the model, data must be gathered as the model is used to determine the effectiveness. The concurrent study allows us to determine how well the model differentiates between top and bottom performers at the time it is built using current employees and existing performance measures. This analysis of effectiveness is called concurrent validity.

Once a Performance Model has been in place and implemented for a period of six months to a year, the predictive validity, or effectiveness of the model over time, may be established. To accomplish this, the same

performance measure(s) used to create the model must be gathered for the current study period. Current top and bottom performers are identified and their Job Match Percents analyzed to determine if the model is still differentiating between the two groups. If the results show the model maintaining its effectiveness, a case study may be written. If the model needs adjustment, this is the time to make those modifications.

Profiles Performance Model Library

The PSA online services include a library of Preliminary Performance Models for clients to utilize when developing models for their companies. This library is populated with more than 1000 job titles and provides preliminary models for selecting top performers. Library models are used only as a basis for the development of a local model. They simply give clients a place to start. Each model in the library was derived by a multi-step process conducted by a team of psychologists and other hiring professionals, tapping into real world resources. The process of isolating these models included three important steps:

- An extensive review of over 300,000 models currently in use by our clients were grouped by__job title and compared within each group for commonalities. The consensus of these models helped to create a large base of generalized models from which to proceed.
- A review of information gathered by the Department of Labor through the Occupational Network (O*Net) concerning the list of job titles we had gathered. This information guided the panel through the next step in the process.

- Finally, with a set of generalized models derived from real world users and information from O*Net, our panel of professionals modified each model with a focus on balancing relevance and inclusiveness. The goal was to provide clients with relevant models from which to start building their specialized and company-tailored models.

The inclusiveness of the Preliminary Performance Models help to ensure that if a client has minimal information about their top and bottom performers, they will at least have a model based on the success of others in their field and avoid being unnecessarily exclusive in their model development. During this stage in the process, it is better to include a few who may not fit well in the job than it is to exclude any candidates who are a true fit to the position. As more information is gathered about the job and employee performance, both the model and the candidate selection process will be refined as adjustments are made to the Performance Model. This process is addressed in greater detail in the PSA User's Guide.

Unit 4 Review

1. A Performance Model may be developed using a Job Analysis Survey alone.

T / F

2. Typically, only a few of the 20 scales measured in the PSA are critical for a given job.

T / F

3. The highest, and most useful, level of performance data is _____ data.

- Nominal
- Ordinal
- Ratio
- Concurrent

4. All sections of the PSA have equal impact on the Overall Job Match Percent.

T / F

5. _____ Validity of a Performance Model may be established at the time a new Performance Model is built.

- Predictive
- Concurrent
- Proactive
- Construct

6. Color in the Performance Model range most appropriate for the data.

Top Performers

	2	5	1	2						
1	2	3	4	5	6	7	8	9	10	
		1	1		3	2	3			

Bottom Performers

7. Supervisor ratings on a scale of 1 to 10 constitute _____ level performance data.

- Nominal
- Ordinal
- Ratio
- Concurrent

8. The most important aspect of building an effective Performance Model is identifying the _____ that is most critical to success on the job.

- behavioral trait
- interest area
- cognitive ability
- performance measure

9. Models from the Profiles Performance Model Library should only be used as a starting point in building an effective model.

T / F

10. The Job Match Percent should never be used as more than _____ of the hiring decision.

- one-half
- one-third
- one-fourth
- four-fifths

Unit 5: PSA Reports



LEARNING OBJECTIVES

- List all reports available for the PSA
- Explain the sections of each report
- Define situations and audiences for each report.

PSA Reports

The PSA® reports are presented clearly and require no interpretation beyond the printed reports. The use of business language helps provide a clear understanding for the reader and is designed to describe the individual in a positive manner. All reports present the results in graphic and narrative form. When a Performance Model is utilized, the individual scores are presented as they relate to that Performance Model.

The score for each scale is reported on a STEN scale with one at the low end and ten at the high end. The PSA is normed on the working population so the scores will fall on each scale with a normal distribution. In other words, on each scale, about two-thirds of the scores will be 4, 5, 6, or 7 and as you move toward either end of the scale, the frequency of scores will taper off.

The percentage match for each of the three sections indicates how well you can expect the individual to fit into the job in question. The overall job match percent reflects the cumulative scores for all three of the subsections and the degree to which the individual fits the Performance Model.

The Reports

- A. The Performance Model Comparison is typically used to identify how well a person will fit into a given position and provide suggestions for helping them in areas lacking a good fit.
- B. The Interview Guide – Challenge Areas provides questions designed to assist the interviewer when the candidate scores outside the Performance Model.
- C. The Interview Guide – Total Person provides questions developed to guide the interviewer when the individual scores within the Performance Model as well as outside the model.
- D. The Strategic Workforce Planning report allows matching one individual to several Performance Models in a single report. This helps facilitate a better understanding of where the best job fit may be expected and is often used in succession planning for the individual.
- E. The Candidate Matching report shows the results of comparing several candidates to an established Performance Model. The given percentage score indicates how well

each candidate matches the established model.

- F. The Individual Profile may be shared with the individual who took the assessment. This report does not provide the actual scores for each separate scale but instead includes a description of what the individual's scores suggest. There are no references to any specific Performance Model.
- G. The Comparison Summary is used to take a quick look at how well an individual fits into a particular Performance Model. It compares the individual scores against the model and provides a brief statement describing the meaning of each scale.
- H. The Summary Graph is a single page summary with the graph from the Comparison Summary report. The graph provides the individual's scores matched to a selected Performance Model.
- I. The Individual Graph provides the graph of an individual's scores without reference to any Performance Model. A brief description of each scale is also provided.
- J. The Performance Model Analysis may be produced for any established Performance Model. The report includes a Performance Model Graph and a Performance Model Description which describes the type of individual who would be most effective in that position.
- K. The Performance Model Graph is a single page summary that provides the preferred scores for a selected Performance Model.

L. The Performance Model Description is a summary graph with scale descriptions for the type of person who would fit best in the desired position.

M. The Concurrent Performance Model Overview is a graph which indicates where a selected group of candidates score on an established Performance Model. This provides an overview of where the model may need refinement.

The two most commonly used reports are the Performance Model Comparison report and the associated Interview Guides.

To help the reader understand how the PSA reports are used, some sample statements are provided below. In both examples, the individual's STEN score on the Assertiveness scale is 8 and that score is above the 5 to 7 STEN range in the Performance Model developed by the client for the job in question.

For an applicant, the interview questions help to focus the interview on critical areas to provide information for the placement decision. And, with an incumbent, Performance Model comments assist the supervisor to direct the employee toward behaviors that are aligned to the job.

Example Performance Model Interview Guide questions and statements for an applicant for the position:

These interview questions would be provided for the interviewer to consider:

- Give an example of a situation when you were successful at building teamwork and improving morale even though you were confronted with negative attitude from others.
- Tell me about a situation when you successfully challenged someone's ideas. What does this say about your ability to be assertive?
- Describe a situation when you communicated something unpleasant or difficult to your manager. How did you assert yourself?

Example Performance Model coaching comments for employees already in the position:

- Mr. Jones tends to take charge in a group. Encourage his participation as a peer within the group and foster the ability to be patient with the opinions of others. Training in active listening may enhance his ability to cooperate with his team.
- Bob tends to insist on leading others. This needs to be tempered with a willingness to allow others a certain amount of control. Training that focuses on control issues may reveal a way to do this. Offer him the opportunity to lead the group as a reward for successful participation in such training.
- He prefers to influence the decisions of others. Act as a role model in your capacity as a group leader, demonstrating an authoritative yet democratic leadership style. Provide feedback

concerning the effectiveness of your style and why it works with this team.

Effective Use of the PSA Reports

The reports generated from the PSA offer much more than just an individual's match to a particular job. While the Job Match Percent is very important, the other information in the various reports provides valuable insight into many facets of the staffing process.

The sample statements and interview questions provided here are examples of how the PSA reports can be used to guide the entire hiring and development process. All text in the PSA reports is selected to be relevant to each individual because the descriptions and suggestions are based on the scores on each scale. Users of the reports should be trained to make use of all report components.

Performance Model Graphs

When a graphic depiction of the individual's score relative to the Performance Model is shown, the user should pay particular attention to the scales where the individual's score falls outside the model range

Total Person Information

The Total Person information provided contains three elements: Behavioral Considerations, Management Considerations, and Additional Considerations.

➤ *Behavioral Considerations* offer the user insight into how the individual may be expected to behave on the job.

➤ *Management Considerations* suggest ways a person who might supervise the individual can maximize

the individual's performance. These are commonly referred to as Coaching Comments. It is important that these suggestions be internalized to fit the organization's staff development process. (Note: Management Considerations are not provided for Interests. One cannot coach someone to change their Interest)

- *Additional Considerations* are provided when the individual's score falls outside the designated Performance Model. These comments provide suggestions for helping the individual overcome the lack of fit in some areas if placed in the job.

Interview Questions

Interview Questions are provided both when an individual's score is inside the model range and when it is outside. More questions are offered when the individual's score is outside the model range.

Job Match Percent

The Job Match Percent is provided in various reports for Behavioral Traits, Interests, Thinking Style, and Overall. It is important that the user place the greatest emphasis on the Overall Job Match Percent, because, while each percent match has an impact, the overall shows how well the individual fits the job in general. It should also be noted that while Job Match Percents are calculated from 0 to 100, the reports indicate a low of 25 and a high of 95.

The table below shows which major components are included in each of the PSA and PSA reports that provide individual results.

	Report Components					
	Performance Model Graph	Behavioral Considerations	Management Considerations (Coaching Comments)	Additional Considerations	Interview Questions	Job Match Percent
PSA Report						
Performance Model Comparison	X	X	X	X		
Interview Guide – Challenge Areas	X	X			X	X
Interview Guide – Total Person	X	X			X	X
Strategic Workforce Planning						X
Candidate Matching	X					X
Individual Profile		X				
Comparison Summary	X	X				X
Summary Graph	X					X
Individual Graph	Graphic display of individual scores					

PSA and PMF Reports

PSA reports contain the same information as the PSA reports with the addition of the seven Critical Sales Behaviors. The language in the PSA reports is written to focus on sales positions.

The PMF generates one report for the manager showing a comparison between the probable behavior of both the employee and the manager.

Unit 5 Review

1. Along with Behavioral Considerations, Additional Considerations are only shown when the individual's score falls outside the model range.

T/F

2. The _____ report allows one individual to be matched against multiple Performance Models.

- Candidate Matching Report
- Performance Model Comparison Report
- Individual Summary Report
- Strategic Workforce Planning Report

3. Interview questions are only generated when an individual's score falls outside the Performance Model.

T/F

4. Management Considerations are often referred to as _____.

- Coaching Comments
- Interview Questions
- Job Profiles
- Focus Areas

5. Behavioral Considerations describe the person regardless of whether the score is inside or outside the model range.

T/F

6. Management Considerations are not provided for _____ because it is not feasible to coach.

- Behaviors
- Numerical Ability
- Verbal Reasoning
- Interests

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PSA

Profiles Sales Assessment™

Quick Reference Guide

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Low	Thinking Scales	High
<p>Repetition and hands-on learning can be effective in training</p> <p>Achieves best through learning specific to the job</p>	<p>Learning Index - an index of expected learning, reasoning, and problem solving potential. It is a composite of the scores for <i>Verbal Skill</i>, <i>Verbal Reasoning</i>, <i>Numerical Ability</i>, and <i>Numeric Reasoning</i>.</p> <p>The ability to respond efficiently in a training situation can typically be found in an individual with a high Learning Index. Such an individual can communicate complex ideas through data, words, or both in an effective manner.</p> <p>At the low end, an individual may be most comfortable with responsibilities which emphasize concrete thinking and routine tasks.</p>	<p>Strong capacity to adapt quickly in a learning situation</p> <p>Typically finds it easy to learn the requirements of a new job situation</p>
<p>May be slow and deliberate communicating ideas</p> <p>Communications are concrete and straightforward</p>	<p>Verbal Skill - a measure of verbal skill through vocabulary.</p> <p>High Verbal Skill is often associated with confidence in vocabulary. However, the individual may occasionally communicate above the level of comprehension of others.</p> <p>Lower scorers do not demonstrate a strong command of vocabulary and may utilize vague or inaccurate expressions when they communicate. Such an individual may not ask for clarification when information is not understood.</p>	<p>Capable of precise communication even under strict time constraints</p> <p>Competent understanding of written and verbal information</p>
<p>May require more time to assimilate new information of a verbal or written nature</p> <p>May be less proficient in information gathering techniques</p>	<p>Verbal Reasoning - relates to using words as a basis in reasoning and problem solving.</p> <p>High Verbal Reasoning suggests a strong potential for understanding verbal information both quickly and accurately. They may find concrete and routine problem solving tedious.</p> <p>A low scorer could overlook inferences in verbal or written data. This individual may be most comfortable with responsibilities which do not require abstract reasoning skills when working with words.</p>	<p>Strong information gathering ability</p> <p>Assimilates verbal information rapidly</p> <p>May abstract conclusions from verbal information more proficiently than others</p>

<p>Using mathematics may be challenging</p> <p>Figuring numerical problems may require the use of a calculator</p>	<p>Numerical Ability - a measure of numeric calculation ability; how well an individual works with numbers.</p> <p>High Numerical Ability is often associated with being confident when calculating numerical data. Often, decisions may be made quickly based on such data, without having to refer to calculation tools since the work is often done mentally.</p> <p>Lower scorers will often rely on calculators or other aids to solve numerical problems. They may be most comfortable with positions which do not routinely utilize numerical calculations.</p>	<p>Able to quickly determine mathematical solutions to problems mentally</p> <p>Demonstrates a sound understanding of basic mathematical processes</p>
<p>May overlook the implications derived from a set of numerical data</p> <p>May be comfortable using simple calculations for problem solving</p>	<p>Numeric Reasoning - this scale measures an individual's ability to use numbers as a basis in reasoning and analysis.</p> <p>Utilization of statistical inference is common among those with high Numeric Reasoning scores. The ability to visualize trends in a set of numerical data is likely to occur in such individuals.</p> <p>Lower scorers may be most comfortable with positions which rarely utilize numerical forms of data for reaching decisions.</p>	<p>Demonstrates little difficulty in assimilating new information of a numerical nature</p> <p>May process numerical data to reach conclusions or understand inferences</p>

Low	Behavioral Scales	High
<p>Patient</p> <p>Good with routine processes</p> <p>Methodical task focus</p>	<p>Energy Level – tendency to display endurance and capacity for a fast pace. Demonstrates a tendency toward restlessness, activity, and drive. This scale deals with issues such as efficiency and time utilization.</p> <p>The potential for activity, restlessness, and seeking excitement and challenge can be found in an individual with a high Energy Level.</p> <p>At the low end, an individual provides the patience and calmness fundamental to sedentary kinds of work.</p>	<p>Self-starter</p> <p>Multi-tasker</p> <p>Self-motivated</p>
<p>Willing to accept a leader</p> <p>Diplomatic</p> <p>Low need to control others</p> <p>.</p>	<p>Assertiveness – tendency to take charge of people and situations. Leads more than follows. Identified as a measure of generalized influence. It is often associated with expressing confidence.</p> <p>High Assertiveness is often found with a focus on achievement and a seeking of leadership and the control of situations.</p> <p>Lower scores suggest a minimal need to control the actions of others. Such an individual may provide coworkers with an example of a compliant follower.</p>	<p>Comfortable with self-expression and leadership</p> <p>Competitive</p> <p>Achievement oriented</p>

<p>Avoids small talk Keeps to one's self Is less likely to become frustrated by a lack of social contact</p>	<p>Sociability – tendency to be outgoing, people-oriented, and participate with others. A strong measure of social presence. It directly relates to one's desire for group associations. This trait relates to maintaining interpersonal contacts and group activities.</p> <p>High Sociability signifies a desire to work closely with others and accomplish goals in a group setting.</p> <p>A low scorer tends to focus on achieving goals through individual efforts and can work over longer periods without considerable interpersonal contact. This individual tends to “stick to business” and often will not demonstrate a need to collaborate on projects.</p>	<p>Conversational People oriented Comfortable working in a group setting</p>
<p>Can be cautious with authority figures Prefers individual freedom Willing to question the rules when not in agreement</p>	<p>Manageability – tendency to follow policies, accept external controls and supervision, and work within the rules. Suggests a strong relationship to social responsibility and stability. It is a measure of how one reacts to the limits placed by authority and the acceptance of established procedures.</p> <p>High Manageability is often associated with being comfortable with authority and rules, applying procedures to one's responsibilities, conformity, and being conventional.</p> <p>Lower scores reflect a working style that emphasizes individualized thinking and a willingness to question inefficient practice. This kind of person is not usually willing to blindly do the accepted thing.</p>	<p>Compliant with procedures Works within the rules Comfortable with authority</p>
<p>Sometimes skeptical Can be critical of others Often vigilant</p>	<p>Attitude – tendency to have a positive attitude regarding people and outcomes. Measures the degree to which one is willing to trust others. It relates to the tendency to suspend judgments about others.</p> <p>A positive and accepting outlook regarding people and outcomes is common among those with high Attitude scores.</p> <p>Lower scorers are willing to question the intentions of others and the feasibility of outcomes. They tend to avoid appearing naïve.</p>	<p>Optimistic Trusting Hopeful outlook</p>

<p>Not typically impulsive Prefers a methodical approach Analyses before making a decision</p>	<p>Decisiveness – uses available information to make decisions quickly. Reflects how confident someone is for accepting the risk of making a decision in a timely fashion using what information is available at the time.</p> <p>A person with a high Decisiveness score will make decisions with the information currently available so processes do not become too mired in deliberation. This also reflects their willingness to risk failure or misjudgment for the sake of timeliness.</p> <p>A person with a low Decisiveness score requires as much information as possible before making a decision.</p>	<p>Moves quickly when making decisions Accepts risk in most situations</p>
<p>May seem contradictory May be disagreeable on occasion Will not typically follow the group just to get along with others</p>	<p>Accommodating – tendency to be friendly, cooperative, and agreeable. To be a team person. Often associated with concern for group accountability. A willingness to consider the needs and ideas of others is typical.</p> <p>The high Accommodating person holds group harmony and compromise as important guidelines for behavior.</p> <p>On the other hand, the low Accommodating individual is willing to express disagreement and defend priorities without compromise when necessary.</p>	<p>Cooperative Harmonious Likeable and agreeable</p>
<p>May seek support Dependent on structure Accepts supervision easily</p>	<p>Independence – tendency to be self-reliant, self-directed, to take independent action and make own decisions. Defines the manner in which an individual prefers to be directed by others and one's potential to accomplish tasks with minimal supervision.</p> <p>A person with high Independence prefers to take responsibility for accomplishing goals autonomously.</p> <p>Someone with low Independence prefers to turn to others to guide their performance. This may reflect acknowledgment of the organizational chain of command.</p>	<p>Adventurous Slow to seek guidance Likes to set own direction</p>
<p>Intuitive Will follow a hunch Not overly bound by systematic thinking</p>	<p>Objective Judgment – the ability to think clearly and be objective in decision making. Reflects the willingness to use reason and logic, or intuition. This is often referred to as the balance between thinking through the details of a situation and going with one's feelings and intuition.</p> <p>High scores describe an individual who will trust observable facts in their problem-solving processes.</p> <p>Low Objective Judgment describes a person who is willing to follow a hunch or listen to their intuition before acting.</p>	<p>Comfortable with a logical approach Unemotional thinking</p>

Interests Scales	
Enterprising	- indicates an interest in activities in which one uses persuasiveness and enjoys presenting ideas and leading others.
Financial/Administrative	- indicates interest in activities that involve the organization or coordination of information, the administration of business procedures, the processing of financial data, conventional office routines etc.
People Service	- indicates interest in activities that involve helping people, tending to the welfare of others, reaching compromises, working with others, etc.
Technical	- indicates interest in activities that center on scientific and technical activities, research, and intellectual skills.
Mechanical	- indicates interest in activities that involve applied vocations with tools and machinery as well as work that involves various trades or the outdoors.
Creative	- indicates interest in activities where one may be imaginative, original, and artistic.

Critical Sales Behaviors	Description
Prospecting	Highlights the preferred approach to engaging prospects for sales presentations. For example, those who are not easily deterred from a task may prefer the freedom to be original in their approach, while another could prefer the structure that results from having others set their schedule for them.
Closing the Sale	Describes the approach one prefers to move a prospect to buy, whether quickly with an aggressive level of confidence or by taking a step-by-step, more diplomatic approach.
Call Reluctance	Explains an individual's need for support to overcome hesitance in making calls. While some take an independent and self-motivated approach, others may prefer the added incentive and support a supervisor or team may provide.

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Compensation Preference	Focuses on the effectiveness of various kinds of rewards that serve to motivate the salesperson. While some seek security with a guaranteed, fixed income, others may prefer the opportunity to expand their income with commissions.
Working with a Team	Emphasizes the level of openness an individual may have to cooperative and/or competitive participation in a team environment. While some make excellent leaders, demonstrating competitiveness and authority, others are best in the role of supporters and associates.
Self-starting	Illustrates the preferred approach a salesperson may utilize to initiate activity; describes his or her preferred tempo when conducting business. Some individuals are prone to progress without being prompted and others tend to move forward best when a supervisor provides the momentum to get underway.
Building and Maintaining Relationships	Illustrates the style by which a salesperson establishes and maintains relations with clients whether in a structured and somewhat modest manner or rapidly, in an open and outgoing way.