DATA RELIABILITY ANALYSIS

Company: Assessments 24x7
Product: DISC Assessment

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RENDERED TO

Assessments 24x7
San Diego, CA

PRODUCT EVALUATED: DISC Assessment
EVALUATION PROPERTY: DATA RELIABILITY

1. Table of Contents

2. Introduction

This document is provided as a tool for end-users of the Assessments 24x7 DISC Assessments to allow comparisons between the Assessments 24x7 Assessment and other multi-dimensional models in the marketplace.

Most psychometric instruments are *ipsative* in design. That is, they are self-report inventories that measure *qualities* (traits) as individuals perceive those traits within themselves, and they ask the respondent to choose one trait at the exclusion of the others. This is done via either/or, most/least, or rank-order responses to the instrument. The result is *not* an absolute set of scores that would easily fit in a normative field but rather a *relative* set of scores that applies to an individual's self-perception. The success of all self-report instruments depends on the insight, candor, honesty, and insight of the respondent. We will provide the essential types of statistical analysis herein, and we caution the reader to be aware of over-analyzing ipsative data. Some companies produce many pages of tables applying normative statistical rules to ipsative data, and we caution the reader to be aware of this. Self-report instruments do not measure *quantities* like levels of cholesterol or blood pressure but rather *qualities* that individuals report about themselves.

APA Guidelines

An evaluation was conducted in accordance with the Standards for Educational and Psychological Testing, developed jointly by the American Educational Research Assn. (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME).

Evaluation Date

The data evaluation began on September 3, 2024, and was completed on September 9, 2024.

3. Test Data Preparation

3.1   SAMPLE SELECTION

Sample data was submitted to ASI directly from the client and were not independently selected for testing. Samples are requested to:

- Be a sufficient number to represent the general population.
- Be randomly selected.

The sample panels were received at the ASI Evaluation Center by email on August 28, 2024.

SAMPLE SIZE: N = 10,000

3.2   DATA CLEANING

Upon receipt of the samples at ASI, the data was downloaded and cleaned as follows:

1. **Missing Values** – There were no missing values.
2. **Duplicates** – Duplicate entries were removed.
3. **Categorization** – Data was categorized and labeled by attribute type for the appropriate comparison.

4. Testing and Evaluation Methods

4.1 TEST STANDARDS

Analysis of the data was conducted using standard statistical methods. The statistical method employed was:

- Cronbach's Alpha

Cronbach's alpha

This technique is regarded as one of the most robust measures of reliability and presents the highest 'bar' from which to compare. Readers should note that Cronbach's alpha is the method selected by HRD Press authors and researchers for this instrument because of its high standards. The reader is encouraged to compare the reliability coefficients presented herein to other vendors and to ask those vendors which reliability formulas they used to compute their reliability coefficients.

Cronbach's alpha is a measure used to assess the reliability, or internal consistency, of a set of scale or test items. In other words, the reliability of any given measurement refers to the extent to which it is a consistent measure of a concept, and Cronbach's alpha is one way of measuring the strength of that consistency.

Cronbach's alpha is computed by correlating the score for each scale item with the total score for each observation (usually individual survey respondents or test takers) and then comparing that to the variance for all individual item scores:

$$\alpha = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum_{i=1}^{k} \sigma_{y_i}^2}{\sigma_x^2}\right)$$

...where: k refers to the number of scale items

$\sigma_{y_i}^2$ refers to the variance associated with item i

σ_x^2 refers to the variance associated with the observed total scores

Cronbach's alpha is thus a function of the number of items in a test, the average covariance between pairs of items, and the variance of the total score.

The resulting alpha coefficient of reliability ranges from 0 to 1 in this assessment of a measure's reliability. If all of the scale items are entirely independent of one another (i.e., are not correlated or share no covariance), then alpha = 0; and, if all of the items have high covariances, then alpha will approach 1 as the number of items in the scale approaches infinity. In other words, the higher the alpha coefficient, the more the items have shared covariance and probably measure the same underlying concept.

Although the standards for what makes a "good" alpha coefficient are entirely arbitrary and depend on your theoretical knowledge of the scale in question, many methodologists recommend a minimum alpha coefficient between 0.70. Alpha coefficients that are less than 0.7 are usually unacceptable.

Researchers generally use the following guidelines to assess the data and help them interpret test-retest reliability coefficients:

- Coefficients below 0.70 are considered suspect, **Questionable**
- Coefficients above 0.70 to 0.80 are considered **Acceptable**
- Coefficients above 0.80 to 0.90 are considered **Very Good**
- Coefficients above 0.90 to 1.00 are considered **Excellent**

5. Testing and Evaluation Results

Cronbach's Alpha Reliability: Table 1

Source	Style	Alpha	N
A24x7	Dominance	0.88	10,000
A24x7	Influencing	0.75	10,000
A24x7	Steadiness	0.87	10,000
A24x7	Concientous	0.86	10,000
	Composite Mean	0.84	

Descriptive Statistics: Table 2

Style	Mean	STDEV	Median	N
Dominance	40.50	15.00	37.50	10,000
Influencing	46.10	23.00	41.10	10,000
Steadiness	54.20	18.30	52.00	10,000
Concientous	59.20	19.00	58.90	10,000

6. Conclusions

The data submitted for evaluation passed all acceptable standards and was therefore awarded ASI Certification.

Certified
September 9, 2024

7. Document Review

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