

TTI Success Insights Style Insights® 2016 Temporal Consistency Report

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Abstract

Temporal consistency is one of many forms of reliability that help establish an assessment as fully reliable and valid. Reliability and validity of an assessment cannot be established by a single report or by a single study, but must be established over time by many studies showing consistent results for the topic at hand. In this report, we show that for a sample of 7,742 individuals who were determined to have taken the TTI SI Styles Insights® assessment at least twice during an appropriate time period, the test-retest correlations are quite strong. This report provides continuing evidence of temporal consistency which adds to the argument that the TTI SI Styles Insights® assessment has test-retest reliability.

1 Introduction

As part of our continuous improvement process, TTI Success Insights (TTI SI) has developed a series of periodic reliability and validity studies. Establishing a reliable and valid psychometric assessment is a process that builds evidence over time. An instrument cannot be valid unless it is first reliable.

There are several different forms of reliability. Internal consistency measures whether items from an assessment or scale that propose to measure the same general construct produce similar scores. Temporal consistency measures whether an assessment is consistent or stable over reasonable periods of time.

Parallel forms reliability measures the consistency of different versions of the same assessment across the same group of individuals. Inter-rater reliability is a measure of the degree to which different raters or experts agree in their assessment decisions.

The focus of this report is the temporal consistency

of the TTI SI Style Insights® assessment.

2 Methodology

Given the volume of Style Insights assessments generated in the TTI SI U.S. network on an annual basis, we assumed that an adequate number of individuals would be found in our U.S. data base to generate useable data. The search focused solely on the U.S. data base and searched on first name, last name, gender, and email address. The search criteria also included a requirement that an individual was selected only if they had two different set of test scores in our data base that were recorded at least two months but not more than 13 months apart.

The search criteria for time was established to ensure that some time had passed to avoid individuals who would essentially remember how they had responded to the first assessment. At the same time, it is desired that the individual assessment dates are not so far apart as to include a large segment of respondents who may have



encountered major life changes that inevitably occur in all our lives.

Similar searches were conducted on TTI SI’s European and other servers in an attempt to find similar data sets for studies for all of TTI SI’s English language Style Insights® assessments. This search resulted in two additional data sets. The United Kingdom (UK) only search turned up 304 individuals. An additional search on all links containing English speaking countries resulted in 444 individuals from the UK, Australia, New Zealand, and South Africa.

We do not anticipate any significant difference based on the languages and cultures under consideration in the different data sets. From time to time, TTI SI receives specific request for information such as individual country breakdowns and have begun incorporating strategies into our studies to provide such information.

3 Demographics

Table 1: Respondent Gender Breakdown

	Frequency
US	7,742
UK	304
Intl Eng	444

4 Analysis and Results

The analysis of this section is based on the standard correlation coefficient, denoted by the Greek letter ρ . Generally speaking, a correlation coefficient may take on any value between 1 and -1. Interpretation of correlation is as follows. A ρ value of ± 1 indicates perfect positive or negative correlation between the objects being studied. This indicates that the two objects are either identical or identically opposite. In the middle of these two extremes is $\rho = 0$ which indicates a completely random relationship between the objects.

In this study, we expect to see moderate to strong positive correlations between the corresponding scales of the two different applications of the assessments. There is little consensus on what is an acceptable level of correlation and the definition is highly dependent on the application. In this setting, we are seeking to understand whether the scales of Style Insights appear to maintain consistency over time.

The results of the Adapted (Graph I) and Natural (Graph II) DISC scales’ test-retest correlations are presented in Table 2.

Table 2: Style Insights®
2016 US Test-Retest
Correlation

Scale	Adapted ρ	Natural ρ
D	0.78	0.79
I	0.81	0.81
S	0.78	0.75
C	0.80	0.79

As is seen in Table 2, TTI SI’s scales all perform quite well. We see as the low correlation between the two administrations of the assessment on the Natural Steadiness scale at $\rho = 0.75$. Correlation at this level in test-retest setting may be interpreted as quite strong.

Table 3 presents the results of the United Kingdom sample.

Table 3: Style Insights®
2016 UK Test-Retest
Correlation

Scale	Adapted ρ	Natural ρ
D	0.82	0.82
I	0.82	0.82
S	0.79	0.81
C	0.79	0.81



Table 3, TTI SI’s UK scales all perform quite well. We see as the low correlation between the two administrations of the assessment on the Natural Steadiness and Compliance scales at $\rho = 0.79$. Correlation at this level in test-retest setting may be interpreted as quite strong.

Table 4 presents the results of the United Kingdom sample.

Table 4: Style Insights®
2016 International English
Test-Retest Correlation

Scale	Adapted ρ	Natural ρ
D	0.81	0.80
I	0.83	0.83
S	0.78	0.78
C	0.81	0.82

Table 3, TTI SI’s International English scales all perform quite well. We see as the low correlation between the two administrations of the assessment on the Adapted and Natural Steadiness scales at $\rho = 0.78$. Correlation at this level in test-retest setting may be interpreted as quite strong.

As a final note on the correlation analysis presented in this section, all correlations reported were calculated to be significant at the 0.01 level or better.

5 Summary and Future Work

Test-retest studies are intended to understand how consistent across time an assessment is. To that end, it is clearly not enough to perform a single study. Rather, it is necessary to periodically review the performance of the assessments across time and in many other ways.

The current test-retest results show very strong correlation on assessments taken by the same respondent measured at an interval of no less than two months and no more than 13 months apart. The minimum correlation seen between any of

the scales is reported to be $\rho = 0.75$ and many of the comparisons exceed $\rho = 0.80$. This holds for all versions of the assessment studied.

Given that TTI SI’s assessments exist in multiple countries and in multiple languages throughout the world, it is necessary for TTI SI to conduct test-retest studies for all versions of our Style Insights® assessment. This is the purpose of many planned studies over the next several months and years as TTI SI continues to implement and improve our continuous improvement process.

It is also very important for TTI SI to understand our assessments and their impact on protected groups of individuals. The historical business model of TTI SI was focused on protection of our clients versus collection of demographic information. That paradigm is shifting and future versions of TTI SI technical reports and statistical analyses will have more demographic information.

