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Style Insights – DISC, English version 2006.g

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Summary

A continual quality improvement process initiated in 2002 utilized a series of examinations of scale and item reliabilities across multiple populations of respondents to culminate in this 2006.g ***Style Insights*** *instrument. The following assessment of the* ***Style Insights*** *is based on samples drawn from a population of 75,317 responses. These data are from respondents actively using this instrument through multiple applications. The results of assessment of this revised edition indicate reliability for the two dimensions (adaptive, natural) of four parallel scales (D, I, S, C) ranging from .64 to .80. Correlations between adaptive and natural scales indicate that these two dimensions of parallel scales are highly related, as one would expect, but also that the scales are sufficiently independent measures to justify separate interpretations and comparisons. Scores on the scales are distributed across a wide range of scale points, which supports making comparison between individuals and the self-reported behaviors in a population. This version of the instrument includes updating the population distributions. These norms anchor comparisons in a population distribution representative of the 21st century. Overall, the* ***Style Insights*** *is a strong, reliable instrument applicable across a variety of populations.*

Background

TTI's Style Insights - DISC English version 2006.g is anchored in design and development of their prior DISC instrument. During the late summer of 2002, Target Training International, Ltd. initiated a process of continual review of the reliability of the eight scales and the associated items. The following assessment of the ***Style Insights - DISC*** English version 2006.g is based on 75,317 responses received between 1 March 2005 and 28 February 2006. These data contain 45.4% female and 54.6% male responses that are representative of individuals actively using this instrument through the multiple applications.

The ***Style Insights*** instrument contains ninety-six (96) phrases organized in twenty-four frames of four items each. Each frame contains descriptive items associated with each of the four scale constructs. Respondents select a forced choice of "most-like" and "least-like" themselves. Two dimensions of four scales are constructed from these responses. The two dimensions are adaptive and natural.

The importance and utility of the two dimensions of scales are discussed later. The four scales are labeled as "Dominance-Challenge," "Influence-Contact," "Steadiness-Consistency," "Compliance-Constraints."

Scale reliabilities and item cohesion to its assigned scales were examined for samples from the response-populations. During prior assessments, a factor-analysis on the items confirmed the continuity of the scales as constructed. Based on analysis of all of these indicators, a limited number of items were revised, edited, and field-tested. Item revisions were based on theoretical construction of items combined with linguistic considerations that focused on current usage and minimization of social desirability bias.

The revised ***Style Insights*** instrument was, prior to release, subjected to several rounds of field-testing, further editing and confirmation of revisions. Once again several different responding-populations were utilized. The current release confirms increased reliability in each of the scales, and improves independence between the S and C scales.

The process of scale revisions mandated an updating of population distributions used as norm references. This process changed the reference point for comparison of style from its historic point of development up to the 21st century with recognition of changing behaviors and social expectations.

Norming sample

The pedigree of the current version has involved a diversity of data sources and samples. Current item and scale reliability is the culmination of these repeated evaluations using different samples. Thus, the instrument's pedigree is strengthened by repeated independent evaluations. The norms used in the current iteration, ***Style Insights*** – DISC English 2006.g version, utilize a 75,317 respondents compiled from users of the instrument. The sample represents a variety of individuals making use of the instrument in a variety of settings.

	AD6g	AI6g	AS6g	AC6g	ND6g	NI6g	NS6g	NC6g
N	75317	75317	75317	75317	75317	75317	75317	75317
Mean	6.01	5.61	5.76	4.94	-7.48	-4.62	-3.8	-7.16
Std. Error of Mean	0.015	0.014	0.013	0.012	0.016	0.013	0.01	0.014
Median	5	5	5	5	-7	-4	-3	-7
Std. Deviation	4.18	3.849	3.502	3.242	4.416	3.525	2.693	3.79

Sex: Female, 45%	AD6g	AI6g	AS6g	AC6g	ND6g	NI6g	NS6g	NC6g
Mean	5.27	6.26	6.33	4.43	-8.47	-3.86	-3.43	-7.42
Std. Error of Mean	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Median	5	6	6	4	-8	-3	-3	-7
Std. Deviation	3.90	3.99	3.60	3.07	4.56	3.22	2.61	3.91

Sex: Male, 55%	AD6g	AI6g	AS6g	AC6g	ND6g	NI6g	NS6g	NC6g
Mean	6.62	5.07	5.29	5.36	-6.65	-5.24	-4.11	-6.95
Std. Error of Mean	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Median	6	4	5	5	-6	-5	-4	-7
Std. Deviation	4.31	3.64	3.34	3.32	4.11	3.64	2.72	3.67

Revised scale reliability

Scale reliabilities were calculated using Cronbach's alpha (α). Cronbach's α is considered the most appropriate statistical test for reliability, given the dichotomous responses used to construct the scales. For dichotomous data, this is equivalent to the Kuder-Richardson formula 20 (KR20) coefficient. These statistics model internal consistency, based on the average inter-item correlation. These evaluations are a more rigorous approach than a traditional split-half statistic. Cronbach's α is a statistic bounded by 0 to 1. In general an α equal to or greater than .6 is considered a minimum acceptable level, although some authorities argue for a stronger standard of at least .7.

The following table compares the original SA1 reliabilities and Cronbach's α from the 2006.g data that were utilized to set the distribution profile for the revised SA2 scales. Most of the scale reliabilities have improved substantially. These findings document the revised SA2 as an instrument with solid scale construction and reliability.

Cronbach's Alpha – Scale reliability: 2006.g Sample N = 704								
	Adaptive D	Natural D	Adaptive I	Natural I	Adaptive S	Natural S	Adaptive C	Natural C
SA1	0.77	0.81	0.62	0.69	0.65	0.62	0.54	0.58
SA2.2006 e	0.804	0.801	0.777	0.777	0.750	0.628	0.707	0.746
SA2.2006.g	0.804	0.801	0.787	0.785	0.754	0.639	0.713	0.758

Scale relationships -- Correlations

Examination of the relationship among the scales focuses on two issues. First, the relationship of the "adaptive" scales, based on respondents' selection of "most like" phrases and the "natural" scales based on selection of "least like" phrases, has a theoretical foundation. While some may argue that the DISC scales are strengthened by simply combining these two dimensions, examination of the following correlation table supports my conclusion that these two dimensions measure subtle, but important differences. Correlations between same scale adaptive and natural values range from .65 to .79. Based on observations made across each of response-populations, I judge that there is strong support for concluding that the natural scales are less prone to social desirability biases and variation due to the setting, environment, and responders' expectations.

A second issue worth noting is that of an increased independence between the S and C scales. The common variance in between the

natural S and natural C is 18%, and the common variance between the adaptive S and adaptive C reduced to 2%.

Spearman's Rank Order Correlations		AD6g	AI6g	AS6g	AC6g	ND6g	NI6g	NS6g
AD6g	Correlation Coefficient	1						
	Sig. (2-tailed)							
AI6g	Correlation Coefficient	-0.1091	1					
	Sig. (2-tailed)	0.00						
AS6g	Correlation Coefficient	-0.7010	-0.2225	1				
	Sig. (2-tailed)	0.00	0.00					
AC6g	Correlation Coefficient	-0.2195	-0.6832	0.1452	1			
	Sig. (2-tailed)	0.00	0.00	0.00				
ND6g	Correlation Coefficient	0.7901	0.0320	-0.6733	-0.2737	1		
	Sig. (2-tailed)	0.00	0.40	0.00	0.00			
NI6g	Correlation Coefficient	-0.0126	0.7330	-0.1872	-0.6409	-0.0024	1	
	Sig. (2-tailed)	0.74	0.00	0.00	0.00	0.95		
NS6g	Correlation Coefficient	-0.6267	-0.2252	0.6541	0.2819	-0.6888	-0.3459	1
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00	
NC6g	Correlation Coefficient	-0.4049	-0.5993	0.4191	0.7117	-0.5255	-0.6802	0.4196
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Conclusions

I've reached the following conclusions with reference to TTI's *Style Insights* based on an analysis of response patterns from a diverse population of respondents.

- **Scores on the scales – while not a "statistically normal" distribution – are distributed with enough variance across all scale points to make interpretations and comparisons between respondents meaningful when interpreted as comparisons of individuals to distributions of these self-reported behaviors in a population.**
- **The items tend to co-vary around consistent latent-construct indicators of the theoretical concepts represented by instrument descriptions.**
- **The eight scales are constructed from coherent items with a solid reliability as indicated by Cronbach's α ranging from .6 to .8.**
- **The revisions presented in SA2 improve scale and item reliabilities significantly.**
- **The two dimensions of "adaptive" and "natural" contain parallel scales that are consistent with each other, but that also represent substantial potential for meaningful complimentary interpretation.**
- **The instrument is referenced in current populations, thus anchoring comparisons in the 21st century.**

With continued assessment and review of TTI's *Style Insights*, this revision confirms TTI's commitment to a process of continual quality improvement.

Submitted by:

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