EVERYTHING DiSC®

Research Report

for Adaptive Testing Assessment

by Inscape Publishing

Overview of this Research Report

The purpose of this report is to provide the validity research for the Everything DiSC® assessment and profiles. Section 1 includes background and research on the assessment, specifically on the Everything DiSC assessment, the DiSC® scales that are derived from this information, and the circumplex representation of the model. Sections 2-4 provide research on the application-specific models used in *Everything DiSC Management*, *Everything DiSC Sales*, and *Everything DiSC Workplace*®. Section 5 provides the research for the 18 additional scales in *Everything DiSC Work of Leaders*®. Section 6 provides the research for the *Everything DiSC Comparison Report*. The Appendices contain more detailed information on the Everything DiSC assessment research.

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Section 1: Everything DiSC® Assessment Research

The DiSC® Model

The foundation of DiSC® was first described by William Moulton Marston in his 1928 book, *Emotions of Normal People*. Marston identified what he called four "primary emotions" and associated behavioral responses, which today we know as Dominance (D), Influence (i), Steadiness (S), and Conscientiousness (C). Since Marston's time, many instruments have been developed to measure these attributes. The Everything DiSC® assessment uses the circle, or circumplex, as illustrated below, as an intuitive way to represent this model. Although all points around the circle are equally meaningful and interpretable, the DiSC model discusses four specific reference points.

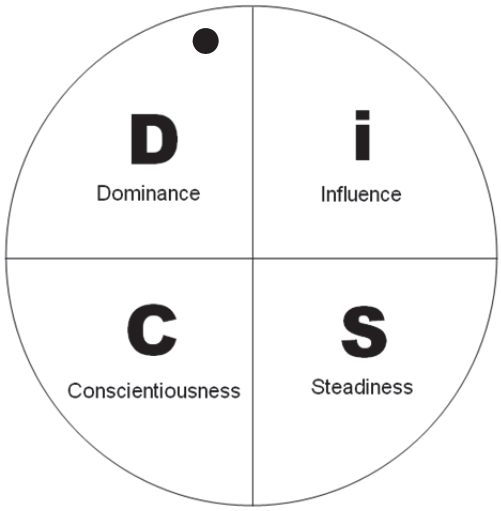
Dominance: direct, strong-willed, and forceful

Influence: sociable, talkative, and lively

Steadiness: gentle, accommodating, and soft-hearted

Conscientiousness: private, analytical, and logical

Figure 1. Circumplex DiSC Model



Although some people tend equally toward all of these regions, research indicates that most of us lean toward one or two. Each person who takes the Everything DiSC assessment is plotted on the circle, also known as the Everything DiSC Map. The example in Figure 1 shows a person (represented by the dot) who tends toward the D region, but also somewhat toward the i region. This represents a Di style.

This person, therefore, is probably particularly active, bold, outspoken, and persuasive, as these qualities generally describe people who share both the D and i styles. The distance of the dot from the center of the circle is also meaningful. People whose dots fall toward the edge of the circle, as shown in Figure 1, are much more inclined toward their DiSC styles and are likely to choose the priorities of that style over those of other styles. People whose dots fall close to the center of the circle are less inclined toward a particular style and find it fairly easy to relate to the priorities of other styles.

Assessment and Scoring

The Everything DiSC® assessment asks participants to respond to statements on a five-point ordered response scale, indicating how much they agree with each statement. These responses are used to form scores on eight scales (standardized to have a mean of zero and standard deviation of one) that are located around the DiSC® circle, as shown in Figure 2. The eight scales are as follows:

D measures a direct, dominant disposition using adjectives such as aggressive, strong-willed, and forceful.

Di measures an active, fast-paced disposition using adjectives such as dynamic, adventurous, and bold.

i measures an interactive, influencing disposition using adjectives such as sociable, lively, and talkative.

iS measures an agreeable, warm disposition using adjectives such as trusting, cheerful, and caring.

S measures an accommodating, steady disposition using adjectives such as considerate, gentle, and soft-hearted.

SC measures a moderate-paced, cautious disposition using adjectives such as careful, soft-spoken, and self-controlled.

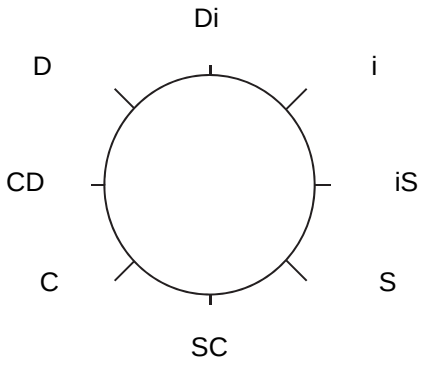
C measures a private, conscientious disposition using adjectives such as analytical, reserved, and unemotional.

CD measures a questioning, skeptical disposition using adjectives such as cynical, stubborn, and critical.

During the assessment process, the respondent's variance on each of the eight scales is calculated. If the variance on a particular scale is above a predetermined cut-off, the participant is presented with additional items for that scale. In this way, the assessment can gain more certainty with regard to the respondent's true score. This process mirrors those used in other adaptive testing assessments.

An individual's scores on the eight scales are then used to plot the individual on the Everything DiSC® Map, as represented by a dot. (Note that these eight scale scores are not directly reported in the profiles.) The Everything DiSC Map is divided into 12 sections, or styles, each representing 30 degrees within the circle. Feedback is largely based on the section in which the dot falls. Other factors, such as the dot's distance from the center of the circle and the individual's priorities, are also reflected in the feedback.

Figure 2. Eight DiSC® Scales



Overview of the Validation Process

Psychological instruments are used to measure abstract qualities that we can't touch or see. These are characteristics like intelligence, extroversion, or honesty. So how do researchers evaluate these instruments? How do we know whether such tools are actually providing accurate information about these characteristics or just generating haphazard feedback that sounds believable? Simply put, if an instrument is indeed useful and accurate, it should meet a variety of different standards that have been established by the scientific community. Validation is the process through which researchers assess the quality of a psychological instrument by testing the tool against these different standards. This paper is designed to help you understand these different standards and see how the Everything DiSC assessment performs under examination.

Validation asks two fundamental questions:

1. **How reliable is the tool?** That is, researchers ask if an instrument measures in a consistent and dependable way. If the results contain a lot of random variation, it is deemed less reliable.
2. **How valid is the tool?** That is, researchers ask if an instrument measures accurately. The more that a tool measures what it proposes to measure, the more valid the tool is.

Note that no psychometric tool is perfectly reliable or perfectly valid. All psychological instruments are subject to various sources of error. Reliability and validity are seen as matters of degree on continuous scales, rather than reliable/unreliable and valid/invalid on dichotomous scales. Consequently, it is more appropriate to ask, "How much evidence is there for the reliability of this tool?" than, "Is this tool reliable?"

Reliability

When we talk of reliability in relation to profiles such as Inscape Publishing's DiSC® assessments, then we are referring partly to the tool's **stability** and partly to its **internal consistency**.

Stability refers to the tool's ability to yield the same measurements over a period of time. This is generally tested by having the same people complete the tool's questionnaire twice, with a suitable time interval between the two measurements (the so-called *test-retest*.) The results are then compared to determine how strongly they relate to each other (or correlate.) If a person's DiSC style remains unchanged, a stable tool should produce results that are quite similar between two different administrations. In reality, however, it is almost impossible to obtain perfect test-retest reliability on any sophisticated psychological test, even if the individual in question does not change on the measured attribute. This is because test results are influenced by a variety of extraneous factors that are unrelated to the characteristics that the test intends to measure. For instance, someone who is tired during one testing may answer differently than she will on a second testing when she is well-rested. Similarly, another person may respond to a test differently depending on the mood he is in. Generally speaking, the longer the interval between two test administrations, the greater the chance that these random variables can artificially lower the test-retest reliability of an instrument. In other words, the longer the time period between two testings, the lower we would expect the test-retest reliability to be.

In practical terms, the stability of DiSC (i.e., test-retest reliability) is measured by asking a group of respondents to take a DiSC instrument and then asking those same respondents to take the same test again at a later time. This stability can be quantified in the form of a *reliability coefficient,* which is a statistic that is generated by looking at the mathematical relationship between a group's initial scores on an instrument and their subsequent scores. Reliability coefficients range between -1 and +1. The closer that a correlation coefficient is to +1, the more stable the instrument is considered to be. Researchers generally use the following guidelines to help them interpret these test-retest reliability coefficients: coefficients above .70 are considered acceptable, and coefficients above .80 are considered very good.

The eight scales of the Everything DiSC® assessment have been measured for their test-retest reliability over a two week period and the following coefficients were found:

Table 1. Scale Test-Retest Reliabilities

Scale	Reliability
DI	.86
I	.87
IS	.85
S	.86
SC	.88
C	.85
CD	.85
D	.86

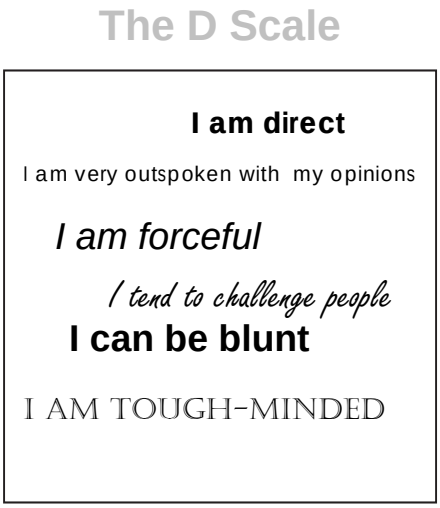
N = 599

These results suggest that results produced by the Everything DiSC assessment are quite stable over time. Consequently, test takers and test administrators should expect no more than small changes when instrument is taken at different times. As the period between administrations increases, however, the divergent results of these administrations will become more and more noticeable.

Note that even over very short intervals an instrument's results can show small changes. In fact, it is unlikely that two administrations of a test will yield the *exact* same results on any sophisticated psychological instrument. When such changes are observed in DiSC®, however, the fundamental interpretation of the results will usually be the same.

Internal consistency evaluates the degree of correlation among questions that profess to measure the same thing. That is, each of the eight scales in the DiSC® model is measured using a series of different items (i.e., questions in the form of statements, such as *I am direct, I tend to take the lead, I want things to be exact, I am always cheerful)*. Researchers recognize that if all of the items on a given scale (e.g., the D scale) are in fact measuring the same thing (e.g., Dominance), they should all correlate with each other to some degree. In other words, all of the items on a scale should be consistent with each other. A statistic called Cronbach's Alpha is usually regarded as the best method of evaluating internal consistency.

Figure 3. D Scale Items



Cronbach's Alpha expresses the degree of correlation as a specific number, which typically varies between 0.0 and 1.0. If the value of Alpha is 0.0, then there is no relationship among the items/statements on a given scale. On the other hand, if all the statements in a questionnaire measure in an identical fashion, then the value of Alpha will be 1.0, which indicates absolute internal consistency. Cronbach's Alpha is calculated separately for each of the assessment's eight scales.

The following guidelines are frequently used to evaluate the quality of a scale's internal reliability: Alpha values above .70 are generally considered acceptable and satisfactory, Alpha values above .80 are usually considered quite good, and values above .90 are considered to reflect exceptional internal consistency. In fact, Alpha values that are too high may indicate that the items on a scale are redundant or too similar. In such cases, many of the instrument's items may provide very little new information about a respondent.

Alpha coefficients were calculated for a sample of 752 respondents. The demographics of this sample are included in Appendix 1. The scales on the Everything DiSC® instruments demonstrate good-to-excellent internal consistency, as shown by the Alpha values listed in Table 2. All reliabilities are well above .70, with a median of .87.

Table 2. Internal consistency of the *Everything DiSC®* scales

Scale	Number of items	Cronbach's Alpha
DI	9	.90
I	7	.90
IS	9	.86
S	10	.87
SC	12	.84
C	11	.79
CD	12	.87
D	8	.88

N=752

Analyses were also performed to understand the impact of the extra, adaptive questions that some respondents receive if there is a large amount of variation within their responses to a single scale's items. That is, if the variance in a respondent's ratings to a scale's items is above a certain level, the respondent is given five to ten extra items that continue to measure the trait assessed by the scale. For convenience, the items that all respondents receive will be called "base items" and the items that only inconsistent responders receive will be called "extra items."

Table 3 shows the internal reliabilities for only those respondents who gave the most inconsistent responses to a given scale's items, measured by a high degree of response variance. In other words, these are respondents whose scale preferences seemed most unclear. In the first bold column are the alphas for those respondents using both the base items and extra items (which reflects how these respondents are measured in the actual assessment). In the second bold column are the Alphas for those respondents using only the base items. With only the base items, the median Alpha in this subsample is .62. The median Alpha when the extra items are included is .77. By comparing these

two columns, we can see the internal consistency is much higher for these unclear respondents when they receive the extra items. In essence, these extra items are used to further gauge the target trait when the normal assessment has produced unclear or variable results.

Table 3. Alpha coefficients for high variance respondents

	With extra items			Without extra items			
Scale	Alpha	N	# items	Alpha	N	# items	% receiving extra items
DI	**.80**	170	14	**.63**	170	9	.23
I	**.82**	105	12	**.60**	105	7	.14
IS	**.76**	214	14	**.58**	214	9	.28
S	**.78**	174	15	**.64**	174	10	.23
SC	**.76**	223	17	**.64**	223	12	.30
C	**.78**	261	19	**.61**	261	11	.35
CD	**.74**	188	22	**.63**	188	12	.25
D	**.68**	116	13	**.34**	116	8	.15

The final column shows the percentage of respondents in the sample who received extra items on a given scale. On average, 24% of respondents received extra items on an individual scale.

Validity

As mentioned, validity indicates the degree to which a tool measures that which it has been designed to measure. Assessing the validity of a psychological tool that measures abstract qualities (like intelligence, extroversion, or honesty) can be tricky. There are, however, a number of basic strategies that researchers use to answer the question, “How well is this instrument measuring what it says it’s measuring?” The validation strategies discussed here fall under the heading of **construct validity.**

Construct Validity

Construct validity examines the validity of a tool on a highly theoretical level. A *construct* is an abstract idea or concept (such as intelligence, dominance, or honesty) that is used to make sense of our experience. The Di scale of the Everything DiSC instruments, for example, measures a particular construct (i.e., the tendency to be bold, adventurous, and fast paced). This "bold" construct, in turn, is theoretically related to a variety of other constructs. For instance, it is reasonable to assume that someone who is very bold will not be particularly cautious in nature. Thus, bold tendencies and cautious tendencies are theoretically linked in a negative manner. Consequently, if our measure of a bold tendency has high validity, people scoring high on the Di scale should score relatively low on a scale measuring cautiousness, such as the SC scale. This is essentially what researchers do when they examine construct validity. First, they specify a series of theoretical relationships (e.g., the construct of boldness is theoretically related to the constructs of X, Y, and Z). Then, they test these theoretical relationships empirically to see if the relationships actually exist. If the proposed relationships do exist, the instrument is thought to have higher validity.

Scale Intercorrelations

As you might imagine, there are a variety of different ways to test construct validity. First, we can examine the validity of an instrument as a whole. Instruments like the Everything DiSC® assessment propose an underlying model in which the scales have a specific relationship to each other. Researchers examine the actual relationship among the scales to see if they reflect the theoretical relationship proposed by the model.

The DiSC® model proposes that adjacent scales (e.g., Di and i) will have moderate correlations. That is, these correlations should be considerably smaller than the alpha reliabilities of the individual scales. For example, the correlation between the Di and i scales (.50) should be substantially lower than the Alpha reliability of the Di or i scales (both .90). On the other hand, scales that are theoretically opposite (e.g., i and C) should have strong negative correlations. Table 4 shows data obtained from a sample of 752 respondents who completed the Everything DiSC assessment. The correlations among all eight scales show strong support for the model. That is, moderate positive correlations among adjacent scales and strong negative correlations are observed between opposite scales.

Table 4. Scale Intercorrelations

	DI	I	IS	S	SC	C	CD	D
DI	**.90**							
I	.50	**.90**						
IS	.04	.47	**.86**					
S	-.31	.03	.57	**.87**				
SC	-.73	-.56	-.13	.34	**.84**			
C	-.43	-.70	-.49	-.18	.45	**.79**		
CD	-.14	-.37	-.68	-.66	-.08	.26	**.87**	
D	.46	.14	-.37	-.69	-.62	-.19	.42	**.88**

Cronbach's Alpha reliabilities are shown in bold along the diagonal, and the correlation coefficients among scales are shown within the body of the table. Correlation coefficients range from -1 to +1. A correlation of +1 indicates that two variables are perfectly positively correlated such that as one variable increases, the other variable increases by a proportional amount. A correlation of -1 indicates that two variables are perfectly negatively correlated, such that as one variable increases, the other variable decreases by a proportional amount. A correlation of 0 indicates that two variables are completely unrelated; N=752, as shown in Appendix 1.

Because the Everything DiSC® assessment model proposes that the eight scales are arranged as a circumplex, an even more strict set of statistical assumptions are required of the data. The pattern of correlations for a given scale are expected to be arranged in a particular order. As can be seen in Table 5, the strongest theorized correlation for a given scale is labeled r_1. The second strongest is labeled r_2, and so on. In this case, r_4 represents the correlation with a theoretically opposite scale. Consequently, r_4 should be a reasonably strong negative correlation. For each scale, we should observe the following relationship if the scales support a circumplex structure: $r_1 > r_2 > r_3 > r_4$.

Table 5. Expected Scale Intercorrelations

	D	DI	I	IS	S	SC	C	CD
D	1.00							
DI	r_1	1.00						
I	r_2	r_1	1.00					
IS	r_3	r_2	r_1	1.00				
S	r_4	r_3	r_2	r_1	1.00			
SC	r_3	r_4	r_3	r_2	r_1	1.00		
C	r_2	r_3	r_4	r_3	r_2	r_1	1.00	
CD	r_1	r_2	r_3	r_4	r_3	r_2	r_1	1.00

Looking at Table 6, we do, in fact, observe a $r_1 > r_2 > r_3 > r_4$ pattern for each scale. In addition, we can examine the magnitude of these correlations in comparison to the theoretically expected magnitudes. The predicted magnitudes of r_1 , r_2 , r_3 , r_4 under a circumplex structure are listed in Table 4, as described by Wiggins (1995). The "actual" r_x values are the median correlations for a given r_x . Although the actual and predicted values are not exactly the same (a near impossible standard for practical purposes), the magnitude of the actual and predicted correlation values is quite similar, thus providing additional support for the DiSC® circumplex model and the ability of the Everything DiSC assessment to measure this model.

Table 6. Actual and Predicted Scale Relationships

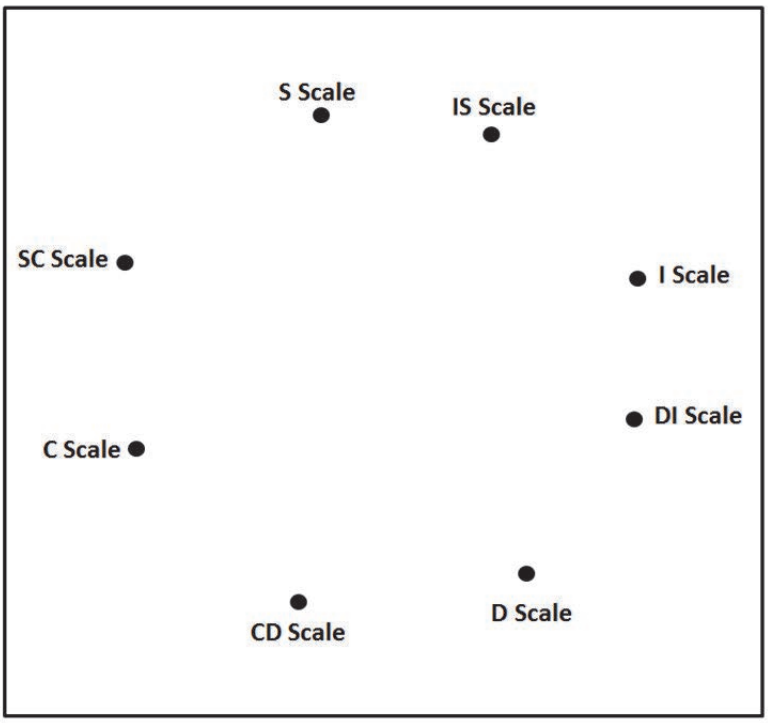
r_1	>	r_2	>	r_3	>	r_4	
.45	>	-.11	>	-.46	>	-.69	Actual (median)
.42	>	.03	>	-.36	>	-.73	Predicted

The Dimensionality of the DiSC® Model: Multidimensional Scaling (MDS)

A statistical technique called multidimensional scaling also adds support to the DiSC® model as a circumplex. This technique has two advantages. First, it allows for a visual inspection of relationship among the eight scales. Second, this technique allows researchers to look at all of the scales simultaneously. In Figure 4, scales that are closer together have a stronger positive relationship. Scales that are farther apart are more dissimilar. The circumplex DiSC model predicts that the eight scales will be arranged in a circular format at equal intervals.

As can be seen in Figure 4, the scales are arranged in a way that is expected by the DiSC model. (Keep in mind that the original MDS rotation is presented below and this rotation is arbitrary.) Although the eight scales do not form a perfectly equidistant circle (as predicted by the model), this theoretical ideal is nearly impossible to obtain with actual data. The actual distance between the scales, however, is roughly equal, providing strong support for the model and its assessment.

Figure 4. MDS Two-Dimensional Solution



Stress = .01326
RSQ = .99825
N = 752

As can be seen above, all scales are closest to the scales that are theoretically adjacent to them in the model. For instance, the Di is closest to the D scale and i scale, as predicted by the model. In addition, scales that are theoretically opposite (e.g., i and C) are generally furthest away from each other on the plot. Consequently, this analysis adds strong support for the two-dimensional DiSC® model and the ability of the Everything DiSC® assessment to measure that model.

Additionally, the S-stress of the model is .01326 and the RSQ value is .99825. These values reflect the ability of a two-dimensional model to fit the data. Lower S-stress values are preferred (with a minimum of 0) and higher RSQ values are preferred (with a maximum of 1). Both of these values are almost ideal in the data, suggesting that the two-dimensional DiSC model fits the participant data exceptionally well.

The Dimensionality of the Circumplex DiSC® Model: Factor Analysis

(Note that this section may require some statistical background to understand fully)

To further explore the dimensionality of the model, a principle components factor analysis was performed on all eight scales using a varimax rotation. The eigenvalues clearly reinforce the two-dimensional structure underlying the eight scales, as shown in Table 7. Only two components demonstrate eigenvalues above one, and both of these are well above one. Further, components 3 through 8 all have eigenvalues that decrease smoothly and are meaningfully below zero. Consequently, regardless of whether we use Kaiser's Criterion or a scree plot method of determining the number of factors to extract, the number of retained factors is two, as predicted by the model.

Table 7. Factor Analysis Eigenvalues

Component	Eigenvalues
1	3.10
2	2.95
3	0.60
4	0.38
5	0.37
6	0.31
7	0.23
8	0.04

N=752

The rotated factor loadings are listed in Table 8. (Note that the loadings were rotated such that the loadings reflect the original DiSC rotation). The pattern of loadings is as expected for a circumplex model, as listed under the "Ideal Loadings" column. That is, with a circumplex model, we would expect that some scales would have high loadings on one component and near zero loadings on the other component (i.e., Di, iS, SC, and CD) and some scales would have moderately high loadings on both components (e.g., D, i, S, and C).

Table 8. Factor Loadings for the Eight DiSC® Scales

	Actual Loadings		Ideal Loadings	
Scale	Vertical Dimension	Horizontal Dimension	Vertical Dimension	Horizontal Dimension
D	.51	-.73	.707	-.707
Di	.83	.09	1.000	.000
i	.56	.67	.707	.707
iS	.06	.88	.000	1.000
S	-.76	.48	-.707	.707
SC	-.90	-.03	-1.000	.000
C	-.61	-.56	-.707	-.707
CD	-.09	-.85	.000	-1.000

Further, the pattern of negative and positive loadings are as expected. For example, the i and C scales share no common dimensions, and consequently show an opposing pattern of negative loadings (the C scale) and positive loadings (the i scale). However, the D and i scales would be expected to share one component but be opposite on the other component. This is what we observe, since both scales are negatively loaded on component 1, but have opposite loadings on component 2.

Table 9 shows the ideal and actual angular locations for the eight DiSC® scales. The deviation column indicates that the actual angles are very similar to the ideal angles. The absolute average deviation is 3.8, which is lower than many of the interpersonal-based instruments currently available. Vector length, as shown in the last column of Table 7, reflects the extent to which the scale is represented by the two underlying dimensions (Kiesler et al., 1997). These values can range from 0.0 to 1.0. A length of .80 is considered very good and a length above .90 is considered exceptional. The mean vector length of .87 suggests that the scales have a strong relationship with the dimensions they are intended to measure.

Table 9. Angular Locations for the Eight DiSC® Scales

Scale	Actual Angle	Ideal Angle	Deviation	Vector Length
D	325	315	10	.89
Di	6	0	6	.83
i	40	45	-5	.87
iS	86	90	-4	.88
S	122	135	-13	.90
SC	182	180	2	.90
C	223	225	-2	.82
CD	276	270	6	.85

Correlations with Other Assessments of Personality

Another method used to provide evidence of construct validity involves correlating an assessment with other well-respected assessments of similar traits. For this purpose, a group of respondents took the Everything DiSC® assessment and two established measures of personality: the NEO® Personality Inventory – Revised (NEO PI-R™) and the Sixteen Personality Factor Questionnaire (16PF®).

The NEO PI-R is a 240-item assessment designed to measure the five-factor model of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (McCrae & Costa, 2010). The 16PF is a 185-item assessment designed to measure sixteen primary personality traits, as well as the five factor model of personality (IPAT, 2009). The assessment also provides scores on nineteen additional scales in the following areas: self-esteem and adjustment, vocational interests, social skills, leadership, and creativity.

The correlations among the Everything DiSC scales and the NEO PI-R and the 16PF are shown in Appendices 3 and 4. For the purposes of interpretation, a summary is provided here. For each Everything DiSC scale, the ten strongest correlations with either the NEO PI-R or 16PF are listed.

The DI scale

The ten strongest correlations with the DI scale are listed below.

Table 10. Strongest correlations between the DI scale and the NEO PI-R™ and 16PF®

Scale	Instrument	r
Assertiveness	NEO PI-R	.68
Creative Potential	16PF	.62
Independence	16PF	.60
Activity	NEO PI-R	.57
Emotional Expressivity	16PF	.56
Social Expressivity	16PF	.55
Dominance	16PF	.54
Social Control	16PF	.53
Enterprising	16PF	.53
Social Boldness	16PF	.52

The scales listed in Table 10 reflect the active, socially influential disposition that is measured by the DI scale. Although not listed above, this scale also demonstrated high correlations with the Excitement Seeking (r=.51) and Achievement Striving (r=.48) scales of the NEO PI-R. This reflects the adventurous, pioneering aspects of the DI scale.

The I scale

The ten strongest correlations with the I scale are listed below.

Table 11. Strongest correlations between the I scale and the NEO PI-R and 16PF

Scale	Instrument	r
Social Expressivity	16PF	.74
Extraversion	16PF	.70
Social Boldness	16PF	.70
Extraversion	NEO PI-R	.69
Social Adjustment	16PF	.68
Gregariousness	NEO PI-R	.65
Social Control	16PF	.62
Liveliness	16PF	.62
Warmth	NEO PI-R	.60
Leadership Potential	16PF	.60

The scales listed in Table 11 reflect the extraverted, lively disposition that is measured by the I scale, as well as some elements of social poise or competence. Although not listed above, this scale also demonstrated high correlations with Positive Emotions (r=.50) and Self-consciousness (r= -.48) scale of the NEO PI-R. The I scale also had high correlations with Social (r=.56) and Enterprising (r=.53) vocational interest scales.

The IS scale

The ten strongest correlations with the IS scale are listed below.

Table 12 Strongest correlations between the IS scale and the NEO PI-R™ and 16PF®

Scale	Instrument	r
Warmth	NEO PI-R	.61
Positive Emotions	NEO PI-R	.57
Empathy	16PF	.56
Trust	NEO PI-R	.55
Altruism	NEO PI-R	.53
Agreeableness	NEO PI-R	.52
Extraversion	NEO PI-R	.52
Extraversion	16PF	.51
Warmth	16PF	.49
Compliance	NEO PI-R	.47

The scales listed in Table 12 reflect the warm, accepting, and empathic disposition measured by the IS scale. Although not listed above, the IS scale also had significant correlations with the Emotional Sensitivity (r= .42) scale of the 16PF. Significant negative correlations with the Angry Hostility (r= -.46; NEO PI-R)), Tension (r= -.43; 16PF), and Anxiety (r= -.41; 16PF) scales reflect the more cheerful, easy-going disposition measured by the IS scale.

The S scale

The ten strongest correlations with the S scale are listed below.

Table 13. Strongest correlations between the S scale and the NEO PI-R and 16PF

Scale	Instrument	r
Agreeableness	NEO PI-R	.67
Compliance	NEO PI-R	.65
Altruism	NEO PI-R	.47
Trust	NEO PI-R	.39
Straightforwardness	NEO PI-R	.39
Creative Potential	16PF	-.32
Independence	16PF	-.40
Dominance	16PF	-.45
Tension	16PF	-.45
Angry Hostility	NEO PI-R	-.53

The scales listed in Table 13 reflect the agreeable, peaceful, and accommodating disposition measured by the S scale. The original conceptualization of the S scale also included a number of submissive tendencies, which is reflected by correlations with Compliance, Independence, and Dominance. It is worth noting the Straightforwardness scale is designed to measure sincerity or genuineness (rather than directness or bluntness), which is consistent with the S construct.

The SC scale

The ten strongest correlations with the SC scale are listed below.

Table 14. Strongest correlations between the SC scale and the NEO PI-R™ and 16PF®

Scale	Instrument	r
Dominance	16PF	-.63
Social Adjustment	16PF	-.64
Enterprising	16PF	-.65
Social Boldness	16PF	-.66
Social Expressivity	16PF	-.67
Social Control	16PF	-.67
Emotional Expressivity	16PF	-.69
Independence	16PF	-.71
Creative Potential	16PF	-.72
Assertiveness	NEO PI-R	-.75

The scales listed in Table 14 reflect the self-controlled, cautious, and passive disposition measured by the SC scale. Although not listed above, the SC scale had significant positive correlations with a number of scales, particularly on the NEO PI-R. These include Self-Consciousness (r= .44), Compliance (r=.41), and Modesty (r= .37).

The C scale

The ten strongest correlations with the C scale are listed below.

Table 15. Strongest correlations between the C scale and the NEO PI-R and 16PF

Scale	Instrument	r
Liveliness	16PF	-.55
Warmth	NEO PI-R	-.55
Social	16PF	-.57
Empathy	16PF	-.57
Gregariousness	NEO PI-R	-.59
Social Boldness	16PF	-.60
Social Adjustment	16PF	-.60
Extraversion	NEO PI-R	-.63
Social Expressivity	16PF	-.66
Extraversion	16PF	-.67

The scales listed in Table 15 reflect the introverted and emotional reserved disposition measured by the C scale. Although not listed above, the C scale had significant positive correlations with the Self-reliance (r= .51; 16PF), Self-consciousness (r= .41; NEO PI-R), and Privateness (r= .33; 16PF) scales. Correlations with the Order (5= .07; NEO PI-R), Perfectionism (r= .15;16PF), and Conscientiousness (r= .11; NEO PI-R) scales were significant, but smaller than expected. It is

important to note that the C scale is designed to measure a reserved, methodical, analytical disposition rather than directly measuring a preference for order.

The CD scale

The ten strongest correlations with the CD scale are listed below.

Table 16. Strongest correlations between the CD scale and the NEO PI-R™ and 16PF®

Scale	Instrument	r
Tension	16PF	.55
Angry Hostility	NEO PI-R	.51
Anxiety	16PF	.45
Positive Emotions	NEO PI-R	-.41
Altruism	NEO PI-R	-.42
Warmth	NEO PI-R	-.43
Empathy	16PF	-.44
Trust	NEO PI-R	-.47
Agreeableness	NEO PI-R	-.48
Compliance	NEO PI-R	-.55

The scales listed in Table 16 reflect the skeptical, challenging disposition measured by the CD scale. Although not listed above, the CD scale had significant positive correlations with the Vigilance (r= .31; which measures an expectation of being misunderstood or taken advantage of) and Self-reliance (r= .30; which is opposed with group-orientation) scales of the 16PF.

The D scale

The ten strongest correlations with the D scale are listed below.

Table 17. Strongest correlations between the D scale and the NEO PI-R and 16PF

Scale	Instrument	r
Dominance	16PF	.63
Independence	16PF	.60
Assertiveness	NEO PI-R	.55
Creative Potential	16PF	.51
Emotional Expressivity	16PF	.50
Enterprising	16PF	.44
Social Control	16PF	.35
Straightforwardness	NEO PI-R	-.35
Agreeableness	NEO PI-R	-.58
Compliance	NEO PI-R	-.63

The scales listed in Table 17 reflect the forceful, outspoken disposition that is measured by the D scale. Although not listed above, the D scale also had significant positive correlations with the Social Boldness (r= .32; 16PF) and Activity (r= .32; NEO PI-R) scales. As mentioned earlier, the

Straightforwardness scale of the NEO PI-R™ is designed to measure sincerity rather than bluntness. Low scorers are described as more likely to manipulate others or to be cunning.

Summary of the Validation Results

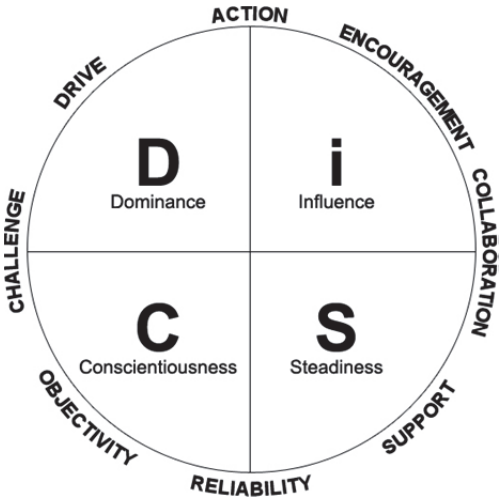
Evaluation of the Everything DiSC® assessment indicates that there is strong support for the reliability and validity of this tool. Analyses suggest that the scales' reliabilities are in the good-to-excellent range, with a median coefficient alpha of .87 and a median test-retest reliability of .86. Analyses examining the validity of the tool were also very favorable. The circumplex structure of the assessment conforms well to expectations, as assessed by multidimensional scaling, scale intercorrelations, and factor analysis. The relationships among the eight scales are highly supportive of the circumplex structure and strongly reflect the expected pattern of correlations hypothesized under the DiSC® model. Correlations between the Everything DiSC scales and the scales of the NEO PI-R and the 16PF® provide additional support for the validity of the assessment.

Section 2: *Everything DiSC® Management* Research

Background

Each Everything DiSC® instrument uses an application-specific model to give context to the report interpretation. The management model in the *Everything DiSC Management Profile*, shown in Figure 5, helps managers understand how they approach their work. The eight words around the map indicate the top priorities of managers with different DiSC® styles. For example, the priorities of "S" managers are Support, Reliability, and Collaboration. The development of this model was based on empirical data gathered from both managers and employees.

Figure 5. Everything DiSC Management Model



The Research

First, participants with management experience (N=427) were presented with a series of statements describing management tasks and asked the importance of each when working as a manager. For instance, participants were asked to rate the importance of "Setting high expectations" on a five-point scale, ranging from "Not Important" (1) to "Crucially Important" (5). Statements were grouped into eight categories that represent the eight priorities on the circle above. Each category contained four to five statements. The 36 individual statements are shown in Table 18.

Table 18. Statements Used to Measure the Priorities from the Manager's Perspective

Priority	Statement
ACTION	Maintaining forward momentum on your team
ACTION	Creating goals for the team that are inspiring
ACTION	Getting new projects moving quickly
ACTION	Encouraging the team to maintain an energetic pace
ACTION	Encouraging people to take risks
ENCOURAGEMENT	Celebrating group victories
ENCOURAGEMENT	Praising people for good work
ENCOURAGEMENT	Letting people know that you're optimistic about their progress
ENCOURAGEMENT	Creating enthusiasm in the team
COLLABORATION	Building a sense of collaboration
COLLABORATION	Encouraging teamwork
COLLABORATION	Providing feedback in a way that's warm and understanding
COLLABORATION	Making sure that everyone's getting along
SUPPORT	Letting people know that you are there to help them out whenever they need it
SUPPORT	Checking in with people to make sure they are doing ok
SUPPORT	Taking time to listen to people's concerns and fears
SUPPORT	Letting people know that you're patient with their mistakes
RELIABILITY	Creating a stable work environment
RELIABILITY	Being consistent in your management
RELIABILITY	Checking to make sure people have the resources they need
RELIABILITY	Giving people time to adjust to changes
RELIABILITY	Providing people with clear guidelines for doing their work
OBJECTIVITY	Maintaining objectivity in your management decisions
OBJECTIVITY	Ensuring that decisions are based on logical analysis
OBJECTIVITY	Emphasizing the need for quality work
OBJECTIVITY	Making accuracy a top priority
OBJECTIVITY	Separating out emotions from facts when making decisions
CHALLENGE	Challenging ideas that don't make sense to you
CHALLENGE	Questioning employee's actions when they don't seem logical to you
CHALLENGE	Letting people know when they aren't performing up to your standards
CHALLENGE	Questioning procedures or practices that aren't efficient
CHALLENGE	Providing people with new challenges
DRIVE	Constantly pushing yourself and others toward results
DRIVE	Creating a sense of urgency in the team
DRIVE	Getting results that are practical and concrete
DRIVE	Setting high expectations

After participants rated each statement, the average response for statements within a priority category was calculated. Consequently, all participants had a category score for all eight priorities. These category scores were then ipsatized by subtracting a mean score across all statements. Ipsatizing controls for response bias and ensures that the category scores reflect the relative importance of the eight priorities for a particular participant.

The category scores were then submitted to a multidimensional scaling analysis. This analysis allows researchers to look at the relationship among the eight categories and determine if the categories relate to each other in the manner predicted by the model. The results of the analysis are presented in Figure 6. Categories that are closer together share more in common and categories that are further apart are more dissimilar.

Figure 6. Multidimensional Scaling Results for Managers

As expected, the eight priorities form a circular shape, with the priorities arranged as predicted by the management model. That is, the sequence around the circle proceeds as follows: Action, Encouragement, Collaboration, Support, Reliability, Objectivity, Challenge, and Drive. Although the eight scales do not form a perfectly equidistant circle (as predicted by the model), this theoretical ideal is nearly impossible to obtain with actual data.

To capture management priorities from the perspective of employees, a second study was performed. In this study, 699 participants were asked to think of their previous experiences reporting to a manager. They were then presented with a series of management tasks and asked to rate how important each was for a manager to perform. For instance, participants rated how important “Taking time to listen to my concerns and fears” was on a 5-point scale ranging from “Not Important” (1) to “Crucially Important” (5).

Again, statements were grouped into eight categories that represent the eight priorities in Figure 5. Each category contained three to five statements. As described in the previous study, statement ratings within a priority category were averaged and ipsatized to arrive at a category score. The individual statements used in this study are shown in Table 19.

Table 19. Statements Used to Measure the Priorities from an Employee's Perspective

Priority	Statement
DRIVE	Setting high expectations
DRIVE	Creating a sense of urgency in the team
DRIVE	Getting quick results
DRIVE	Constantly pushing himself/herself and others toward results
ACTION	Maintaining forward momentum on our team
ACTION	Creating goals for the team that are inspiring
ACTION	Encouraging the team to maintain an energetic pace
ACTION	Encouraging me to take risks
ENCOURAGEMENT	Celebrating group victories
ENCOURAGEMENT	Letting me know that he/she is optimistic about my progress
ENCOURAGEMENT	Creating enthusiasm in the team
COLLABORATION	Providing feedback in a way that's warm and understanding
COLLABORATION	Building a sense of collaboration
COLLABORATION	Encouraging teamwork
COLLABORATION	Making sure that everyone's getting along
SUPPORT	Letting me know that he/she is there to help me out whenever I need it
SUPPORT	Checking in with me to make sure I'm doing ok
SUPPORT	Taking time to listen to my concerns and fears
SUPPORT	Letting me know that he/she is patient with my mistakes
RELIABILITY	Creating a stable work environment
RELIABILITY	Being consistent in his/her management
RELIABILITY	Checking to make sure I have the resources I need
RELIABILITY	Giving me time to adjust to changes
RELIABILITY	Providing me with clear guidelines for doing my work
OBJECTIVITY	Emphasizing the need for quality work
OBJECTIVITY	Ensuring that decisions are based on logical analysis
OBJECTIVITY	Maintaining objectivity in his/her management decisions
OBJECTIVITY	Making accuracy a top priority
OBJECTIVITY	Separating out emotions from facts when making decisions
CHALLENGE	Challenging ideas that don't make sense to him/her
CHALLENGE	Questioning employee's actions when they don't seem logical
CHALLENGE	Questioning procedures or practices that aren't efficient
CHALLENGE	Providing me with new challenges

The priority category scores were then submitted to a multidimensional scaling analysis. The results of this analysis are shown in Figure 7.

Figure 7. Multidimensional Scaling Results for Employees

As with the manager data, the priority categories are arranged in a circle. Further, the categories are plotted in the expected order: Action, Encouragement, Collaboration, Support, Reliability, Objectivity, Challenge, and Drive. The categories are not spaced in a perfectly even manner, but, again, this standard is almost impossible to meet with real data.

Summary of the Validation Results

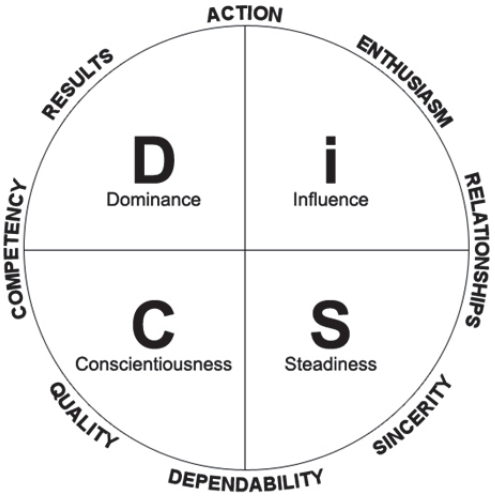
Overall, both of these studies provide strong support for the Everything DiSC® Management model. Two separate data sets addressing management priorities from the perspective of both managers and employees confirm that the eight priorities are arranged in a circular fashion in the predicted order. This type of empirical support should give managers confidence that the Everything DiSC Management model accurately reflects real-life management environments and is useful for understanding various approaches to management.

Section 3: *Everything DiSC® Sales* Research

Background

The application-specific model used in the *Everything DiSC® Sales Profile*, shown in Figure 8, helps salespeople better understand themselves and their customers. In this model, the eight words around the map indicate the priorities of both customers and salespeople of different DiSC® styles during sales interactions. For example, the priorities of "i" salespeople and customers are Enthusiasm, Action, and Relationships. The development of this model was based on empirical data gathered from both customers and salespeople.

Figure 8. Everything DiSC Sales Model



The Research

First, participants (N=1,047) were presented with a series of statements and asked the importance of each when working with a salesperson. For instance, participants were asked to rate the importance of "Working with a salesperson who is friendly and personable" on a five-point scale, ranging from "Not Important" (1) to "Vitally Important" (5). Statements were grouped into eight categories that represent the eight priorities on the circle above. Each category contained two to four statements. The individual statements for each category are shown in Table 20.

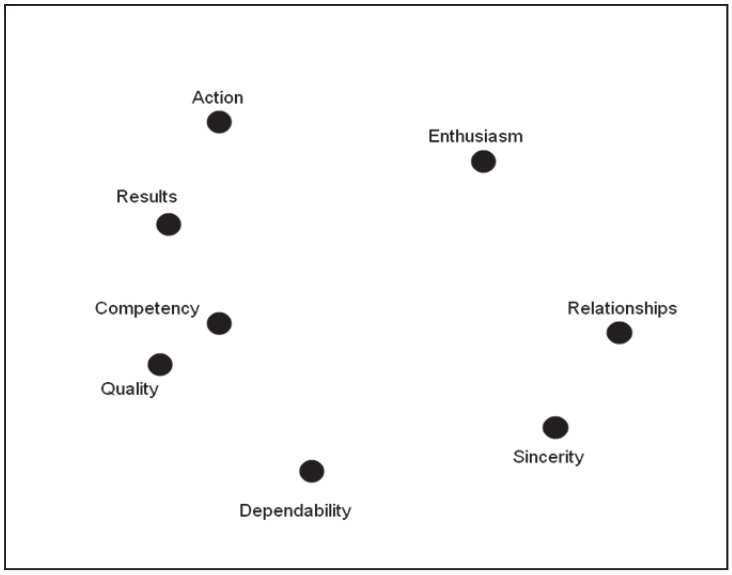
Table 20. Statements Used to Measure the Priorities from the Customer's Perspective

Priority	Statement
ACTION	Being assured that things will happen quickly and easily once I make a decision
ACTION	Getting things moving as soon as possible after the sale
ENTHUSIASM	Seeing a product/service that I'm excited about
ENTHUSIASM	Working with salespeople who are enthusiastic and passionate about the product/service
RELATIONSHIPS	Working with salespeople who are friendly and personable
RELATIONSHIPS	Working with salespeople that I connect with
RELATIONSHIPS	Knowing that the salesperson doesn't see me as just another sales opportunity
RELATIONSHIPS	Working with a sales person I enjoy talking to
SINCERITY	Working with salespeople who are sincere
SINCERITY	Working with salespeople who I sense are genuinely looking out for my best interest
SINCERITY	Working with a salesperson who genuinely seems to care about my needs and concerns
SINCERITY	Working with a salesperson who is a good listener
DEPENDABILITY	Being sure that the salesperson is dependable
DEPENDABILITY	Working with salespeople who are thorough, careful, and responsible
QUALITY	Being sure that I'm getting the highest quality
QUALITY	Seeing demonstrations of the quality of the product/service
COMPETENCY	Being sure that the salesperson is competent to handle my business
COMPETENCY	Working with salespeople who are experts in their field
RESULTS	Having salespeople show me how I can get immediate, practical results
RESULTS	Seeing how the product/service can have a big impact on my success
RESULTS	Seeing the immediate benefits of the product/service

After participants rated each statement, the average response for statements within a priority category was calculated. Consequently, all participants had a category score for all eight priorities. These category scores were then ipsatized by subtracting a mean score across all statements. Ipsatizing controls for response bias and ensures that the category scores reflect the relative importance of the eight priorities for a particular participant.

The category scores were then submitted to a multidimensional scaling analysis. This analysis allows researchers to look at the relationship among the eight categories and determine if the categories relate to each other in the manner that the model predicts. The results of the analysis are presented below. Categories that are closer together share more in common, and categories that are farther apart are more dissimilar.

Figure 9. Multidimensional Scaling Results for Customers



As expected, the eight priorities are arranged in a circular shape, with the priorities arranged in the manner predicted by the sales model. That is, the sequence around the circle proceeds as follows: Action, Enthusiasm, Relationships, Sincerity, Dependability, Quality, Competency, and Results. Although the eight scales do not form a perfectly equidistant circle (as predicted by the model), this theoretical ideal is nearly impossible to obtain with actual data.

Because the Everything DiSC® Sales model speaks to the priorities of salespeople as well as customers, a second sample of data was collected on salespeople (N=1,800).

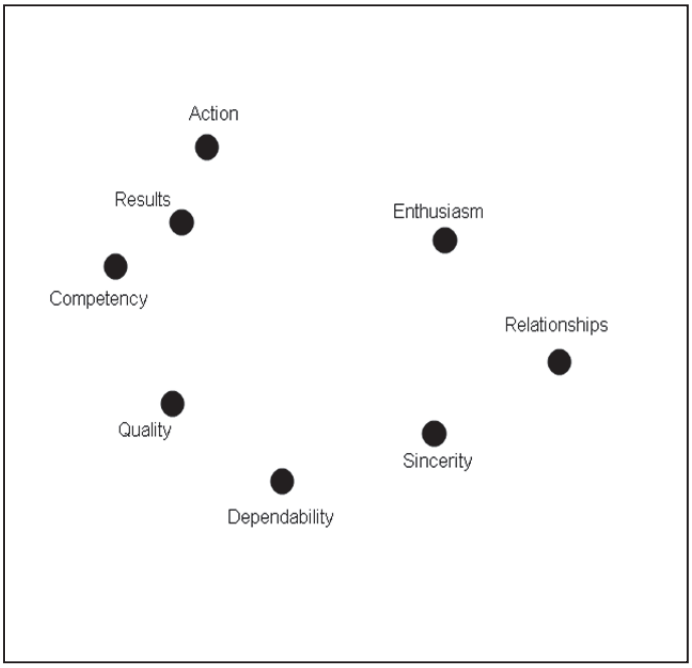
In this study, salespeople were presented with sales behaviors such as “Showing the customer that you're an expert in your field,” and asked to rate the importance of each statement on a five-point scale, ranging from “Not Important” (1) to “Vitally Important” (5). Each category contained three to five statements. Sample statements for each category are shown in Table 21.

Table 21. Statements Used to Measure the Priorities from the Salesperson's Perspective

Priority	Statement
ACTION	Showing the customer that you can make things happen quickly and easily
ACTION	Helping the customer see how they can use your product/service immediately
ACTION	Inspiring the customer that your product/service can help them right away
ENTHUSIASM	Getting the customer excited about your product/service
ENTHUSIASM	Creating enthusiasm in the customer
ENTHUSIASM	Having fun with the customer
RELATIONSHIPS	Developing a comfortable, friendly relationship with the customer
RELATIONSHIPS	Building a personal connection with the customer
RELATIONSHIPS	Being friendly, warm, and personable
RELATIONSHIPS	Showing that you care about the customer as a person, not just as a customer
RELATIONSHIPS	Showing the customer that you empathize with his/her needs and concerns
SINCERITY	Showing that you're sincere
SINCERITY	Showing that you're genuinely looking out for the customer's best interest
SINCERITY	Showing that you truly care about the customer's problems
DEPENDABILITY	Showing that you and your product/service are a dependable choice
DEPENDABILITY	Showing that you'll be available to provide support after the sale
DEPENDABILITY	Showing that you're thorough and careful
QUALITY	Explaining the quality of your product/service
QUALITY	Showing that you can back up your claims with evidence
QUALITY	Making sure customers get all of the information they need to make an informed decision
COMPETENCY	Demonstrating your expertise on the product/service you're selling
COMPETENCY	Showing the customer that you're an expert in your field
COMPETENCY	Showing the customer that you can get things done without wasting a lot of their time
COMPETENCY	Backing up claims with specific information
RESULTS	Showing the customer how you can get them immediate, practical results
RESULTS	Showing the customer that you can have an impact on their success
RESULTS	Getting the customer to see the benefits of your product/service

As described in the previous study, statement ratings within a priority category were averaged and ipsatized to arrive at a category score. The category scores were then submitted to a multidimensional scaling analysis. The results of this analysis are shown in Figure 10.

Figure 10. Multidimensional Scaling Results for Salespeople



As with the customer data, the priority categories are arranged in a circle. Further, the categories are plotted in the expected order: Action, Enthusiasm, Relationships, Sincerity, Dependability, Quality, Competency, and Results. The categories are not spaced in a perfectly even manner, but again, this standard is almost impossible to meet with real data.

Summary of the Validation Results

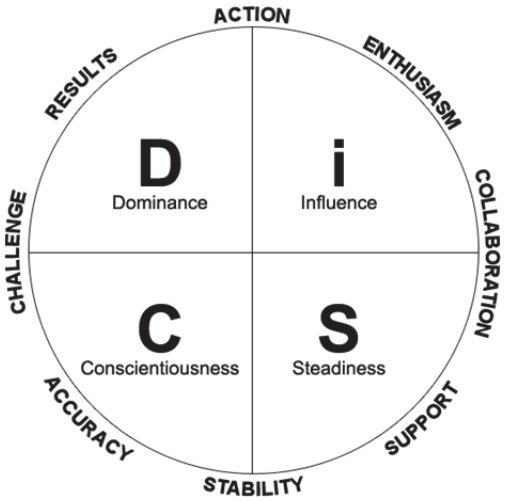
Overall, both of these studies provide strong support for the Everything DiSC Sales® model. Two separate data sets addressing both customers' and salespeople's priorities confirm that the eight priorities are arranged in a circular fashion in the predicted order. This type of empirical support should give salespeople confidence that the Everything DiSC Sales model accurately reflects real-life sales environments and is useful for understanding themselves and their customers.

Section 4: *Everything DiSC Workplace®* Research

Background

The application-specific model used in the *Everything DiSC Workplace® Profile*, shown to the right, helps people better understand how they approach their work. In this model, the eight words around the map indicate the work priorities of people with different DiSC® styles. For example, the top priorities of people with the "C" style are Accuracy, Stability, and Challenge. The development of this model was based on empirical data gathered from working adults.

Figure 11. Everything DiSC Workplace Model



The Research

First, participants (N=2,270) were presented with a series of statements describing work tasks and asked to rate the importance of each task to job effectiveness. For instance, participants were asked to rate the importance of "Speaking up about problems" on a five-point scale, ranging from "Not Important" (1) to "Crucially Important" (5). Statements were grouped into eight categories that represent the eight priorities on the circle in Figure 11. Each category contained three statements that were used to form a scale. The 24 individual statements are shown in Table 22.

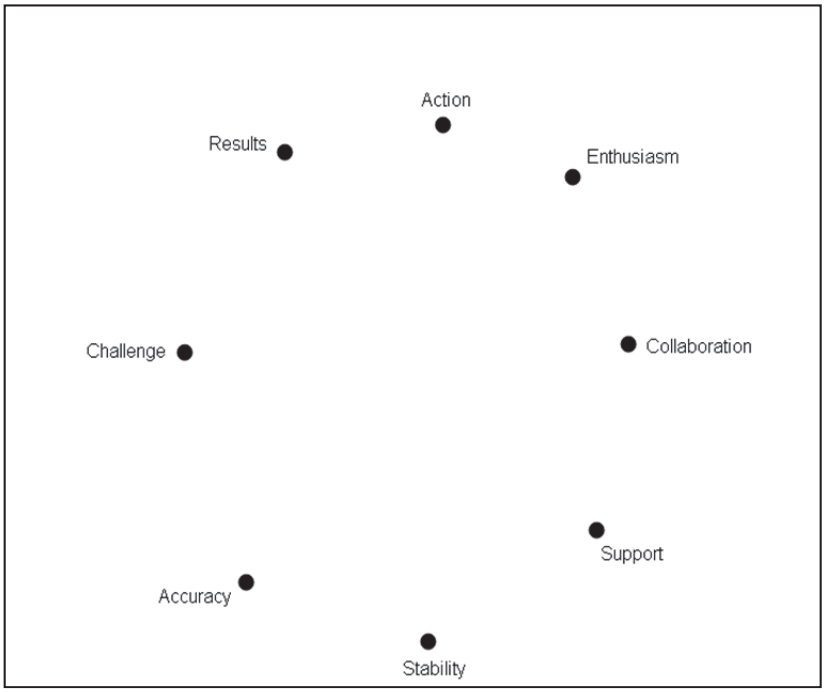
After participants rated each statement, these statements were ipsatized by subtracting a mean score across all statements. Ipsatizing controls for response bias and ensures that the item ratings reflect the relative importance of the eight priorities for a particular participant. The average ipsatized response for statements within a priority category was then calculated. Consequently, all participants had a category score for all eight priorities.

Table 22. Statements Used to Measure Each of the Eight Workplace Priorities

Priority	Statement
ACTION	Remaining active
ACTION	Being on the lookout for new opportunities
ACTION	Being open to taking risks
ENTHUSIASM	Showing enthusiasm for the projects you are working on
ENTHUSIASM	Being optimistic about the work you are doing
ENTHUSIASM	Encouraging people to have fun at work
COLLABORATION	Communicating frequently with the people you work with
COLLABORATION	Taking opportunities to collaborate with other people
COLLABORATION	Encouraging teamwork
SUPPORT	Letting people know that you are there to help out if they need it
SUPPORT	Being patient with other people's mistakes
SUPPORT	Delivering feedback in a tactful manner
STABILITY	Working at a consistent, steady pace
STABILITY	Creating schedules for projects
STABILITY	Following established rules or procedures
ACCURACY	Taking extra time to ensure quality
ACCURACY	Making decisions that are based on logic, not emotion
ACCURACY	Taking time to analyze choices in-depth before making a decision
CHALLENGE	Speaking up about problems
CHALLENGE	Questioning ideas that don't seem logical
CHALLENGE	Questioning procedures or practices that aren't efficient
RESULTS	Being direct with your opinions and ideas
RESULTS	Constantly pushing yourself toward new goals
RESULTS	Setting high expectations for yourself and others

The category scores were then submitted to a multidimensional scaling analysis. This analysis allows researchers to look at the relationship among the eight categories and determine if the categories relate to each other in the manner predicted by the model. The results of the analysis are presented in Figure 12. Categories that are closer together share more in common and categories that are farther apart are more dissimilar.

Figure 12. Multidimensional Scaling Results



As expected, the eight priorities are arranged in a circular shape, with the priorities arranged in the manner predicted by the Everything DiSC Workplace® model. That is, the sequence around the circle proceeds: Action, Enthusiasm, Collaboration, Support, Stability, Accuracy, Challenge, and Results. Although the eight priority scales do not form a perfectly equidistant circle, this theoretical ideal is nearly impossible to obtain with actual data.

Summary of the Validation Results

Overall, this study provides strong support for the Everything DiSC Workplace model. Data from a large sample of working adults suggest that the eight priorities are arranged in a circular fashion in the predicted order. This type of empirical support should give DiSC® participants confidence that the Everything DiSC Workplace model accurately reflects real-life workplace environments and is useful for understanding various approaches to work.

Section 5: *Everything DiSC Work of Leaders®* Research

Background

The Everything DiSC Work of Leaders® assessment includes 75 items in addition to the basic Everything DiSC assessment. These items are necessary to measure the 18 additional scales included on the *Everything DiSC Work of Leaders Profile*.

Each of these items is comprised of two statements placed at opposite ends of a four-point continuum. The rater is asked to choose the point on the continuum that best describes him or her. For instance, one continuum has the statement "I am an optimist" on one end and the statement "I am a realist" on the other. Each scale is standardized to have a mean of 0 and standard deviation of 1.

The Validation Process

The analyses presented below are based on a sample of 349 participants. The sample is 52% female and 48% male. Within the sample, 90% of participants are between the ages of 25 and 60. The majority of participants (52%) have at least some college. Ethnic backgrounds are as follows: African American (6%), Asian American (5%), Caucasian (79%), Hispanic (6%), Native American (1%), and other (3%).

Internal Reliability

The median internal reliability alpha coefficient for these 18 scales was .81, as shown in Table 23. The alphas range from .69 to .89. These results indicate that the Work of Leaders scales demonstrate good to excellent internal reliability. These findings also suggest that each of these scales measures a single, unified construct.

Intercorrelations Among the Work of Leaders Scales

Intercorrelations among the 18 Work of Leaders scales are shown in Tables 24 and 25. Coefficients range from -.90 to .80, with a median of .04. Many of the stronger correlations are the result of overlapping items among the scales. For instance, the Praise scale, which measures a tendency to give praise to others at work, has many items in common with the Receptive scale, which measures a tendency to come across as warm and welcoming.

Overall, correlations are as expected and do not present many surprises. For instance, we would expect a high positive correlation between the Adventurous scale and the Speaking Out scale, whereas we would expect a high negative correlation between the Adventurous scale and the Planning scale.

Table 23. Internal Reliability Coefficients for Work of Leaders Scales

WOL Scale	Alpha	# Items
Remaining Open	.71	8
Prioritizing the Big Picture	.69	8
Being Adventurous	.75	7
Speaking Out	.85	13
Seeking Counsel	.74	4
Exploring Implications	.86	9
Explaining Rationale	.72	5
Structuring Messages	.80	5
Exchanging Perspectives	.72	14
Being Receptive	.89	30
Being Expressive	.88	14
Being Encouraging	.86	12
Being Driven	.86	19
Initiating Acton	.87	13
Providing a Plan	.74	9
Analyzing In-Depth	.75	9
Addressing Problems	.85	22
Offering Praise	.82	11
Median	.81	10

Table 24. Intercorrelations Among Work of Leaders Scales

	Remaining Open	Prioritizing Big Picture	Being Adventurous	Speaking Out	Seeking Counsel	Exploring Implications	Explaining Rationale	Structuring Messages	Exchanging Perspectives
Remaining Open		.73	.27	.31	.04	-.42	-.33	-.35	-.05
Prioritizing Big Picture	.73		.32	.33	.14	-.43	-.37	-.47	.03
Being Adventurous	.27	.32		.66	.02	-.23	.02	-.19	-.29
Speaking Out	.31	.33	.66		.06	-.21	-.03	-.25	-.38
Seeking Counsel	.04	.14	.02	.06		-.02	-.10	-.07	.70
Exploring Implications	-.42	-.43	-.23	-.21	-.02		.53	.54	.06
Explaining Rationale	-.33	-.37	.02	-.03	-.10	.53		.40	-.19
Structuring Messages	-.35	-.47	-.19	-.25	-.07	.54	.40		.05
Exchanging Perspectives	-.05	.03	-.29	-.38	.70	.06	-.19	.05	
Being Receptive	-.14	-.09	-.25	-.34	.35	.06	-.21	.08	.71
Being Expressive	.18	.23	.52	.80	.23	-.15	-.13	-.20	-.14
Being Encouraging	.12	.18	.10	.19	.44	-.04	-.27	-.04	.49
Being Driven	.17	.17	.62	.72	-.10	-.17	.08	-.11	-.56
Initiating Action	.31	.37	.72	.76	.11	-.15	.02	-.19	-.23
Providing a Plan	-.71	-.90	-.32	-.29	-.13	.64	.42	.57	-.01
Analyzing In-Depth	-.01	-.11	.07	.15	-.15	.56	.59	.43	-.23
Addressing Problems	.17	.16	.40	.56	-.20	-.07	.23	-.13	-.64
Offering Praise	-.03	.04	.01	.03	.43	.04	-.17	.04	.59

Table 25. Intercorrelations Among Work of Leaders Scales (continued)

	Being Expressive	Being Encouraging	Being Driven	Initiating Action	Providing a Plan	Analyzing In-Depth	Addressing Problems	Offering Praise
Remaining Open	.18	.12	.17	.31	-.71	-.01	.17	-.03
Prioritizing Big Picture	.23	.18	.17	.37	-.90	-.11	.16	.04
Being Adventurous	.52	.10	.62	.72	-.32	.07	.40	.01
Speaking Out	.80	.19	.72	.76	-.29	.15	.56	.03
Seeking Counsel	.23	.44	-.10	.11	-.13	-.15	-.20	.43
Exploring Implications	-.15	-.04	-.17	-.15	.64	.56	-.07	.04
Explaining Rationale	-.13	-.27	.08	.02	.42	.59	.23	-.17
Structuring Messages	-.20	-.04	-.11	-.19	.57	.43	-.13	.04
Exchanging Perspectives	-.14	.49	-.56	-.23	-.01	-.23	-.64	.59
Being Receptive	-.09	.65	-.63	-.20	.10	-.24	-.86	.71
Being Expressive		.40	.56	.65	-.17	.04	.34	.29
Being Encouraging	.40		-.15	.23	-.12	-.14	-.39	.80
Being Driven	.56	-.15		.64	-.16	.19	.71	-.28
Initiating Action	.65	.23	.64		-.31	.18	.39	.12
Providing a Plan	-.17	-.12	-.16	-.31		.30	-.14	.01
Analyzing In-Depth	.04	-.14	.19	.18	.30		.26	-.13
Addressing Problems	.34	-.39	.71	.39	-.14	.26		-.50
Offering Praise	.29	.80	-.28	.12	.01	-.13	-.50	

Correlations Among Work of Leaders Scales and DiSC® Scales

Correlations among the Everything DiSC Work of Leaders® scales and the DiSC® scales are shown in Table 26. These correlations are largely as expected. The largest positive correlation for each of the DiSC scales is as follows: Di-Adventurous, i-Expressive, iS-Encouraging, S-Receptive, SC-Exchanging Perspectives, C-Providing a Plan, CD-Addressing Problems, D-Addressing Problems. Most Work of Leaders scales show a significant correlation with several of the DiSC scales. Further, the pattern of these correlations is consistent with the DiSC circumplex model. That is, if a given Work of Leaders scale has a high positive correlation with a particular DiSC scale, then the Work of Leaders scale has a high negative correlation with the DiSC scale on the opposite side of the DiSC circumplex. The correlations range from -.85 to .87, with a median of .01.

Table 26. Correlations Among Work of Leaders Scales and DiSC® Scales

Work of Leaders Scales	DiSC Scales							
	DI	I	IS	S	SC	C	CD	D
Remaining Open	.22	.11	.02	-.14	-.16	-.24	.08	.15
Prioritizing Big Picture	.23	.19	.09	-.12	-.22	-.34	.08	.17
Being Adventurous	.83	.44	.04	-.27	-.73	-.44	-.03	.46
Speaking Out	.71	.51	.05	-.46	-.85	-.44	.16	.70
Seeking Counsel	.09	.38	.43	.22	-.10	-.46	-.32	-.12
Exploring Implications	-.13	-.14	-.07	.12	.14	.24	-.10	-.15
Explaining Rationale	.05	-.17	-.28	-.11	-.02	.26	.09	.08
Structuring Messages	-.11	-.17	-.05	.13	.16	.23	-.10	-.17
Exchanging Perspectives	-.26	.18	.57	.67	.31	-.28	-.54	-.65
Being Receptive	-.21	.25	.75	.78	.23	-.27	-.74	-.65
Being Expressive	.61	.74	.28	-.29	-.79	-.59	-.02	.52
Being Encouraging	.14	.53	.87	.39	-.25	-.52	-.60	-.23
Being Driven	.64	.27	-.29	-.72	-.71	-.16	.44	.74
Initiating Action	.83	.50	.09	-.29	-.75	-.44	-.04	.47
Providing a Plan	-.20	-.18	-.07	.14	.17	.34	-.10	-.16
Analyzing In-Depth	.13	-.14	-.23	-.17	-.12	.23	.11	.12
Addressing Problems	.36	.01	-.53	-.76	-.46	.01	.61	.75
Offering Praise	.04	.47	.79	.54	-.11	-.43	-.68	-.33

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Section 6: *Everything DiSC® Comparison Report* Research

Background

The *Everything DiSC® Comparison Report* allows any two Everything DiSC participants to see their similarities and differences in six areas. The report includes a narrative that explains these similarities and differences and guides participants in a discussion around them. Overall, the purpose of this report is to improve communication and efficiency, while reducing tension and misunderstandings.

The *Everything DiSC Comparison Report* begins with a brief comparison of the two participants' DiSC® styles. Each participant's style is calculated from the participant's responses to the Everything DiSC assessment (discussed in Section 1 of this report). The focus of this section of the research report is on the continua contained in the second section of the *Everything DiSC Comparison Report*. Figure 13 shows an example of one such continuum.

Figure 13. Continuum example

Selection of the Continua within Each Report

For each report, nine continua are calculated. The names of these continua are shown in Table 27. However, only the six continua that are expected to generate the most meaningful discussion for the participants are presented in the *Comparison Report*. This ensures that participants are not overwhelmed by the information and are better able to focus their discussions on meaningful topics.

Table 27. Everything DiSC® Comparison Report Continua

Soft-spoken — Forceful
Daring — Careful
Patient — Driven
Skeptical — Accepting
Outgoing — Private
Tactful — Frank
Accommodating — Strong-willed
Lively — Reserved
Calm — Energetic

A panel of DiSC® subject matter experts reviewed each possible pairing on all nine continua and developed an algorithm to determine which six continua would be presented within a given *Everything DiSC® Comparison Report*. The decision rules used in creating this algorithm include:

- If possible, at least two continua showing similarities should be presented.
- If possible, at least two continua showing differences should be presented.
- Continua on which there are larger differences are more likely to be presented than continua on which there are smaller differences.
- Among continua that have very high statistical correlations or conceptual overlap, only the continuum judged to be most meaningful should be presented.

Although other decision rules were used to create this algorithm, those presented above represent the major criteria. Within the report, the largest differences are presented first and the smallest differences (or greatest similarities) are shown last.

Scoring of the Continua

Each of the nine continua are calculated using the same item responses that are used to calculate a participant's DiSC style. Although there is substantial overlap in the items used to calculate DiSC style and continua scores, an individual's continua scores are calculated separately from his or her DiSC style. Therefore, it is possible to have a person who tends toward the S style, for example, who is more Daring than Careful on that particular continuum, even though this is quite atypical for people with the S style. The number of items on each continuum scale range from four to 11, with a median of eight.

Internal Reliability

Alpha internal reliability coefficients were calculated for each of the nine continua, as shown in Table 28, using a sample of 752 participants. These coefficients range from .74 to .88, with a median reliability of .78. Therefore, these scales demonstrate adequate to excellent internal consistency. This finding suggests that each of these continua scales is measuring a single, unified construct.

Table 28. Alpha Coefficients of the Continua Scales

Continua Scale	Number of Items	Alpha
Soft-spoken Forceful	13	.85
Daring Careful	7	.75
Patient Driven	10	.74
Skeptical Accepting	12	.82
Outgoing Private	8	.88
Tactful Frank	8	.75
Accommodating Strong-willed	11	.75
Lively Reserved	12	.85
Calm Energetic	11	.78

Intercorrelations Among the Continua Scales

Intercorrelations among the continua scales were calculated using a sample of 752 participants. As shown in Table 29, many of the scale correlations are quite high, likely because these scales contain overlapping items. Although these scales may appear repetitive, they are included because each is used to help facilitate a different discussion between participants. For instance, the Calm-Energetic scale correlates at -.83 with the Outgoing-Private scale. The Calm-Energetic scale, however, is used to facilitate a discussion about the pace at which participants choose to complete tasks. On the other hand, the Outgoing-Private scale is used to facilitate a discussion about such topics such as the need for personal space versus the need for interaction.

Table 29. Continua Scale Intercorrelations

Continua Scales	Soft-spoken Forceful	Daring Careful	Patient Driven	Skeptical Accepting	Outgoing Private	Tactful Frank	Accommodating Strong-willed	Lively Reserved	Calm Energetic
Soft-spoken — Forceful	-	-.59	.62	-.21	-.62	.66	.50	-.75	.64
Daring — Careful	-.59	-	-.74	.01	.50	-.33	-.24	.59	-.69
Patient — Driven	.62	-.74	-	-.07	-.48	.35	.26	-.63	.82
Skeptical — Accepting	-.21	.01	-.07	-	-.31	-.58	-.66	-.15	.06
Outgoing — Private	-.62	.50	-.48	-.31	-	-.13	.01	.89	-.63
Tactful — Frank	.66	-.33	.35	-.58	-.13	-	.78	-.29	.31
Accommodating — Strong-willed	.50	-.24	.26	-.66	.01	.78	-	-.14	.19
Lively — Reserved	-.75	.59	-.63	-.15	.89	-.29	-.14	-	-.83
Calm — Energetic	.64	-.69	.82	.06	-.63	.31	.19	-.83	-

Summary of the Validation Results

Overall, this research provides strong support for the *Everything DiSC® Comparison Report* continua scales. Data from a large sample of working adults suggest these scales have good internal reliability and accurately reflect participants' self-perceptions. This type of empirical support should give DiSC® participants confidence that the *Everything DiSC Comparison Report* provides a solid foundation for participants to discuss their similarities and differences as a basis for relationships that are more productive and enjoyable.

Section 7: Appendices

Appendix 1. Everything DiSC® Assessment Development Sample Demographics

Gender	Male	52 %
	Female	48 %
Age	18-25	9 %
	26-35	24 %
	36-45	21 %
	46-55	30 %
	56 or older	16 %
Education	Some high school	1 %
	High school graduate	16 %
	Technical/Trade school	9 %
	Some college	28 %
	College graduate	32 %
	Graduate/Professional degree	14 %
Heritage	African American	5 %
	Native American	1 %
	Asian American	5 %
	Caucasian	80 %
	Hispanic	6 %
	Other	3 %
Employment	Secretary/Clerical	7 %
	Executive	3 %
	Mid-Level Management	6 %
	Supervisory	2 %
	Professional	10 %
	Mechanical-Technical	2 %
	Customer Service	3 %
	Sales	4 %
	Healthcare Worker	3 %
	Teacher/Educator	6 %
	Skilled Trades	4 %
	Student	2 %
	Other	48 %

(N=752)

Appendix 2. Everything DiSC® Assessment Gender Differences

It is important to understand the relationship between gender and profile score. An analysis of variance (ANOVA) was performed on the eight scale means across gender groups to determine any differences. These differences are generally small. The largest differences are seen on the S scale, in which gender accounted for 6.2% of scale variance. Women tended to score higher on the I, IS, S and SC scales, and men tended to score higher on the D, DI, C, and DC scales. Although statistically significant differences were found on five of the eight scales, in practical terms these differences are not large.

Percent of Variance Accounted for by Gender

Scale	%
D	5.1
Di	2.3
i	0.1
iS	5.2
S	6.2
SC	0.2
C	2.4
CD	4.2

(N=752)

Appendix 3. Correlation between the Everything DiSC Assessment and the 16PF

16PF® Scale	DiSC® Scale							
	DI	**I**	**IS**	**S**	**SC**	**C**	**CD**	**D**
Warmth	.15	.45	.49	.25	-.30	-.51	-.31	-.01
Reasoning	-.16	-.24	-.18	-.11	.08	.23	.23	.01
Emotional Stability	.21	.31	.38	.17	-.22	-.31	-.33	-.01
Dominance	.54	.28	-.14	-.45	-.63	-.24	.19	.63
Liveliness	.42	.62	.37	.06	-.45	-.55	-.27	.09
Rule Consciousness	-.21	-.03	.18	.23	.11	.07	-.23	-.20
Social Boldness	.52	.70	.35	-.10	-.66	-.60	-.19	.33
Sensitivity	-.17	.01	.15	.18	.10	-.05	-.05	-.19
Vigilance	.07	-.15	-.33	-.27	-.04	.10	.31	.23
Abstractedness	.09	-.07	-.21	-.23	-.02	.01	.24	.15
Privateness	-.21	-.39	-.31	-.04	.31	.33	.17	-.10
Apprehension	-.29	-.26	-.11	.06	.22	.22	.18	-.21
Openness to Change	.36	.19	.00	-.16	-.38	-.23	.08	.24
Self Reliance	-.25	-.47	-.39	-.17	.28	.51	.30	.01
Perfectionism	.10	.05	.00	.00	-.11	.15	-.12	-.01
Tension	-.05	-.18	-.43	-.45	-.03	.24	.55	.20
Extraversion	.41	.70	.51	.12	-.52	-.67	-.34	.12
Anxiety	-.18	-.31	-.41	-.26	.15	.30	.45	.06
Tough Mindedness	-.16	-.18	-.12	.02	.23	.26	-.04	-.08
Independence	.60	.42	-.04	-.40	-.71	-.38	.14	.60
Self Control	-.18	-.12	.07	.18	.11	.23	-.18	-.17
Realistic	.22	-.05	-.19	-.19	-.08	.09	.03	.20
Investigative	.06	-.23	-.31	-.22	.05	.26	.17	.13
Artistic	.36	.40	.16	-.11	-.45	-.41	.00	.23
Social	.30	.56	.45	.12	-.49	-.57	-.26	.14
Enterprising	.53	.53	.21	-.17	-.65	-.50	-.10	.44
Conventional	.06	.06	.07	.06	-.08	.08	-.18	-.02
Self Esteem	.39	.52	.40	.07	-.46	-.48	-.32	.17
Emotional Adjustment	.24	.32	.33	.15	-.21	-.30	-.36	.04
Social Adjustment	.51	.68	.38	-.06	-.64	-.60	-.24	.32
Emotional Expressivity	.56	.56	.12	-.32	-.69	-.48	.07	.50
Emotional Sensitivity	.27	.45	.42	.14	-.42	-.52	-.23	.10
Emotional Control	.01	-.16	-.18	-.10	.07	.13	.07	.09
Social Expressivity	.55	.74	.41	-.04	-.67	-.66	-.24	.27
Social Sensitivity	-.37	-.26	-.09	.10	.30	.21	.15	-.22
Social Control	.53	.62	.30	-.13	-.67	-.52	-.16	.35
Empathy	.37	.60	.56	.22	-.44	-.57	-.44	.05
Leadership Potential	.47	.60	.40	.04	-.55	-.49	-.33	.20
Creative Potential	.62	.51	.07	-.32	-.72	-.41	.02	.51
Creative Achievement	.37	.19	-.09	-.27	-.35	-.11	.12	.26

N=552

Appendix 4. Correlation between the Everything DiSC Assessment and the NEO-PI-R

NEO-PI-R™ Scale	DiSC® Scale							
	DI	**I**	**IS**	**S**	**SC**	**C**	**CD**	**D**
Neuroticism	-.31	-.29	-.26	-.12	.26	.31	.28	-.10
Extraversion	.45	.69	.52	.10	-.57	-.63	-.34	.15
Openness to Experience	.27	.10	.06	-.05	-.27	-.10	-.03	.10
Agreeableness	-.40	-.01	.52	.67	.35	-.05	-.48	-.58
Conscientiousness	.26	.09	.00	-.07	-.27	.11	-.11	.10
Anxiety	-.29	-.22	-.18	-.06	.23	.23	.23	-.10
Angry Hostility	.01	-.13	-.46	-.53	-.04	.17	.51	.30
Depression	-.30	-.34	-.30	-.08	.32	.30	.27	-.10
Self Consciousness	-.40	-.48	-.27	.00	.44	.41	.23	-.23
Impulsiveness	-.08	-.08	-.21	-.27	-.01	.05	.35	.14
Vulnerability	-.35	-.21	-.19	-.04	.34	.18	.21	-.14
Warmth	.25	.60	.61	.29	-.41	-.55	-.43	-.03
Gregariousness	.40	.65	.41	.16	-.42	-.59	-.36	.06
Assertiveness	.68	.49	.11	-.30	-.75	-.41	-.04	.55
Activity	.57	.47	.12	-.23	-.57	-.33	-.11	.32
Excitement Seeking	.51	.37	.11	-.09	-.42	-.32	-.13	.19
Positive Emotions	.25	.50	.57	.21	-.35	-.44	-.41	-.06
Fantasy	.15	.05	.04	-.04	-.15	-.11	.05	.06
Aesthetics	.20	.16	.14	.06	-.17	-.15	-.15	-.02
Feelings	.14	.23	.22	.02	-.29	-.20	-.07	.09
Actions	.43	.34	.16	.01	-.34	-.34	-.16	.09
Ideas	.33	.10	-.01	-.15	-.35	-.04	-.01	.23
Values	.08	.01	.02	.00	-.14	-.04	.06	.02
Trust	.03	.26	.55	.39	-.08	-.27	-.47	-.21
Straightforwardness	-.28	-.03	.27	.39	.24	.05	-.27	-.35
Altruism	.02	.28	.53	.47	-.13	-.27	-.42	-.27
Compliance	-.27	-.01	.47	.65	.41	.00	-.55	-.63
Modesty	-.39	-.21	.09	.31	.37	.16	-.08	-.35
Tender Mindedness	.00	.16	.37	.27	-.12	-.18	-.28	-.12
Competence	.33	.19	.16	.05	-.35	-.07	-.21	.08
Order	.18	.12	.07	.06	-.16	.07	-.17	-.04
Dutifulness	.11	.11	.19	.16	-.17	.00	-.22	-.06
Achievement Striving	.48	.31	.11	-.11	-.44	-.15	-.19	.20
Self Discipline	.30	.23	.18	.05	-.29	-.11	-.26	.08
Deliberation	-.12	-.11	.09	.26	.15	.18	-.22	-.26

N=694

Appendix 5. References

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