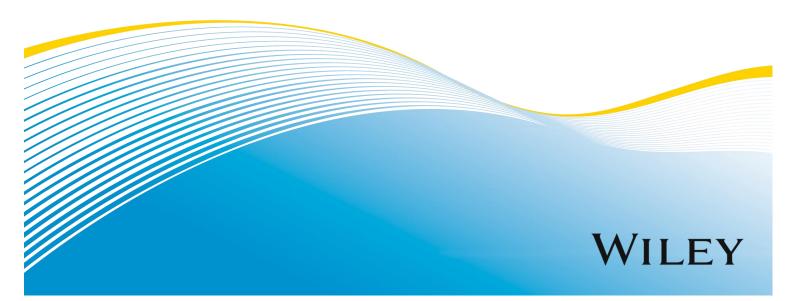# Chinese Validation Addendum

to the Everything DiSC® Research Report for the **Everything DiSC Workplace**® Assessment

WILEY

Chinese Validation: Everything DiSC Workplace®

The purpose of this **Addendum** is to expand the *Everything DiSC® Research Report for Adaptive Testing Assessment* by John Wiley & Sons, Inc. (2015) with validation results from research conducted on the Chinese *Everything DiSC Workplace®* assessment. Included in this addendum are descriptions of the translation and validation of the Chinese *Everything DiSC Workplace* items and continua scale items. For information about the background and research on *Everything DiSC®* and the circumplex representation of the DiSC® model, including information about the validation process, please consult the **Everything DiSC® Research Report for Adaptive Testing Assessment** (hereafter referred to as the AT Research Report).

Description of the Chinese Validation of Everything DiSC Workplace

Population

From June 15 to August 21, 2015, a total of 3,279 Chinese-speaking men (49.9%) and women (50.1%) responded to a total of 256 items. The tested items belonged to a pool of potential items for *Everything DiSC* products including *Everything DiSC Workplace*. Authorized Partners recruited participants through email invitations. Wiley also directly contacted non-authorized Partners who recruited participants through email invitations. To ensure a representative sample, data was weighted on gender and age (see Table 1).

Table 1. Everything DiSC Assessment Development, Chinese Sample Demographics

Gender	Male	49.9%
	Female	50.1%
Age	18–25	14.0%
	26–30	26.5%
	31–35	29.2%
	36–40	16.3%
	41–45	8.4%
	46–50	3.3%
	51–55	1.4%
	56–60	0.7%
	61 and older	0.2%
Education	Primary School (小学)	24.3%
	Junior High School (初中)	6.9%
	Senior Middle School (高中)	2.7%

	College/Technical School (大专/技术学校)	36.2%
	Undergraduate/Graduate (大学本科或研究生)	21.8%
Citizenship	Chinese (中国)	96.7%
	Hong Kong (香港)	1.8%
	Taiwan (台湾)	0.8%
	Other	0.7%
Ethnicity	Asian (亚洲)	92.3%
	African (非洲)	1.6%
	Other	6.1%
Industry	Manufacturing (制造业)	17.3%
	Finance/Insurance/Real Estate (金融/保险/房地产)	14.7%
	IT	12.5%
	Education Services (教育服务)	9.9%
	Business Services (商业服务)	9.5%
	Health Services (健康服务)	6.8%
	Wholesale and Retail (批发/零售)	4.4%
	Building (建筑)	1.6%
	Transportation/Utilities (运输/公用事业)	1.4%
	Public Administration (公共行政)	1.4%
	Other (其他)	20.5%
Occupation	Employees (Non-management) (员工（非管理人员）)	41.7%
	Middle Management (中层管理人员)	37.7%
	Senior Management (高层管理人员)	9.2%
	Student/Apprentice/Trainee (学生/学徒/学员)	4.7%
	Self-employed (自雇)	1.1%
	Other	5.6%

N = 3279

Translation of Items

The quality of the translation of the items was ensured through a six-step process: (1) The items were translated by a professional translator from English (source language) to Chinese (target language). The translator was a native speaker of the target language. (2) Another professional translator, also a native speaker of the target language, was then tasked with back-translating the items from the target language to the source language. (3) The original items and the back-translated items were reviewed by two bilingual subject-matter experts. (4) In situations where there were differences in meaning/connotations between the source and the back-translation, the issue was sent back to the first translator. (5) The translator looked at the differences and, when appropriate, argued why a word should remain the same or substituted a more suitable word to match the meaning of the original English item. (6) In situations where extra input was needed to aid the translation, the development team was contacted to establish the intended meaning/connotation of an item.

Reliability Measure: Internal Consistency for Everything DiSC Workplace Items

The AT Research Report includes an overview of the validation of the DiSC assessment, stressing the importance of testing internal consistency. Analysis of the internal consistency was performed on the Chinese items. This analysis 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* (in Chinese*: 我是个直率的人*), *I tend to be calm* (in Chinese: 我沉着冷静), *I am precise* (in Chinese: 我一丝不苟), and *I am sociable* (in Chinese: 我善于交际). 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 one another to some degree. In other words, all of the items on a scale should be consistent with one another. A statistic called Cronbach's alpha is usually regarded as the best method for evaluating internal consistency. This analysis was performed on the Chinese data to ensure that the construct developed and tested on a US population could be adapted to a Chinese population using the translated items and the Chinese test group. In order to leave room for local changes, the number of items tested was much larger than the number of items used in the US sample. As expected, the results show that the best fit of items for the eight DiSC scales in English and Chinese is similar but not identical. This explains minor differences between the Chinese and US construction of the scales, which, for instance, can be seen in the difference in number of base and extended items on a number of the scales.

Cronbach's alpha expresses the degree of consistency as a specific number, which typically varies between 0 and 1. If the value of alpha is 0, then there is no relationship among the items/statements that have been

grouped as a scale. On the other hand, if all the statements in an assessment 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 DiSC 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, suggesting that the respondent is being asked to respond to the same thing repeatedly, not providing any new information about the respondent.

Alpha coefficients were calculated for the Chinese sample. 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 .80.

Table 2. Internal Consistency of the Everything DiSC Scales in Chinese

Scale	Number of Items	Cronbach´s Alpha
Di	9	.85
I	7	.89
iS	8	.79
S	9	.82
SC	11	.80
C	12	.75
CD	12	.77
D	8	.77
N = 3279		

Construct Validity: Scale Intercorrelations for Workplace Scales

As part of examining the construct validity of the DiSC scales, the respondents' scores on the Chinese items for the eight DiSC scales were examined. The DiSC model proposes that adjacent scales (e.g., Di and i) will have only moderate correlations. That is, these correlations should be considerably smaller than the alpha reliabilities of the individual scales. For example, the correlation between the SC and S scales (.41) should be substantially lower than the alpha reliability of the SC (.80) or S (.82) scales. Moreover, scales that are theoretically opposite (e.g., i and C) should have strong negative correlations. Table 3 shows data obtained from a sample of 3,279 respondents who completed the *Everything DiSC* assessment in Chinese. The correlations among all eight scales show strong support for the model. That is, moderate positive

correlations are observed among adjacent scales, and strong negative correlations are observed between opposite scales.

Table 3. Scale Intercorrelations

	Di	I	iS	S	SC	C	CD	D
Di	**.85**							
i	.33	**.89**						
iS	.05	.35	**.79**					
S	-.33	-.21	.23	**.82**				
SC	-.60	-.55	-.15	.41	**.80**			
C	-.42	-.63	-.43	.09	.51	**.75**		
CD	-.11	-.28	-.47	-.44	-.00	.19	**.77**	
D	.23	.08	-.17	-.53	-.40	-.17	.33	**.77**

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 the two variables are completely unrelated. $N = 3,279$, as shown in Table 1.

Reliability Measure: Internal Consistency for Continua Scales

The *Everything DiSC Comparison Report* allows any two *Everything DiSC* participants to see their similarities and differences in six out of nine continua scales. These scales were also constructed on the Chinese items; the research findings are described below. As this is an addendum, please consult section 7 (Comparison Report Research) of the AT Research Report for information about the background of the scales and selection of the six out of nine possible continua.

Alpha internal reliability coefficients were calculated for each of the nine continua, as shown in Table 4, using a sample of 3,279 Chinese-speaking participants. These coefficients range from .71 to .81, with a median reliability of .73. Therefore, these scales demonstrate adequate to good internal consistency. This finding suggests that each of these continua scales is measuring a single, unified construct.

Table 4. Alpha Coefficients of the Continua Scales in Chinese

Continua Scale in English	Continua Scale in Chinese	Number of Items	Cronbach's Alpha
Patient – Driven	有耐心的 » 有紧迫感的	8	.73
Soft-spoken – Forceful	说话温柔的 » 言辞强有力的	9	.73
Outgoing – Private	乐于交际的 » 内向的	11	.81
Calm – Energetic	沉着冷静的 » 充满活力的	7	.73
Skeptical – Accepting	持怀疑态度的 » 认同的	11	.71
Daring – Careful	勇敢的 » 谨慎小心的	8	.79
Tactful – Frank	委婉的 » 直率的	12	.73
Accommodating – Strong-willed	倾听他人意见的 » 固执己见的	13	.74
Lively – Reserved	活泼的 » 矜持的	7	.77

N = 3,279

Summary

Analysis of data collected on the Chinese version of the *Everything DiSC* assessment using Chinese participants indicates that the development of the assessment was successful. The findings show support of the eight DiSC scales, which are used as the basis of the *Everything DiSC Workplace* profile, and the nine continua scales used in the *Everything DiSC Comparison Report*.

- With high Cronbach's alphas (.75–.89) for the eight DiSC scales, the **reliability** of the instrument is shown to be very satisfactory. The **reliability** of the instrument on the nine continua scales, indicated by its internal consistency, shows acceptable to good degrees of consistency with Cronbach's alphas ranging from .71 to .81.

- The construct **validity** of the eight DiSC scales, indicated by scale intercorrelations, supports the circumplex structure of the DiSC model. Using Chinese data, previous findings on the English *Everything DiSC* assessment were confirmed, with adjacent scales showing moderate correlations and opposite scales showing strong negative correlations, as predicted by the model.

- Further analysis on the circumplex structure, including correlations between the *Everything DiSC* scales and the scales of the NEO PI-R™ and 16PF®, are thoroughly documented in the AT Research Report.