

# Danish Validation Addendum

to Everything DiSC® Research Report for *Everything DiSC Work of Leaders*® Assessment

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## Danish Validation: Everything DiSC Work of Leaders®

The purpose of this **addendum** is to expand the *Everything DiSC® Research Report for Adaptive Testing Assessment* by John Wiley & Sons, Inc. (2012), with validation results from research conducted on the Danish *Everything DiSC Work of Leaders®* assessment. Included in this addendum are descriptions of the translation and validation of the Danish *Work of Leaders* 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 Danish Validation of *Work of Leaders*

### Sample

From December 7th to December 22nd 2011, a total of 532 Danish speaking men (49.6%) and women (50.4%) responded to a total of 300 items. The respondents were all members of the YouGov Panel in Denmark who were invited to participate through e-mail invitations.

Table 1. Everything DiSC Assessment Development Danish Sample Demographics

<b>Gender</b>	Male	49.6%
	Female	50.4%
<b>Age</b>	18-34	32.8%
	35-49	35.1%
	50-64	32.1%
<b>Education</b>	Some High School	24.3%
	High School/General	6.9%
	High School/Trade, Technical	2.7%
	Technical Trade/Vocational School	36.2%
	College Graduate (less than 5 years)	21.8%
	Graduate/Professional Degree (more than 5 years)	7.6%
	Other	.6%
<b>Citizenship</b>	Danish	99%
	Other, (European)	1%
<b>Employment</b>	Employee (non-managerial)	35.8%
	Mid-level manager	8.8%
	Top-level manager	1.3%

	Self-employed	5.6%
	Student/Apprentice/Trainee	20.0%
	Unemployed/Job-seeking	5.5%
	Retired	14.7%
	Other	8.3%
<b>Location</b>	The Capital Region of Denmark	31.0%
	Sealand	14.6%
	South Denmark	21.4%
	Middle Region Jutland	22.6%
	North Jutland	10.4%
<b>N=532</b>		

## 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 Danish (target language). It was a requirement that the translator's native language was the target language. 2) A second professional translator, also a native speaker of the target language, was tasked with back-translating the items from target language to 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, this was fed back to the first translator. 5) The translator assessed the differences and, when appropriate, stated why a word should remain the same or be substituted with 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.

## The Danish *Work of Leaders* Assessment

The Danish *Work of Leaders* assessment is comprised of items consisting of two statements placed at opposite ends of a four-point continuum. Participants are instructed to choose the point on the continuum that best describes them. For instance, one continuum states: *When I present an idea, I speak spontaneously* on one end and *When I present an idea, I have my thoughts well prepared* on the other end of the continuum.

## Reliability Measure: Internal Reliability Coefficients for Danish *Work of Leaders* Scales

Analysis of internal consistency was performed on the Danish *Work of Leaders* items. This analysis evaluates the degree of correlation among questions that profess to measure the same thing. That is,

each of the 18 scales in the *Work of Leaders* is measured using a series of items. Researchers recognize that if all of the items on a given scale (e.g., Remaining Open scale) are in fact measuring the same thing (e.g. Openness), 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 for evaluating internal consistency. This analysis was performed on the Danish data to ensure that the construct developed and tested on a US population could be adapted to a Danish population using the translated items and the Danish group.

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 18 *Work of Leaders* 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 asked to respond to the same thing many times repeatedly, and that those items are not providing any new information about the respondent.

Alpha coefficients were calculated for the Danish sample (N=532). The Danish *Work of Leaders* assessment demonstrates satisfactory to good internal consistency, as shown by the alpha values listed in Table 2. All reliabilities are near and above .70, with a median of .81. These results show that the items selected for each of the 18 Danish *Work of Leaders* scales are appropriate to use for measuring a unified construct.

Table 2. Internal Reliability Coefficients for the Danish Everything DiSC Work of Leaders

<b>WOL Scale</b>	<b>Cronbach's Alpha</b>	<b>Number of items</b>
Remaining Open	.76	8
Prioritizing the Big Picture	.73	7
Being Adventurous	.85	11
Speaking Out	.84	10

Seeking Counsel	.75	5
Exploring Implications	.87	8
Explaining Rationale	.69	5
Structuring Messages	.75	5
Exchanging Perspectives	.76	16
Being Receptive	.83	18
Being Expressive	.79	6
Being Encouraging	.78	10
Being Driven	.81	12
Initiating Action	.83	8
Providing a Plan	.80	9
Analyzing In-Depth	.83	6
Addressing Problems	.81	17
Offering Praise	.81	7
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### Construct Validity: Scale Intercorrelations for Danish *Work of Leaders*

As part of examining the construct validity of the *Work of Leaders*, intercorrelations among the 18 scales (Table 3) were performed to test if hypothesized relationships between the scales were supported by Danish data. Coefficients for the 18 scales range from  $-.89$  to  $.83$ , and many of the stronger correlations are the result of overlapping items among the scale. For instance, the Seeking Counsel scale, which measures a tendency to consult with others when making decisions, has many items in common with the Exchanging Perspectives scale, which measures a tendency to discuss with others before making decisions and these two scales are therefore expected to be correlated with each other ( $r = .68$ ). Overall, correlations are as expected. For instance, we would expect a high positive correlation between the Speaking Out scale and the Addressing Problems scale, and a high negative correlation between the Providing a Plan scale and the Remaining Open scale. As you can see in Table 3, these patterns are supported by the Danish data.

Table 3. Intercorrelations Among Everything DiSC Work of Leaders Scales in Danish

	Remaining Open	Prioritizing Big Picture	Being Adventurous	Speaking Out	Seeking Counsel	Exploring Implications	Explaining Rationale	Structuring Messages	Exchanging Perspectives
Remaining Open	.66	.33	.40	.03	-.55	-.23	-.41	-.03	
Prioritizing Big Picture	.66	.35	.43	.07	-.55	-.19	-.33	-.06	
Being Adventurous	.33	.35	.66	.00	-.44	-.03	-.16	-.31	
Speaking Out	.40	.43	.66	.03	-.39	-.07	-.28	-.35	
Seeking Counsel	.03	.07	.00	.03	.03	-.18	.00	.68	
Exploring Implications	-.55	-.55	-.44	-.39	-.03	.32	.50	.17	
Explaining Rationale	-.23	-.19	-.03	-.07	-.18	.32	.38	-.23	
Structuring Messages	-.41	-.33	-.16	-.28	.00	.50	.38	.08	
Exchanging Perspectives	-.03	-.06	-.31	-.35	.68	.17	-.23	.08	
Being Receptive	-.10	-.14	-.37	-.43	.21	.19	-.14	.08	.72
Being Expressive	.27	.32	.48	.66	.22	-.32	-.21	-.25	-.12
Being Encouraging	.15	.19	.11	.07	.27	-.09	-.27	-.09	.50
Being Driven	.21	.29	.59	.72	-.13	-.32	.04	-.13	-.63
Initiating Action	.35	.38	.83	.63	.06	-.35	.01	-.09	-.24
Providing a Plan	-.89	-.68	-.33	-.35	-.03	.71	.25	.49	.07
Analyzing In-Depth	-.18	-.04	.00	.06	.05	.43	.33	.43	.01
Addressing Problems	.21	.22	.48	.63	-.12	-.20	.15	-.06	-.57
Offering Praise	.09	.12	.05	.07	.27	.01	-.18	.00	.48

	Being Receptive	Being Expressive	Being Encouraging	Being Driven	Initiating Action	Providing a Plan	Analyzing In-Depth	Addressing Problems	Offering Praise
Remaining Open	-.10	.27	.15	.21	.35	-.89	-.18	.21	.09
Prioritizing Big Picture	-.14	.32	.19	.29	.38	-.68	-.04	.22	.12
Being Adventurous	-.37	.48	.11	.59	.83	-.33	.00	.48	.05
Speaking Out	-.43	.66	.07	.72	.63	-.35	.06	.63	.07
Seeking Counsel	.21	.22	.27	-.13	.06	-.03	.05	-.12	.27
Exploring Implications	.19	-.32	-.09	-.32	-.35	.71	.43	-.20	.01
Explaining Rationale	-.14	-.21	-.27	.04	.01	.25	.33	.15	-.18
Structuring Messages	.08	-.25	-.09	-.13	-.09	.49	.43	-.06	.00
Exchanging Perspectives	.72	-.12	.50	-.63	-.24	.07	.01	-.57	.48
Being Receptive		-.28	.53	-.73	-.33	.13	.02	-.81	.48
Being Expressive	-.28		.21	.57	.46	-.27	-.02	.41	.19
Being Encouraging	.53	.21		-.22	.17	-.10	-.08	-.30	.73
Being Driven	-.73	.57	-.22		.57	-.22	.04	.80	-.19
Initiating Action	-.33	.46	.17	.57		-.31	.06	.49	.13
Providing a Plan	.13	-.27	-.10	-.22	-.31		.30	-.19	-.01
Analyzing In-Depth	.02	.02	-.08	.04	.06	.30		.13	.08
Addressing Problems	-.81	.41	-.30	.80	.49	-.19	.13		-.24
Offering Praise	.48	.19	.73	-.19	.13	-.01	.08	-.24	

## Summary

Analysis of data collected on the Danish version of the *Everything DiSC Work of Leaders*® assessment using Danish participants indicates that the development and translation of the assessment was successful, with acceptable to high reliability measures on each of the 18 scales and correlations between the scales different scales showing patterns similar the English version of *Everything DiSC Work of Leaders*.

- The reliability of the instrument on the 18 scales of the *Work of Leaders* demonstrates satisfactory to good internal consistency. All reliabilities are near .70, with a median of .81.
- The reliability of the instrument on the 18 scales of the *Work of Leaders*, indicated by internal consistency present intercorrelations that range from -.89 to .83, supports the hypothesized relationships.