



2915 Olney Sandy Spring Road ▪ Unit D ▪ Olney ▪ Maryland ▪ 20832  
Telephone: 240-389-1482 ▪ Email: [info@idiinventory.com](mailto:info@idiinventory.com)

## **Summary of Independent Validation of the IDI Conducted by ACS Ventures: 2016-2017**

### **Introduction**

In today's ever-changing world, increased scrutiny by educational institutions and organizations on cross-cultural assessment instruments is focused on their cross-cultural validity, reliability, generalizability and demonstrated evidence of lack of cultural bias.

In meeting the most rigorous scientific standards for the cross-cultural development of assessment tools, the development of the Intercultural Development® (IDI®) is guided by the Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014; Test Standards), which identifies the five defined sources of validity evidence as the expected validation framework: Evidence based on (1) test content, (2) response processes, (3) internal structure, (4) relations to other variables, and (5) testing consequences. The Intercultural Development Inventory® (IDI®) is as a measure of intercultural competence that meets these rigorous scientific psychometric criteria for the cross-cultural assessment of intercultural competence. This is reflected in transparent IDI research studies in 2003, 2011, 2016, 2017<sup>1</sup> and found at: [www.idiinventory.com](http://www.idiinventory.com).

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<sup>1</sup> Hammer, M.R., Bennett, M.J. & Wiseman, R. (2003), The Intercultural Development Inventory: A measure of intercultural sensitivity, in R.M. Paige (Guest Editor), Special Issue on the Intercultural Development Inventory, *International Journal of Intercultural Relations*, 27, 421-443.

Hammer, M.R., (2011), Additional cross-cultural validity testing of the Intercultural Development Inventory in the *International Journal of Intercultural Relations*, 35, 474-487.

Wiley, A. (2016). *Intercultural Development Inventory (IDI): Independent Review*. Las Vegas, Nevada: ACS Ventures, LLC.

Below is a summary of the most recent, independent research, conducted in 2016 and 2017 by ACS Ventures, a nationally recognized leader in psychometric instrument testing and research.<sup>2</sup>

## **2016 Independent IDI Validation Review (“the Review”)**

In 2016, IDI, LLC requested an independent review of the current state of the validity evidence associated with the use of IDI Inventory. In response to this request, ACS Ventures, LLC (ACS) completed an independent review of the available validity evidence associated with the IDI Inventory.

The mandate in this review was far-reaching. Not only did ACS focus on evidence that was analyzed or collected throughout Phase 1 (2003) and Phase 2 (2011) of the test development, scoring, delivery, analyses and validation for the IDI Inventory, but also to review other studies that (1) reviewed or conducted research with the IDI and (2) assess the degree to which the IDI is appropriate to use as part of a selection process.

Throughout the process, ACS was guided by the Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014; Test Standards), and used the five defined sources of validity evidence as the expected validation framework. Specifically, evidence based on (1) test content, (2) response processes, (3) internal structure, (4) relations to other variables, and (5) testing consequences was organized and reviewed relative to the intended purposes of scores from the instrument. Overall, this review was designed to evaluate how well the IDI Inventory captured the construct of intercultural competence.

The overall conclusion from the 2016 Review is that:

*“As has been described in the report, the development procedures and the research surrounding the IDI Inventory provides a strong argument for the IDI Inventory as a valid measure of intercultural competence.”*

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Wiley, A. (2017). Validation analysis of the Intercultural Development Inventory (IDI), Las Vegas, Nevada: ACS Ventures, June 5.

<sup>2</sup> ACS is a psychometric consulting company formed to address a need in the assessment community for design, operational support, and quality assurance. These needs are inclusive of assessment policy and practice in the education, credentialing, and workforce sectors. ACS staff members have over 40 years of collective experience working with organizations in the education, workplace, and credentialing sectors. Their experience has included a review of comprehensive high-stakes statewide assessment programs, the independent evaluation of the validity and fairness of online assessment programs, and work setting standards in a wide variety of professional credentialing environments.

This conclusion is found in evidence summarized below.

- ✓ The Review concludes the IDI has multiple sources of evidence that meet “*Test Content*” Standards indicating the IDI measures what it is intended to measure.
- ✓ The Review indicates that in terms of “*Response Processes*” Standards, the IDI items were developed using a rigorous process, included a panel review methodology.
- ✓ Regarding evidence of “*Internal Structure*” Standards, the Review concludes that the IDI Inventory has undergone multiple studies using Confirmatory Factor Analysis and the results show the IDI maintains a stable structure across culturally different communities.
- ✓ In terms of the Standards for “*Relations with other Variables*”, the Review finds evidence that IDI is related to key variables in predicted ways including evidence of no significant correlations between IDI scores and Social Desirability (i.e. respondents cannot figure out how to “get a better score”) and this evidence is consistent with industry standards.
- ✓ The Review cites evidence based on “*Consequences of Tests*” Standards and concludes the various case studies indicate appropriate use of the IDI and how the IDI can be used.
- ✓ The Review addressed M. Bennett’s (2009)<sup>3</sup> unsupported claim that the IDI overestimates the number of respondents in the Minimization position. The Review states: “At this point, it is not clear why Bennett states that the minimization condition is overestimated with the IDI Inventory, and the article does not provide further details or data to support the statement. At this point, it does not appear that Bennett has provided further information or data to support his position, so it probably should be viewed as an unsupported assertion at this time.”
- ✓ The Review assessed Matsumoto’s (2013) analysis of the IDI and nine other instruments based on what Matsumoto termed ecological validity criterion. The Review concluded: “The primary concern that was raised during our review of the Matsumoto article is that the definition of validity does not appear to be consistent with current industry standards. As was outlined in this report, the Test Standards, support the review of evidence across five key areas and evidence is expected within all five areas.”

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<sup>3</sup> Bennett, M.J. (2009). Defining, measuring, and facilitating intercultural learning: a conceptual introduction to the *Intercultural Education* double supplement. *Intercultural Education*, Vol. 20, No. S1–2, S1–13.

- ✓ The Review also examined evidence for the validity of the IDI for **selection purposes** (hiring, promoting, assigning new tasks/responsibilities). As described in the Test Standards, the critical inference that must be supported is that “scores on the test can be used to predict subsequent job performance” (pg. 172). The review summarizes: “Because of the collection of studies, it does appear to be a reasonable assumption to think that the IDI Inventory could be a useful tool in a selection environment.”

## **2017 Further IDI Validation Studies by ACS Ventures**

In 2017, IDI, LLC (IDI) again contracted with ACS to complete a series of independent, additional psychometric analyses to further investigate the performance of items and scores from the IDI Inventory (i.e. to further test cross-cultural validity of the IDI). The summary below provides highlights of the extensive, independent analyses conducted by ACS (see [www.idiinventory.com](http://www.idiinventory.com) [Wiley, A. (2017). Validation analysis of the Intercultural Development Inventory (IDI), Las Vegas, Nevada: ACS Ventures, June 5.]

### **Highlighted Findings**

1. **218,111 IDI respondents from a wide-range of national and international cultural communities participated.** IDI respondent records were used in this analysis. Prior to this analysis, permissions were obtained, names and other personal identifying information was removed, and all “post” records were scrubbed from the data set. The data was separated into two distinct samples; respondents who took the IDI Inventory from educational settings (150,577) and respondents who took the IDI Inventory from organizational level settings (67,534), resulting in one of the largest, cross-cultural data sets examined.
2. **Analysis of Item and Test Score Performance supports scale/item validity.** The initial analysis completed by ACS provided positive evidence of the IDI scales and the performance of the items within each of the scales. The correlation of the IDI total scores (PO, DO) to each of the subscales (Denial, Polarization, Minimization, Acceptance and Adaptation) exhibited, as hypothesized, moderate correlations with the total score. Overall, the items on the IDI Inventory performed as would be expected. Items generally had moderate to strong correlations with the IDI total score and with the subscales that they were assigned to. Just as importantly, the items did not demonstrate strong correlations with subscales to which they were not assigned. Items also demonstrated moderate to strong correlations between the items within the same subscale.
3. **Test Score Performance supports the scale/item validity across Gender, Ethnic minority/majority status, Age, Education level, Country, and Position within**

**the organization (the latter for the organizational version only).** Also, for many of the variables that were investigated, the differences in scores were fairly small and do not appear to be consequential.

4. **Differential Item Function (DIF) supports lack of cultural bias of the IDI.** In a DIF analysis, the performance of respondents on each item are reviewed to evaluate if the item appears to unfairly favor one group over another (e.g., cultural bias) in the items on the instrument. For the education data, DIF analyses were completed comparing the performance across male and female students, between respondents who viewed themselves as an ethnic minority in their country and those who are not, and based upon education level. For education level, students who were on track to receive a college degree were compared with those respondents who indicated they had received a post-graduate degree. Overall, these findings have not identified any items with notable DIF by gender, ethnic majority/minority status or education level within the Education respondents. At the organizational level, the same variables were investigated for DIF. In addition, a DIF comparison was completed based upon the position of the test respondents within their organization. For this comparison, respondents with upper management positions were compared to respondents in middle management positions, and then also compared to respondents in non-management positions. Overall, these findings have not identified any items with notable DIF by gender, ethnic majority/minority status, education level or management/non-management position within the Organizational respondents.
5. **The IDI is a cross-culturally reliable instrument.** Good reliabilities were found for the overall Developmental Orientation (and Perceived Orientation) (.84) and subscales (denial, polarization, minimization, acceptance, adaptation) for both the Educational and Organization version. Analysis of individual item contribution to overall scale reliabilities indicate that most of the IDI Items strongly contributed to scale reliabilities.
6. **The conceptual structure validity of the IDI is supported by Confirmatory Factor Analysis (CFA).** The analyses completed was based upon a five-factor solution [Denial, Polarization (Defense, Reversal), Minimization, Acceptance and Adaptation] and was run on both the educational; and organizational level data. Overall, the Confirmatory Factor Analysis on the Educational data set and the CFA run on the Organizational data set indicates the five-factor model is a reasonably good fit to the data.