

The Intercultural ViabilityTM Indicator: Constructivist Assessment of Organizational Intercultural Competence¹

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Abstract: Current assessments of intercultural communication competence are mostly positivist measurements at an individual level of analysis. This article describes the development of a group-level assessment that uses constructivist methodology and “quantum measurement” to indicate Intercultural Viability—the probability that a group can adapt to unknown future changes in social environments, changes that will include new forms of diversity and otherness. The IVI incorporates scales based on the DMIS to generate interaction between subjects’ perception of themselves and their perception of group behavior in terms of intercultural sensitivity, yielding a measurement of adaptive potential relative to a baseline of organizations. In initial testing, Intercultural Viability does not show any association with gender, but it does increase with age, indicating that life experience may be an important factor in how individuals relate with groups vis-à-vis intercultural issues. The score is also significantly influenced by living abroad and intercultural training. Based

¹ This article reports findings from a joint project conducted by Milton Bennett, President of Bennett Intercultural Development, LLC (USA) and David Trickey, Partner of TCO-International Srl (Italy). The Intercultural Viability IndicatorTM is owned and marketed by those two businesses through Intercultural Viability, LLC (USA). Although the IVI and its algorithms are proprietary, the methodology of its construction and all relevant correlations are fully reported here.

on preliminary findings, the Intercultural Viability Indicator is shown to be a discriminating measure of how groups coordinate individual competence to create future adaptive potential.

Key Words: intercultural training, intercultural assessment, constructivist intercultural, constructivist assessment, intercultural sensitivity, intercultural development, intercultural competence

Theoretical Foundation

The main purpose of this article is to describe the development and testing of a new assessment instrument, the Intercultural Viability Indicator (IVI), that uniquely addresses group-level intercultural competency with constructivist methodology. A deficiency that typically accompanies such articles is the failure of authors to specify the epistemological grounds of their research, since the selection criteria of traditional social science research journals usually do not encourage substantial discussion of paradigmatic assumptions. In the interest of promoting more attention to those assumptions, this article will begin with some discussion of the epistemology of assessing intercultural competence. Given that it is not the main purpose of this article, that discussion will indicate rather than explicate the major concepts involved.

Epistemological Paradigm

As with all inquiry, social science research is embedded in a set of paradigmatic assumptions. The assumptions are usually more explicit in physical science research, thanks to Thomas Kuhn (1962) and the robust tradition of philosophy of science of which he is a part. The popular names of physics paradigms—Newtonian, Einsteinian, and quantum (Briggs & Peat, 1984; Rovelli, 2016)—have migrated into social science as positivism, relativism, and constructivism, respectively. The purpose of this article is not to reiterate arguments made elsewhere about the crossover between physics and social science (Bennett, 2020), but rather to show that the basic epistemological distinctions made in physics are useful in making observations about social science research and specifically, about the assessment of intercultural competence.

While the Newtonian paradigm no longer informs new research in physics, positivism (Comte, 2009) continues to characterize much of social science. The underlying assumptions of that paradigm are, in sum, that there is a single discoverable reality, and that the ability to measure and predict things allows events to be understood and potentially controlled. Further,

observers of reality are not restrained by perspective—anyone looking in the same direction will see the same thing; if they do not, they simply lack sufficient information or are biased.

These Newtonian assumptions translate into positivist social science, and particularly assessment, in ways that support the existence of an observable reality. For instance, it is commonly assumed that psychometric instruments are measuring real internal conditions such as personality traits or other characteristics, and that the consistency of measurement indicates the stability of those underlying conditions. A good example of this assumption in action can be seen in the measurement of IQ (Gould, 2012), where the various scales comprising the original “g-factor” of school readiness were increasingly associated with an assumed internal condition of “intelligence,” which was then reified into the rank ordering of IQ. A similar process accompanies many positivist measurements of intercultural competence (Bennett, 2014), where some constellation of personal characteristics is assumed to constitute a capacity for intercultural communication.

Rather than lumping more recent approaches to assessment into the broad category of “postpositivist” (e.g., Lindloft & Taylor, 2019), this discussion will use the two post-Newtonian paradigms in physics as explicators of postpositivist approaches. In the first of these paradigms, Einstein famously reframed the universal reality underlying Newtonian physics with positionality in space/time; objective reality exists, but it is perceivable only from our particular position and relative movement in the universe. As this idea of relativism entered social science, it demanded that observers move from their omniscient positions of objectivity into more subjective perspectival contexts. In the case of cultural relativity (Boas, 1911), cultural positionality was intended to counteract the universalistic idea of a hierarchy of civilization that rank ordered peoples in the ethnocentric terms of whoever placed themselves at the acme of the pyramid (Bennett, 2013, 2016). This relativist position was embraced by many anthropologists, notably Margaret Mead (1938) and Ruth Benedict (1946), who espoused the idea that cultures could not be compared to one another in terms of a universal standard and instead existed as more or less autonomous contexts. Dealing with this condition became the impetus for intercultural communication (Hall, 1959).

Another effect of the migration of Einsteinian relativity into social science was to centralize the ideas of bias and definitional power as they are typically dealt with by critical theory (e.g., Miller, 2006). In social science relativism, observers are necessarily positioned in some perspectival context relative to the context they are observing, and the relativity of those contexts imbues observers both with the bias of their perspective and with some power

relationship (subservient or dominant) to the other contexts. For instance, an observer may be positioned in a dominant ethnic cultural context, a professional institutional context, and a conservative political context. In the way *relativism* is being used here, these positions inevitably imbue the observer with biases associated with the positions. This in turn fuels the critical approach to intercultural competence, which focuses on an awareness of explicit and implicit bias, race and gender privilege, and internalized colonialism of various kinds (e.g., Martin & Nakayama, 2017). In contrast to the positivist emphasis on capacity generated by internal conditions, relativist assessment focuses more on the capability of people to counteract their biases in the pursuit of respectful communication across cultural boundaries.

A third paradigm in physics is now ascendent—quantum mechanics, where the underlying epistemology differs substantially from the previous paradigms (Rovelli, 2016, 2017; Penrose et al., 2017). In this view, objective events exist only as manifestations of relationships. In the most accepted interpretation of quantum mechanics, the relationship is assumed to be between the act of measurement (or any kind of observation) and the probability of an event occurring. In other words, reality is inherently neither universal nor contexted—it is constructed by observers’ relationships with potential events. In quantum physics, observation is not necessarily a human measurement, so subjective perception is not given a privileged position in reality (Heisenberg, 1962). Rather, observation connotes that a relationship has been established between potential events that enables an actual event to occur. This does not make reality less real; it just means that it could manifest in a wide variety of forms, and the particular form it takes depends on the circumstances of interaction with that range of possibilities.

The correlate of the quantum paradigm in social science is *constructivism*, where this kind of reality-generating relationship is termed “co-ontogenic” (Bateson, 1972; Maturana & Varela, 1992). Simply stated, it means that observers and events are generating each other. In the case of human perception, our senses have evolved in physical reality to discriminate particular forms, and conversely, by perceiving those forms we collapse the wider probability of events into those forms. It is like a self-fulfilling prophecy (Watzlawick, 1984), where the act of looking makes the thing being looked for more likely to be found. This aspect of constructivism is particularly well-developed in constructionist and symbolic interactionist studies, where self and other have a dialectic co-ontogenic relationship (Mead, 1934; Goffman, 1959).

New paradigms do not obviate phenomena from the previous paradigm; they reframe the phenomena in the conceptual structure of the new paradigm (Kuhn, 1962). For instance, gravity did not disappear in the shift from

Newtonian to Einsteinian physics; it was simply reframed from a causative force to a space-time condition (Rovelli, 2017). Similarly, in communication studies, ubiquitous relativistic concepts such as positionality and context (Littlejohn, 1983) and cultural context (Condon, 1975) are in the process of being reframed by a shift to constructivism. The new paradigm adds a co-ontogenic dynamic to the relativistic foci of communication studies, so that positionality refers to the active organization of events in some particular way, and contexts become the objects generated by that perceptual organization, which in turn limit perception (Applegate & Sypher, 1998; Delia, 2007; Bennett, 2013).

The implications of this paradigmatic shift are profound and will certainly be the subject of robust discussion in the field for many years to come. For the limited purposes of this article, the major concern is the shift from relativistic subjectivity to a kind of co-ontogenic circularity between perception and the objects of perception. The implication is that, given the inherence of this kind of circular relationship to constructivist research, assessment can never be an objective measurement that excludes the act of measuring itself, no matter whether the methodology be quantitative or qualitative.

Level and Unit of Analysis

This study adopts the constructivist paradigm. In constructivist methodology, the level and unit of analysis is arguably more important than in other paradigms, since reality may be constructed differently at differently levels (Russell, 1948). As used here, level of analysis refers to degrees of abstraction from more discrete and concrete to more aggregate and abstract. The base or micro-level of analysis is usually called individual, a mid-range or meso-level is called group (which could range from an organizational group to a national one), and the most abstract, or macro-level is called institutional (which again could range from the regional to international). Typically, the unit of analysis follows these levels, being either an individual, a group, or an institutional system. In most intercultural competence assessment, both the level and unit of analysis is the individual. This is the case whether the paradigmatic context is positivist, where individual characteristics are considered causative; relativist, where individual schema are treated descriptively; or constructivist, where individual experience is generated perceptually. In intercultural studies, groups of various sizes may be described in cultural terms, but they are not generally considered the unit of analysis for intercultural competence (for organizations, see Kwantes & Glazer, 2017). An exception in a related field is the consideration of institutional racism, where groups have been described as more or less competent in dealing with issues of diversity and inclusion (e.g., Jackson & Hardiman, 1994).

Intercultural competence at the group level needs to be approached differently than it typically is at the individual level. In constructivist terms, organizations do not have particular traits, behavior patterns, or perceptual experiences. Instead, organizations are coordinating systems (Hall, 1959; Barnlund & Haiman, 1969; Bateson, 1972 after Von Neumann & Morgenstern, 1953)—they specify how members of the organization will work together to accomplish some outcome. Through explicit and implicit rules, rewards and punishments, and other forms of expectation, organizations make certain behavior of their members more likely and other behavior less likely—in constructivist terms, they coordinate the probability of behavior. This allows members to more or less understand each other and to generate more or less predictable outcomes. It is for this reason that we can speak of a culture of the organization, since this is how all cultures operate (Hall, 1959; Schein, 2004; Kwantes & Glazer, 2017). In the view presented here that underlies the idea of intercultural viability, cultures are not things at all—they are coordinators of probability. If the coordination is good, it generates positive synergistic effects and groups perform better than individuals (Hall & Williams, 1970; Zohar, 2016), or conversely, the group might reduce individual potential through negative synergy.

The Need for a Group-Level Measure of Intercultural Competence

Organizations and the groups that constitute them are facing unprecedented change, much of it in the social realm of changes in demographics and the plethora of social norms surrounding cultural diversity and otherness in general. This is requiring that organizations be agile in their ability to adapt quickly to the changing conditions if they wish to thrive or even survive in the new conditions (e.g., Wong, 2020; Bennett, 2019). To make matters more challenging, the new conditions that will face organizations are not likely to be just an extension of current conditions. When change is exponential, it is impossible to predict the change based on what is currently known about the changing condition (Kurzweil, 2005). So, what organizations normally do—increase the quantity and (sometimes) quality of training—is unlikely to be very effective. Essentially, organizations face the requirement of preparing for a condition that is not yet known.

At its best, intercultural communication competence development has represented one way to prepare for unknown conditions. Through training and/or coaching culture-general strategies in perceptual agility, individuals

ideally develop the competence to enter an unknown social condition—a new culture. The process whereby individuals develop such competence has been successfully modeled by the Developmental Model of Intercultural Sensitivity (DMIS) and a measurement based on that model has been used extensively in individual diagnosis and program effectiveness research (Bennett, 1986; Hammer, Bennett, & Wiseman, 2003). However, current measurements of intercultural competence based on the DMIS or other models all use an individual level of analysis and, insofar as they claim to be applicable at a group level, it is through averaging individual responses. As we have seen, this confusion of level does not address group synergistic effects and it makes such research untrustworthy (Castiglioni, 2013).

So, if our concern is to predict how competent an organization will be in doing something—in this case, adapting to changing social conditions—we need to measure how the organization makes that outcome more likely by coordinating the probability of certain behavior in groups. The term Intercultural Viability™ refers to that organizational competence. The term “viability” refers to the capability of surviving or living successfully in a particular environment. Intercultural Viability is the capability of an organization to survive and thrive in the particular environment of rapidly changing social conditions. In other words, Intercultural Viability is what intercultural competence looks like at a group level—it is the potential of groups to coordinate their behavior in ways that allow them to adapt and thus to thrive in situations that demand new competencies in relating to others. Specifically, the Intercultural Viability Indicator is designed to assess how individuals and groups interrelate in such a way as to increase the probability of creating intercultural sensitive events in the future. This is a more communication-based approach to organizational contexts than other well-known business applications of quantum thinking (e.g., Wheatley, 2006; Zohar, 2016).

Measuring Intercultural Viability

The Intercultural Viability™ Indicator (IVI) is a survey style instrument™ that is designed to assess the potential of an organization to adapt competently in new social environments, including those that involve international and/or domestic cultural diversity. Following the constructivist principle of co-ontology, the IVI does this by focusing on the perceptual relationship between individuals and group behavior. The quality of that relationship in terms of some particular concepts is what indicates the group’s Intercultural Viability.

Constructivist Methodology

The IVI assessment strategy addresses the inherent circularity of constructivist measurement in four ways: (1) explicitly tying the assessment to a constructed model of development (the DMIS), which itself is modeling how people construct their perception about intercultural issues; (2) measuring both the self-perception of observers and their perception of others in terms of the model; (3) basing assessment solely on the relationship between those two measures; and (4) interpreting the resulting profile only in terms of its variation around a *zero point* that is based entirely on the distribution of actual measurements. In this way, the strategy attempts to incorporate circularity of perception and interpretation of both the researchers and the participants into a single template that allows for rigorous comparison.

This circular strategy begs the question of how the quality of such constructivist research might be assessed, since the normal criteria for such judgments usually include the establishment of unidirectional causality and/or objectivity in measurement. One approach to a more constructivist assessment involves redefining validity and reliability with the non-positivist term of trustworthiness, which includes the ideas of credibility, dependability, confirmability, and transferability (Rodwell, 2015). Following are some considerations of those criteria for constructivist intercultural research (Bennett, 2020).

- Credibility parallels internal validity in positivist research, but in the constructivist paradigm it represents conceptual coherence in process and relevance in product. In the Intercultural Viability strategy, coherence is maintained with the consistent use of DMIS categories at all levels of analysis and interaction, such that each measured interaction is a kind of holographic representation of the larger organizational competence. The product of this process is not a description of either universal or contexted reality; rather, it is a prediction about the probability that viable intercultural competence will be generated in the future.
- Dependability parallels reliability in positivist research. In addition to traditional measures of scale reliability such as coefficient alpha, dependability refers to the consistency of decision-making by researchers. In constructivist terms, dependability involves researchers taking responsibility for their observational categories and for the consistency with which they apply them to analyzing data. This, for instance, precludes researchers from claiming that categories emerge from data, as if the patterns existed independently of the researchers' inquiry. In the IVI, parametric statistics are used to show internal correlations

among scales that support the use of the instrument for comparative purposes, but comparisons are never based on assumed a priori characteristics.

- Confirmability parallels objectivity in positivist research, although in constructivist terms it does not refer to the truthfulness of a finding in terms of some objective standard. Rather, the confirmability of a study is determined by its adherence to a discernable logic of connection among methods, data, analysis, and outcome. Ideally, an outside auditor could replicate the logical process of the research, although the auditor might disagree with the analysis and/or generate a different outcome based on his or her own conceptual schema. An example of this kind of trustworthiness is the Paige et al. (2003) study showing that with minimal training, raters could classify statements from free-form interviews similarly according to a model of intercultural sensitivity development. This kind of confirmation does not demonstrate the truth of the model; it simply shows that the model can be used by different observers to organize their perception of the same event in similar ways.
- Transferability is more or less parallel to external validity in positivist terms, although it does not include “generalizability” as that term is used in traditional research. The relevance of a finding in one context to a similar context is not determined by meeting a statistical standard of generalizability; it is determined by an observer in terms of usefulness. For instance, Intercultural Viability is relevant in both international and domestic multicultural situations, not because it is generalizable to the two populations but because the assessment process it codifies is equally relevant to both contexts.

In summary, based on these considerations of constructivism and their implication for social science research, constructivist assessment of intercultural competence needs to be approached as something different than the identification of personal characteristics or the description of criteria for successful interaction. Rather, a constructivist assessment would need to incorporate co-ontogenic measurement of variables to yield a probability that competent behavior would be generated in relevant conditions. The IVI is designed to meet those criteria.

Intercultural Sensitivity

The IVI applies the constructivist concept of intercultural sensitivity—how individuals perceive and experience otherness and cultural difference (Bennett, 1986; Chen & Starosta, 1997). Intercultural sensitivity is taken to be

the underlying perceptual condition that allows the enactment of intercultural competence. The Developmental Model of Intercultural Sensitivity (Bennett, 1993, 2004, 2017) has mapped how the experience of cultural otherness develops from ethnocentrism to ethnorelativism along a continuum punctuated by the positions of:

1. Denial—the failure to perceive others as human;
2. Defense—perceiving others in us/them or stereotyped ways, including its reversal into them/us;
3. Minimization—perceiving others as human like us;
4. Acceptance—perceiving others as equally human but different than us;
5. Adaptation—taking the perspective of others; and
6. Integration—using multiple cultural perspectives in identity formation and ethical judgments (see Figure 3.1).

The Developmental Model of Intercultural Sensitivity

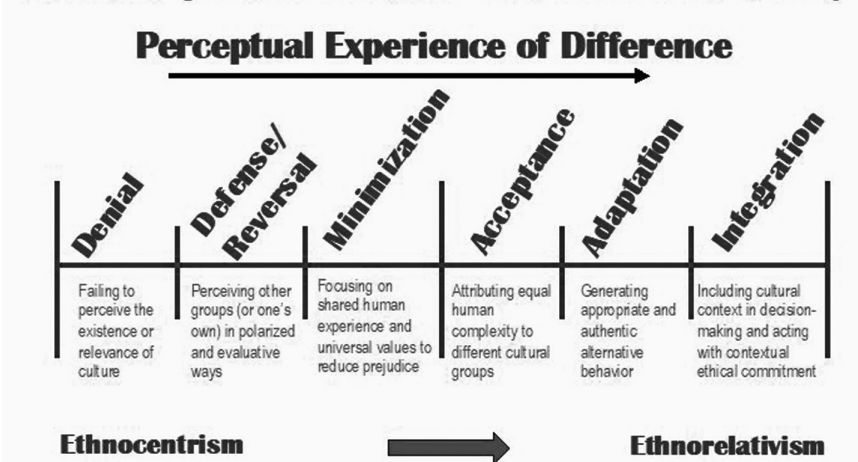


Figure 3.1 The Developmental Model of Intercultural Sensitivity. Source: Milton J. Bennett. 1986. Copyright 2013 by Milton J. Bennett

The position of individuals along the DMIS continuum has been reliably measured with both qualitative and quantitative methods, notably through the Intercultural Development Inventory™ (Hammer, Bennett, & Wiseman, 2003). Considerable research with the IDI and other tools has shown that higher intercultural sensitivity is correlated with increased intercultural communication effectiveness (intercultural competence), a sense of social justice, and civic commitment (Paige, Harvey, & McCleary, 2012; Castiglioni & M. Bennett, 2018). DMIS theory is stated in individual terms, focusing on how a person's experience of otherness becomes less ethnocentric (including

manifestations of overt and covert racism and sexism) and more ethnorelative (including manifestations of understanding, empathy, and ethicality). As stated earlier, groups do not themselves have these behaviors—they are not racist, nor are they inherently ethical. Rather, groups are coordinating systems that make those particular behaviors more or less likely. Terms like “systemic racism” or “systemic sexism” refer to how groups support those kinds of dehumanizing behaviors, but the same idea also applies to how groups could support more sustainable ethnorelative behavior. The IVI uses the DMIS continuum to measure the degree of systemic ethnorelativism in a group and thus its Intercultural Viability in fast-changing social environments where new forms of otherness will be encountered.

Quantum Measurement

Intercultural Viability is the ability of an organization to coordinate co-ontogenic relationships within itself that in turn allow the organization to generate specific viable conditions within the cloud of possible social futures. To measure this kind of interaction, The IVI generates a co-dependent interaction between the self-assessment of the respondents’ intercultural behavior and their assessment of other people’s intercultural behavior in various group contexts. The resulting quantum measurement is neither of the individuals’ competence nor of the group’s competence; it is an observation of the systemic interaction between observers (the respondents) and the thing being observed (the group behavior in context), with the range of possible resulting conditions constrained by DMIS theory. A higher score is taken to mean that the system (the organization) has a higher probability of generating the conditions that are adaptive to changing social environments.

IVI Scales and Algorithms²

Reversing the normal order of presentation, this section will describe the final product of the Intercultural Viability Indicator development, followed by a discussion of methodology and pilot testing. The purpose of using this order is to emphasize the intentional coherence of the product with the epistemological assumptions underlying it (Rodwell, 2015). The methods used to achieve that coherence are supportive rather than determinative of the outcome.

The IVI survey consists of seven demographic questions, a seven-item self-assessment scale, and fifty-six additional items measuring intercultural

² Statistical procedures were designed and implemented by Dr. Anita Kloss-Brandstätter, Professor of Statistics at Fachhochschule Kärnten, Austria. Responsibility for their accurate reporting is the author’s.

behavior in eight typical organizational contexts. It is administered online and takes about 15 minutes to complete. IVI results are reported for a group, team, or organization, depending on what sample is available. No results are reported for single individuals. A report of IVI findings includes findings and implications from the following scales and algorithms:

Individual Development Scale (IDS)

This is a measurement of how individuals perceive their own intercultural behavior. The scale consists of seven statements based on the DMIS positions, for example, “When I think of myself in terms of other cultures in the organization, I tend to be comfortable in the knowledge that ‘we are all just human’.” Respondents specify their level of agreement or disagreement on a 5-point Likert scale. A single number, the IDS score, is derived from the seven responses using a weighted algorithm.

Interpreting the IDS. The average score of individual development for the respondent sample is compared to the average score of all respondents in the IVI database. This comparison allows a team or organization to see whether its members currently perceive their own intercultural competence in ways that are relatively higher or lower than other groups. Based on that knowledge, decisions can be made about how much to target individual capacity-building in intercultural competence vs. giving more attention to group development and/or other structural interventions. The IDS is descriptive, not predictive, and so it does not in itself indicate Intercultural Viability.

Group Development Scale (GDS)

This scale assesses group intercultural behavior in eight typical business contexts. Respondents use the 5-point scale to specify agreement or disagreement with DMIS-derived statements about the group, for example, “When receiving visitors from other cultures, I notice that people around me tend to complain about the inappropriate behavior of the visitors.” A single number, the GDS score, is derived from applying a weighted algorithm to the responses in each specific context. A separate GDS score is reported for each context, but an average across the contexts is used to determine intercultural viability.

Interpreting the GDS. The GDS score allows a team or organization to identify certain contexts in which group intercultural behavior is relatively strong or weak. Based on this knowledge, decisions can be made about allocating resources to various contexts. Each GDS score is also compared to the average GDS score for that context across all organizations in the IVI database. This comparison provides a check on whether particular contexts are unusually problematic

compared to cross-organizational averages. Like the IDS, the GDS is descriptive of current conditions and cannot in itself predict Intercultural Viability.

Context Viability (CV)

This is the quantum measurement of the interaction between the individual self-perception of the respondent and the respondent's perception of the contexted group behavior. A single number, the CV score is a standardization of the product of GDS score multiplied by the IDS score, which creates a co-ontogenic condition at the group level represented by a z-score. Context Viability is assessed relative to a baseline "0" established from all organizations in The IVI database (see Figure 3.2).

Interpreting CV. The CV score is reported as somewhat or significantly above or below the cross-organizational baseline (note that the baseline is not an average of organizations, but the "0" derived from the scale-norming). Being above the baseline means that the team or organization has more Intercultural Viability in that context—it is more likely than other organizations to be able to generate new adaptive behavior in that context. So, for instance, if the CV score of a team was significantly above the baseline in the context of Hosting Visitors and Informal Communication, it would mean the team would very probably be able to generate appropriate and effective conditions for new cultural groups that had not heretofore been encountered. In quantum measurement terms, it means that the measured co-ontogenic interaction of perceived individual-level and group-level intercultural competence would have a higher likelihood of generating the event of competent behavior in the future.

Intercultural Viability (IV)

This is the overall assessment of the team or organization in terms of its ability to generate new adaptive behavior in changing social conditions. A single number, the IV score, is derived from performing a second-order standardization on the set of Context Viability scores for a particular organization. This z-score is intended to assess the overall Intercultural Viability of an organization relative to a baseline.

Interpreting IV. The IV score is reported relative to the same baseline "0" as used by the CV scores, but the IV score reflects an increased abstracting of probability that is meant to encompass a broader and more ambiguous set of future relational possibilities. As such, the IV can be taken as a predictor of the probable fitness of the organization for adapting to a wide range of changing social conditions. In combination with the CV scores, a team or organization can see how much they are capitalizing on (or suffering from) synergistic effects of individual and group behavior.

In Rodwell’s (2015) terms, the trustworthiness of both the CV and IV scores reflects their use of perceptual interaction in generating the scores. In the quantum measurement terms used here, both scores appropriately represent the circular co-ontogenic relationship of individual self-perception and perception of group behavior. And in the general quantum thinking described by Rovelli (2017), the score represents the potential for organizations to meet future probability with more relational competence.

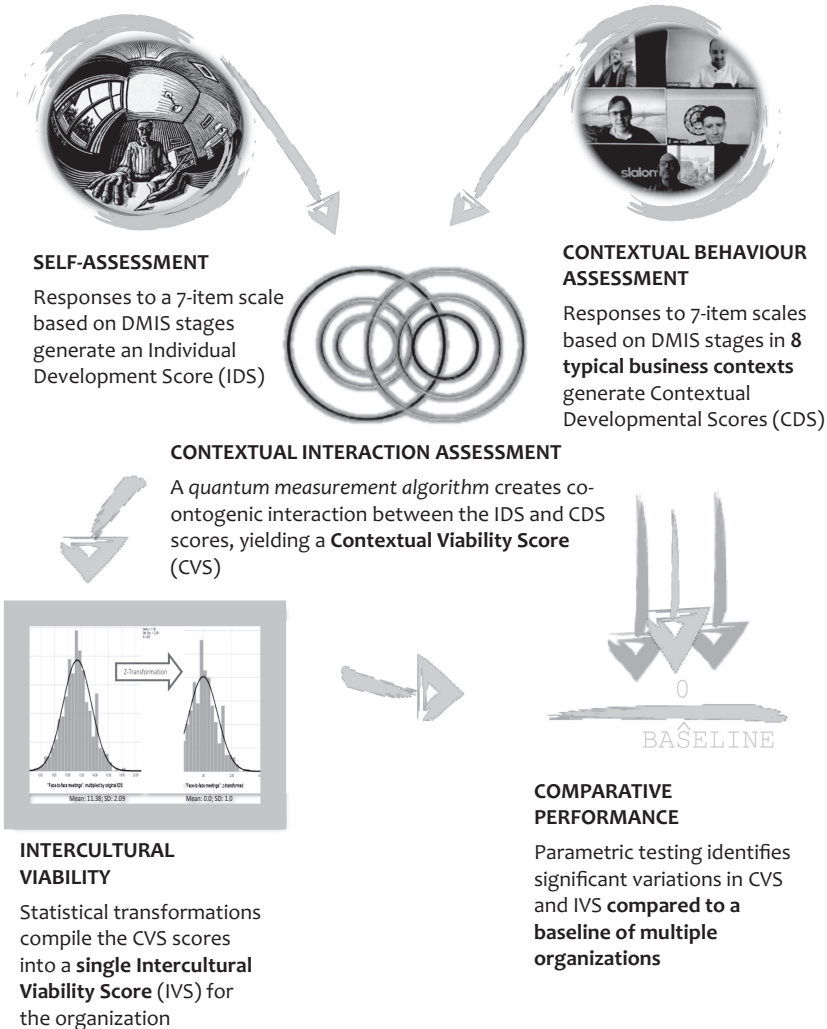


Figure 3.2 Graphic Representation of IVI Scales and Interaction. Source: Milton Bennett & David Trickey, Intercultural Viability, LLC.

IVI Development and Pilot Testing

Item Development

The Developmental Model of Intercultural Sensitivity was used to develop an interview protocol that inquired about the competence of organization-level intercultural behavior. Based on data from eleven interviews in four companies, the developers used informal content analysis to identify eight contexts in which intercultural competence was reported to be particularly relevant:

1. Memos, email, and other written correspondence with recipients from different cultures
2. Informal conversation about other cultures
3. Face-to-face meetings with participants from multiple cultures
4. Virtual meetings with participants from multiple cultures
5. Coaching and other development work with other-culture colleagues
6. Visiting with people from other cultures for business reasons
7. Hosting business visitors of other cultures
8. Activities where multiple languages were being spoken

Using the same interview data and adding data from other qualitative and quantitative studies of the DMIS (Hammer et al., 2003; Paige et al., 2003; Bennett), the developers constructed a set of seven typical behaviors for each context that represented seven possible positions on the DMIS continuum (per the example below). These behaviors were written as completions of an introductory stem, such as “In virtual meetings (such as conference calls and video calls) among colleagues from different cultural backgrounds, I notice that people in my organization...”

In this example, the completions (order randomized in the actual survey) were the following (note: the DMIS position information in parentheses is added for the purpose of this explanation):

Immediately begin working on the task with an awareness of the clock ticking
(Denial of the importance of culture; Task over relationship)

Give preference to contributions made in a style familiar to the majority of participants
(Defense of familiarity; avoiding the “problem” of unfamiliarity)

Allow more airtime for members of any underrepresented cultural group
(Reversal—elevating other cultures at the expense of one’s own)

Stick to the official business language and a set of standard guidelines used for all virtual meetings
(Minimization—everyone is or should be “on the same page”)

Check to see if points might be understood differently in local cultural contexts
(Acceptance of and respect for different perspectives)

Change the style of the meeting depending on the cultural groups represented.
(Adaptation to cultural differences)

Incorporate a variety of cultural styles in addition to presentation and questions for getting input and providing clarification (Integration of cultural diversity into routine operations)

These eight stems and their respective completion sets became the initial Group Development Scale (GDS) on the pilot IVI. Also based on the sources referenced above, a single self-assessment scale of seven items was created with the introduction, “When I think of myself in relationship to other cultures in the organization, I...” These seven items constituted the Individual Development Scale (IDS).

Initial Pilot Test

To initially test reliability, the GDS and IDS items were administered to a pilot group of 388 subjects in four different companies referred by TCO International. Given the small number of items (9 in each scale for the DMIS categories, and 7 for each of the individual and group context scales), the criterion for adequate reliability was set at Chronbach’s Alpha .6. In the initial sample, reliabilities ranged from about .6 (for Defense and Reversal) to about .8 (for Integration) across the different scales.

Advanced Pilot Testing³

An additional pilot with four more organizations and two leadership teams created a total pilot sample of 1034 subjects across 10 organizations. With the exception of 22 subjects from a nonprofit organization, all the subjects were employees of companies. About 50% of the subjects had lived and/or worked abroad for 12 months or more after the age of 18, and about 45% of them had received intercultural training of some kind. Gender and age data were collected for a subset of the subjects (n=508), showing that 40% identified as female and 60% as male, while 42% were in the 26–39-year-old range, 47% were 40–54, 9% over 55, and 2% under 25. It appeared from informal observation that the age and gender of this subset is similar to the whole group.

For the advanced pilot, weighted algorithms were added to compiling the Individual Development and Group Development Scale scores, and standardizations were incorporated to translate the Group Development Scale scores into the quantum measurement Context Viability scores, which were then scored as deviations from a baseline “0” (Figure 3.2). Reliability remained adequate for the purpose of this instrument, and the overall coherence with

³ Thanks to Valore-D, an Italian association supporting workforce diversity.

constructivist methodology was increased. The baseline did not change significantly with the addition of the new subjects from 6 new organizations. This can be taken to mean that the baseline is a stable representation of the normal distribution of people on this measure, and that therefore the comparative IV scores based on deviation from the baseline are, in the constructivist methodology terms of Rodwell (2015), trustworthy.

Results of the Pilot Testing

Scale Correlations

The construction of a single 7-item scale for measuring individual intercultural development was challenging. After some experimentation with pilot results, a scoring method was devised that generates a single positive number between 1 and 5 based on a weighted formula. The score performs much better than any unweighted average. As seen in Table 3.1, the score is negatively associated with ethnocentric items and positively associated with ethnorelative items. That association gets stronger with a positive correlation towards integration and also gets stronger with a negative correlation towards denial, probably indicating some “politically correct” preference for the Minimization item. Based on the poor correlation of the Defense/Reversal item, specific findings about Defense/Reversal are being ignored pending further testing. Overall, the data show that the IDS is a strong measure of individual intercultural sensitivity for the purposes of generating the individual/group interaction scores.

Table 3.1 Correlations Between Questionnaire Items and the Individual Development Scale (IDS)

Questionnaire item	Correlation coefficient	p-value
Individual – Denial (reversed)	$r = 0.660$	$p < 0.001$
Individual – Defense	$r = 0.281$	$p < 0.001$
Individual – Defense/Reversal	$r = -0.043$	$p = 0.384$
Individual – Minimization	$r = 0.162$	$p = 0.001$
Individual – Acceptance	$r = 0.599$	$p < 0.001$
Individual – Adaptation	$r = 0.643$	$p < 0.001$
Individual – Integration	$r = 0.767$	$p < 0.001$

Although they are reported separately, the eight contexted-group development scales were aggregated into a single scale for purposes of viewing correlations with the individual development scale. Since the primary focus of the IVI is on the dynamic relationship between the IDS and GDS measurements, it was interesting to see the initial static correlation of the scales. Table 3.2 shows that correlation, which increases from ethnocentric to ethnorelative positions.

Table 3.2 Correlations Between the Group Development Scales and the Individual Development Scale

Group Development Scale	Correlation coefficient	p-value
Group – Denial	$r = 0.114$	$p = 0.030$
Group – Defense	$r = 0.222$	$p < 0.001$
Group – Defense/Reversal	$r = 0.178$	$p = 0.001$
Group – Minimization	$r = 0.259$	$p > 0.001$
Group – Acceptance	$r = 0.340$	$p < 0.001$
Group – Adaptation	$r = 0.389$	$p < 0.001$
Group – Integration	$r = 0.365$	$p < 0.001$

This is an expected finding, indicating that individuals with more advanced intercultural sensitivity (in DMIS terms) would more likely be able to perceive ethnorelative behavior in the groups.

This finding is reinforced by a split sample test (Table 3.3) conducted on the initial pilot population ($n=388$). High IDS scorers were more likely to rate ethnorelative items higher. It may be that people who are more intercultural developed are more sensitive to all indicators of intercultural competence in groups, since they have (by definition) developed the perceptual categories that allow them to see intercultural behavior in general. They also may be more inclined to recognize ethnorelative behavior, while less developed individuals (in DMIS terms) would have fewer perceptual categories for making those discriminations and thus miss seeing more advanced behavior. In quantum/constructivist terms, the high IDS scorers are more likely to observe and thus construct the potential behavior of groups into actual intercultural behavior. This dynamic effect is caught by the interaction of the standardized IDS and GDS scores that yields the CV scores, and eventually the IV score.

Table 3.3 Differences in High and Low IDS Ratings of Group DMIS Behavior (Mean Values and Standard Deviations Are Indicated)

Group scale	IDS \leq 3.705	IDS $>$ 3.705	Difference	p-value
Denial	3.08 ± 0.51	3.19 ± 0.41	-0.11	0.021
Defense	2.50 ± 0.54	2.66 ± 0.46	-0.16	0.003
Defense/Reversal	2.71 ± 0.49	2.87 ± 0.51	-0.16	$p < 0.001$
Minimization	2.95 ± 0.52	3.18 ± 0.49	-0.22	$p < 0.001$
Acceptance	2.95 ± 0.55	3.28 ± 0.61	-0.34	$p < 0.001$
Adaptation	2.71 ± 0.57	3.08 ± 0.59	-0.38	$p < 0.001$
Integration	2.65 ± 0.54	2.96 ± 0.56	-0.30	$p < 0.001$

Demographic variables

As expected, there is no correlation between *gender* and any of the IVI scales (ANOVA on IDS $p=.219$, a non-significant correlation with IV). Technically, this indicates that the test is not biased towards people who identify with one or the other of the two gender categories (male and female) offered. More generally, the lack of correlation can be taken as support for the idea that intercultural sensitivity is not a gender-specific quality. Therefore, whether a group had more women or men would not be relevant to explaining why that group had a higher or lower level of Intercultural Viability.

Table 3.4 Significant Differences in Age on the Individual Development Score (ANOVA $p<.001$)

Age group	Mean	Standard deviation	N
≤ 25	3,5714	0,6397	10
26 - 39	3,7549	0,4346	220
40 - 54	3,8408	0,4274	261
≥ 55	3,9713	0,3987	47
Prefer not to say	4,0179		1
Total	3,8125	0,4367	539

There is, however, a strong effect of *age* on both the IDS scores and the IV scores (Table 3.4). There are significant differences among the four age groups of (1) below 25, (2) 26–39, (3) 40–54, and (4) 55+. Interestingly, the IDS increases significantly through these age groups (Figure 3), running counter to some hopeful thinking that younger people are becoming less ethnocentric and matching the author's long-term observation that each generation needs to resolve anew the developmental issues of intercultural sensitivity. Age even more strongly predicts Intercultural Viability (Spearman $\rho=0.158$, $p<.001$), supporting the idea that intercultural sensitivity is strongly related to life experience, and that the combination of age and certain other experience may be most influential on the translation of individual intercultural development into organizational behavior.

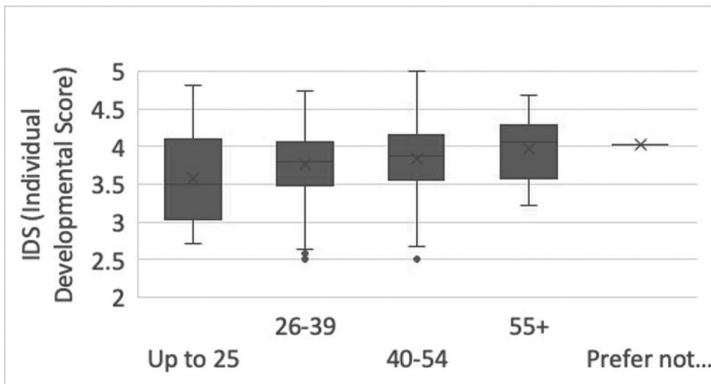


Figure 3.3 IDS Increases Significantly with Age (Spearman rho = .155, $p < .001$)

Experience Variables

There is a strong, significant correlation between *living abroad* (defined as living 12 months or more in a different culture over the age of 18) and both Individual Development and Intercultural Viability. In t-testing, people who have lived abroad are significantly ($p < .001$) different than those who have not. In linear regression analysis, living abroad predicts IDS at $p < .001$ (Table 3.5 and IV at $p < .003$ (Table 3.6). It is expected from many other DMIS studies that living abroad would be correlated with individual development, and here is no exception. The finding that living abroad is somewhat less strongly (but still very significantly) predictive of Intercultural Viability than of Individual Development might reflect the way the scale interaction is set up in the IVI. The IV score would be sensitive to how influences on Individual Development scores are either attenuated or strengthened in interaction with the Group Development scores that are then reflected first in the Contextual Viability interaction and finally in the transformed Intercultural Viability score. Further testing might show that living abroad does not translate as readily as some other experiences from personal development to organizational application.

Table 3.5 Multiple Linear Regression on Individual Development (IDS)

Predictors	Unstandar- dized Coefficients B	Std. Error	Standar- dized Coefficients Beta	Lower Bound (95%-CI)	Upper Bound (95%-CI)	p-value
(Constant)	3.383	0.076		3.2	3.532	<0.001
Age group	0.097	0.027	0.148	0	0.149	<0.001
Lived abroad	0.206	0.036	0.235	0.1	0.276	<0.001
Received intercultural training	0.141	0.036	0.161	0.1	0.212	<0.001

Note: The dependent variable was the individual development scale (IDS). The predictor variables “age group”, “lived abroad” and “received intercultural training” were entered all at once as categorical variables. ANOVA indicated that the predictor variables were significantly associated with the criterion “IDS” ($p < 0.001$). The proportion of explained variance (R^2) was 0.111.

Table 3.6 Multiple Linear Regression on Intercultural Viability (IV)

Predictors	Unstandar- dized Coefficients B	Std. Error	Standar- dized Coefficients Beta	Lower Bound (95%-CI)	Upper Bound (95%-CI)	Sig.
(Constant)	-0.845	0.184		-1.207	-0.482	<0.001
Age group	0.254	0.063	0.181	0.129	0.379	<0.001
Lived abroad	0.255	0.085	0.136	0.088	0.422	0.003
Received intercultural training	0.343	0.085	0.183	0.176	0.509	<0.001

Note: The dependent variable was the intercultural viability score (IVS). The predictor variables “age group”, “lived abroad” and “received intercultural training” were entered all at once as categorical variables. ANOVA indicated that the predictor variables were significantly associated with the criterion “IVS” ($p < 0.001$). The proportion of explained variance (R^2) was 0.088.

Another experience that may translate more readily into organizational behavior is *intercultural training* (no specific criterion was set). People who reported receiving intercultural training were significantly different (t -test $p < .001$) than those who did not receive training, and linear regression analysis shows that intercultural training predicts higher scores in both ID (Table 3.5) and IV (Table 3.6) with $p < .001$. In fact, amongst the measured variables that are predictive of IV, the strongest is intercultural training. So, in a small contrast to living abroad, intercultural training seems to first influence individual development and then become stronger in influencing intercultural viability.

Based on this finding, it may be that intercultural training is a key to translating life experience into interculturally viable organizational behavior.

There is some evidence in this initial analysis of results that we can identify more precisely what kind of group behavior is being influenced by what kind of individual development. For instance, while variables such as living abroad and intercultural training both influence the IDS, that effect does not carry through to the perception of Denial on the GDS. It may be that the living and training experiences are influential on individual resolution of Denial, but that whatever happens in the individual is not translating into the perception of group intercultural behavior. But when we look at Defense in the GDS with linear regression and interaction analysis (Table 3.7), we see that intercultural training is highly interactive ($p < .001$) with the IDS in influencing Defense. In other words, it looks as if intercultural training (but not so much living abroad) is very influential in helping individuals see Defense behavior in groups.

Table 3.7 Linear Regression Showing Interaction of Training on Individual Development Affecting the Perception of Defense in Groups

Analytical output	Without interaction	With interaction
IC Training, beta (p-value)	beta = 0.125 (p = 0.020)	beta = 1.730 (p < 0.001)
IDS, beta (p-value)	beta = 0.207 (p < 0.001)	beta = 0.385 (p < 0.001)
Interaction term: training* IDS, beta (p-value)	NA	beta = -0.433 (p < 0.001)
R ² , coefficient of determination	0.065	0.103

Note: In the first model (“without interaction”), intercultural training was entered as categorical covariate, while the IDS was entered as continuous predictor. In the second model (“with interaction”), an additional interaction term “training*IDS” was introduced.

Next Steps

As the number of organizations in the database grows, the “0” point will be examined for stability and also to see if different kinds of organizations might constitute different reference points. In other words, it might be useful to establish categories of organizations (e.g., consulting, manufacturing, social service, etc.) to which a specific organization would be compared. So far, there is no evidence that such distinctions would generate different points of comparison.

It appears that the IVI is equally valid in both international and domestic diversity contexts (which is also true of individual measures of DMIS), but as

the database grows it will be interesting to see if the “0” stays stable across the two domains of diversity.

Most importantly, efforts will be made to administer the IVI to some relatively fast-changing groups that routinely face new social conditions, such as space station crews or other ad hoc teams operating in stressful conditions. Longitudinal studies could support the claim that higher levels of Intercultural Viability are indeed associated with more adaptability to unknown future social conditions.

Conclusions

In sum, the Intercultural Viability Indicator represents an initial attempt to do two things that are currently not well established in the area of assessing intercultural communication competence. One of those goals is to create a measurement where a group (ranging from a work group, organization, or even society) is the unit and level of analysis. This means that group is treated as a unique entity and not as an aggregate or average of individual measurements, and further that the analysis of data applies only to collective group behavior. The IVI pursues these goals in two ways: (1) it analyzes the interaction between self-perception of individual respondents and their perception of group behavior in terms of intercultural development; and (2) it generates a score that positions the group as a whole relative to a normalized baseline derived from all groups in a database.

The second thing is to position an assessment of intercultural competence solidly in a quantum/constructivist paradigm. The primary expression of that position is the claim that the IVI predicts future adaptability to social change, not by assuming a continuation of current competence, but by assessing the potential for relating to future possibilities in viable ways. Methodologically, the IVI pursues this goal by using a relational (quantum) measurement methodology rather than a standard inference of qualities. Finally, although the IVI uses some standard statistical methods, it claims credibility based mainly on the constructivist standard of trustworthiness.

There are, of course, limitations to this kind of innovative measurement effort. The IVI is clearly a theory-driven instrument so even though it can claim paradigmatic, theoretical, and methodological coherence, its final credibility will depend on its ability to accurately predict future viability of groups, as it claims. Since that is a necessarily longitudinal criterion, the actual credibility of the instrument will need to accrue (or not) over time. One immediate compensation for this limitation is the use of the Developmental Model of Intercultural Sensitivity as the analytical tool. DMIS is a grounded theory that

has had considerable success in predicting the effectiveness of interventions for facilitating intercultural learning, so there is some reason to expect that it may contribute to the predictability of the IVI.

Another obvious limitation of the IVI is that it is embedded in the relatively unfamiliar constructivist paradigm. This means that it will likely be viewed and evaluated from different paradigmatic positions, generating “paradigmatic confusion” (Bennett, 2012, 2013). For instance, from a traditional positivist paradigm, the IVI would appear deficient in clearly defining independent and dependent variables, and from a relativist/critical paradigm it fails to position itself in terms of cultural assumptions and implied hegemony. These questions are framed differently in a constructivist paradigm, where there is no assumption of a priori conditions and contextual positionality is a matter of ongoing boundary definition.

The IVI is intended to be a useful tool for work groups, executive teams, organizations, and societies to assess their potential to survive and thrive in unknown future social conditions. Certainly, those conditions are changing, both domestically in multicultural societies and internationally in global organizations. Tools that target “learning” at a group level of analysis (e.g., “The Learning Organization Survey” by Garvin et al., 2008) also have the goal of predicting future adaptation, but they approach the issue from a more relativist perspective that focuses on the current systemic conditions of the group. The IVI could add two major advantages beyond those kinds of assessments: (1) by targeting group-level intercultural competence, the IVI does not treat complex intergroup relations as a subcategory of “learning,” but rather focuses directly on the deeper issue of how to perceive and relate to otherness in more consciously evolved ways; and (2) by focusing on the co-ontogenic relationship of individual and group, the IVI enacts a quantum perspective on the construction of “future” that is not rooted in current organizational conditions.

Finally, it is clear that we human beings need to be doing something different. As Albert Einstein is purported to have said, “The definition of insanity is doing the same thing over and over and expecting different results.” In the intercultural field, we have been talking about cultural contexts and various sets of knowledge, attitudes, and skills necessary to navigate among them for some time now, and it is unclear that we are more ready than before to live in a dramatically more multicultural future. Interculturalists are rightly returning their attention to issues of race and gender relations that, despite being present in the origins of the field, have faded in our collective disciplinary memory. But if we return to those issues with the same relativist/critical perspective that has characterized us all along, we are unlikely to see different results.

Instead of more of the same, let's embrace the new paradigm and see how we can apply it to the social issues facing us. The fresh effort might help us to co-create our social realities in kinder, more equitable, and ultimately more viable ways.

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