Assessing cultural competence: a comparison of two measures and their utility in global learning experiences within healthcare education

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Abstract

Objectives The purpose of this study was to investigate the relationship between two measures of cultural competence (CC), one more widely used, the other designed for healthcare students. It was hypothesized that there would be strong correlations allowing educators to forgo one measure for the other based on utility, resources, and sustainability.

Design Exploratory, cross sectional design

Setting One US Doctor of Physical Therapy (DPT) academic program.

Participants 145 DPT students.

Main outcome measures Intercultural Development Inventory® (IDI) and Inventory for Assessing the Process of Cultural Competence-among healthcare professionals-Student Version© (IAPCC-SV).

Results There were significant (negligible to low, rho = 0.16–0.28; $p < 0.05$) relationships between the IAPCC-SV total and three constructs with IDI Perceived Orientation scores, and the IAPCCSV total and two constructs with the IDI Developmental Orientation scores. There were significant (negligible to low, rho = 0.18–0.35; $p < 0.05$) relationships between IAPCC-SV total and construct scores with the IDI Acceptance and Adaptation orientation scores. Students with scores in an IDI DO of Acceptance or Adaptation were significantly more likely to have an IAPCC-SV score in the category of Culturally Competent ($X2 = 3.70$, $p = 0.05$).

Conclusions The discordance of the two measures suggests that the instruments measure unrelated constructs (worldviews, attributes or skills) of cultural competence that are exclusive to each measure and context dependent. Context specific measures may not be generalized to a greater worldview, and visa versa. Multimodal assessment that triangulates data and supports student learning outcomes may be the most effective strategy to capture the impact of curriculum and/or a global learning experience on students' development of cultural competence.

Contribution of the Paper

- The IDI and IAPCC-SV measure different aspects of CC and are not strongly related.
- Any measure of CC specific to the healthcare setting should be used in combination with less contextually dependent measures of CC when learning objectives include skills that are expected to be generalized to a broader community or setting.
- Triangulation of quantitative data and qualitative analysis of students' work would result in a deeper understanding of students' intercultural development across settings, allow students to set personal goals, and provide rich data for student learning outcomes and programmatic assessments.

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Introduction

Cultural competence (CC) includes skills to listen, observe, evaluate, analyze, interpret and relate in order to successfully engage with differences. The National Center for Cultural Competence defines CC in the healthcare environment as the ability of providers and organizations to effectively deliver health care services that meet the social, cultural, and linguistic needs of patients [1]. Examples of behaviors and practices of healthcare providers that reflect CC include valuing and managing the dynamics of difference, and adapting to diversity by modifying or selecting appropriate patient assessments, interventions, and means of interacting with families.

Healthcare workers engage with increasingly more diverse populations. Meeting the healthcare needs of diverse populations means more than providing language translation. It requires a complex understanding of the impact of lifestyle and cultural differences on health access, status and health-related behaviors [2]. Minority groups are disproportionally impacted by chronic illness and experience limitations in accessing high quality care, resulting in less favorable health outcomes [3]. CC in healthcare providers can reduce healthcare disparities, improve respect and trust amongst healthcare workers and patients, and reduce the number of missed appointments while empowering patients to take responsibility for their own healthcare decisions [4].

CC is a professional responsibility that has been well established and supported by numerous healthcare organizations across the globe. The World Health Organization (WHO) emphasizes an approach to healthcare that incorporates "cultural awareness…is critical to the development of adaptive, equitable and sustainable health care systems, and to making general improvements in many areas of population health and well-being".[5] The WHO reports emphasize the importance of healthcare practices and policies that are culturally sensitive and responsive [5].

Facilitating the development of culturally competent physiotherapists is an established goal of the physical therapy profession [6]. The minimal skill requirements for physiotherapy graduates include: eliciting the "patient's story" to avoid stereotypical assumptions, utilizing information about health disparities during patient care, providing care in a non-judgmental manner, acknowledging personal biases, recognizing individual and cultural differences, and adapting behavior accordingly in all aspects of physiotherapy care [7]. These skills should be an expectation for physiotherapists, therefore must be instilled and developed throughout the academic process.

There is enormous variability in approaches to "teach" CC in higher education. Healthcare education programs have implemented curricular content to target CC. Program goals and student outcomes must be assessed to validate the investment of resources and support the legitimacy of such programs. Guidance for choosing an assessment tool to measure CC is not available, and choosing a tool can be confusing [8,9]. Decisions to adopt an assessment tool are frequently based on convenience, cost, and training requirements rather than best fit for the learning experience and desired outcomes. Many academicians choose to create their own surveys due to the overwhelming nature of the decision and the inability to sustain costs associated with the measures [10]. Assessing student CC calls for summative and formative assessment approaches [8]. Deardorff suggests assessment methods include the student as a self assessor of their own learning goals and experiences [8]. A standardized assessment tool, therefore, is just one piece of the outcomes puzzle.

Scholars agree that CC develops over time. The Intercultural Development Inventory® (IDI) [11] and the Inventory for Assessing the Process of Cultural Competence-among healthcare professionals-Student Version© (IAPCC-SV) [12] are two common measures of CC that are supported by a developmental model. Both theoretical frameworks ascertain that an individual becomes progressively culturally competent over time through intentional, experiential learning. Although the IDI has strong psychometric properties, it is not specifically designed for healthcare providers [11]. The IAPCC-SV has established reliability and validity and was intentionally designed for healthcare workers and students in a healthcare field [13] but is not as widely utilized as the IDI. The IDI and the IAPCC-SV both measure CC, with notable similarities and differences (see Table 1).

The IDI v.3 is a measure of CC along a continuum of five orientations [14]. Scores on the IDI indicate levels of developmental progression from *Denial* and *Polarization*, to *Minimization*, then *Acceptance* and *Adaptation* [15]. This model assumes that "construing cultural difference can become an active part of one's worldview, eventuating in an expanded understanding of one's own and other cultures." [15 p423]. As an individual progresses through the continuum of orientations, a new and more complex understanding of cultural patterns is realized [15].

The IDI generates an individual report with a score of Perceived Orientation (PO), reflecting the self-perception of one's cultural orientation and a Developmental Orientation (DO), which reflects the orientation of how others actually experience the individual [15]. The IDI has demonstrated senstivity to change, statistical reliability, and cross cultural, content and construct validity and has emerged as a prevalent measure of CC in student populations [15–17].

The Inventory for Assessing the Process of Cultural Competence-among healthcare professionals-Student Version is a comprehensive measure intended to quantify the level of CC in students in health professions for program and student learning outcomes [18]. It measures five interacting constructs that constitute CC; *Cultural Awareness, Cultural Skill, Cultural Knowledge, Cultural Encounters, and Cultural Desire*. Each construct contributes to effective work with patients and a healthcare student's ability to provide culturally responsive services [19]. This

Table 1
IDI and IAPCC-SV Comparison Chart.

	IDI	IAPCC-SV
Type	Discriminative, Evaluative, Predictive.	Discriminative, Evaluative
Target population	General population,10th grade reading level and higher.	Students in health profession education
Content and Construct Validity	Construct Validity with World mindedness (r=.93) Discriminant Validity with Ethnocentrism Scale (r=-.71)[15]	Face & content validity established via national experts and literature on [13]
Predictive Validity	Strong toward recruitment of employees representing diversity	
Reliability	Cronbach's alpha=.80-.85[15]	IAPCC-SV total Cronbach's alpha=.783 and.81 Cultural Desire Cronbach's alpha=.673, remaining 4 construct scales=.74.[19]
Correlation with Socially Desirable responses	No significant correlations between IDI and Social Desirability Scale [15]	Not tested
Generalizability	Generalizable across large, multicultural samples.[15]	Not intended for individuals outside of healthcare. There is a version for non-student healthcare professionals
Items/Time requirements	50 items/15–20 min[15]	20 items/10–15 min
Cost	$11.00 per student online (academic institution & administered by Qualified Administrator)	$20 per student online $8/paper
Response	5 point Likert scale 1=strongly disagree, 5=strongly agree	4 point Likert scale, strongly agree-strongly disagree
Categorization & Scoring	*Denial* 55–70 *Polarization* 70.01–85 *Minimization* 85.01–115 *Acceptance* 115.01–130 *Adaptation* 130.01–145	*Culturally Incompetent* 20–40 *Culturally Aware* 41–59 *Culturally Competent* 60–74 *Culturally Proficient* 75–80
Training/Examiner Qualification/Support	Requires 2.5 day Qualified Administrator Training/Ongoing virtual community and support	none
Direct Cost of Training	$1600.00	0

measure does not generate an individual assessment report or actionable developmental plan but can be used to facilitate discussion, encourage self-reflection, and identify areas for growth and goal setting. The IAPCC-SV has established reliability and validity [13]. Scores are translated into four developmental categories from *culturally incompetent, culturally aware, culturally competent to culturally proficient*. The IAPCC-SV has been used in studies in physiotherapy and many healthcare professions [20–24].

The IDI and IAPCC-SV present unique strengths and limitations. The purpose of this study was to investigate the relationship between IDI and IAPCC-SV healthcare student scores and explore the difference between expected and observed IDI and IAPCC-SV category distributions. It was hypothesized that there would be strong correlations between both measures which would allow educators to forgo one measure for the other based on utility, resources, and sustainability and compatibility within a particular academic program.

Methods

This study was part of a national multi-site study examining CC in healthcare students.

Subjects

Participants were from a sample of convenience of 145 Doctor of Physical Therapy (DPT) students enrolled in a 3-year US academic program. The students were from two different cohorts: first-year students (FYS; n = 78); and third-year students (TYS; n = 82). Participant demographics are displayed in Table 2. All participants provided informed consent and the study was approved by the Institutional

Review Boards of both universities. The IDI and the IAPCC-SV were administered online to FYS within 4 weeks of starting the program and to the TYS within 4 weeks of graduation.

Data analysis

There was matched IAPCC-SV and IDI data for 72 FYSs, (6 subjects were missing data) and 73 TYSs (9 subjects were missing data). A statistical software program (SPSS version 19) was used for data analysis. Descriptive statistics were calculated for mean, range, standard deviation, and 95% confidence intervals for IDI PO and DO and the IAPCC-SV total and construct scores. Spearman's rank correlation coefficents were calculated to investigate the relationship between the IDI and IAPCC-SV scores. Confidence intervals were calculated with Fisher Z method [25]. Chi-square nonparametric statistical analysis was used to test the difference in distributions of observed versus expected frequency counts in the IAPCC-SV (*Culturally Competent* & *Culturally Aware* levels) and IDI PO and DO orientation categories of *Minimization* versus *Acceptance/ Adaptation*. Significance was determined at an alpha= 0.05.

Results

Table 3 shows the descriptive statistics for the student scores. The mean for the IAPCC-SV total score categorized the students as *Culturally Competent*. The mean PO score categorized the students in the IDI orientation of *Acceptance* and the mean DO score categorized the students in the IDI orientation of *Minimization*.

Table 4 displays correlation statistics and 95% confidence intervals for the IDI and IAPCC-SV student scores. There were significant (negligible to low, rho = 0.16–0.28; $p < 0.05$) [26], relationships between the IAPCC-SV total and three construct scores of *Cultural Knowledge*, *Skill*, and *Desire* with IDI *PO* scores, as well as the IAPCC-SV total, and the constructs of *Cultural Knowledge* and *Skill* with the IDI DO scores. Eight percent of the variance ($R^2 =0.08$) in

Table 2
Subject Demographics n = 145.

Age (years) @ IAPCC-SV administration	
< 18	0
18–24	53
25–34	85
35 or more	7
Gender	
Female	87
Male	58
Other	0
Ethnicity	
American Indian or Alaska Native	2
Asian	8
Black or African American	0
Hispanic/Latino	5
Native Hawaiian or Pacific Islander	0
White	105
Other	2
Two or more ethnicities/multi-ethnic	23

Table 3
Descriptive Statistics (raw scores) IAPCC-SV and IDI, n = 145.

	Min	Max	Mean	SD
IAPCC-SV				
IAPCC-SV total	49	76	61.9	5.3
Cultural Awareness	8	12	10.6	0.8
Cultural Knowledge	7	19	13.3	2.2
Cultural Skill	3	12	7.9	1.4
Cultural Encounters	11	20	15.9	1.6
Cultural Desire	10	16	14.2	1.6
IDI				
Perceived Orientation	106.6	144.2	123.8	7.2
Developmental Orientation	62.3	143.7	96.9	16.9

IDI PO scores can be explained by the variance in IAPCC-SV total scores and 3% of the variance ($R^2 = .03$) in IDI DO scores can be explained by the variance in IAPCC-SV total scores.

There were significant (negligible to low, rho = 0.18–0.35; $p < 0.05$), relationships between IAPCC-SV total and each of the IAPCC-SV construct scores with the IDI item scores in the *Acceptance* and *Adaptation* orientations. There were also significant (negligible to low, rho =.24 −.39) relationships between IDI *Adaptation* scores and the IAPCC-SV total, and the constructs of *Cultural Awareness*, *Cultural Knowledge*, *Cultural Skills*, *Cultural Encounters* and *Cultural Desire*. The IAPCC-SV total score accounted for 12% of the variance ($R^2 = .12$, 95%CI=.04–.23) in the item scores related to the IDI the *Acceptance* orientation and 15% of the variance ($R^2 = .15$, 95%CI=.06–.27) in the item scores related to the *Adaptation* orientation. Interpretation of the 95% confidence intervals around the variance values suggest that as much as 72%−96% of the variance in the *Acceptance* and *Adaptation* orientation scores remains unexplained when predicting IAPCC-SV total scores.

Table 5 displays the frequency distributions of students in the IDI orientations and the IAPCC-SV categorical levels. The Chi-square test results found no difference between observed versus expected frequency distributions between IAPCC-SV and IDI PO category assignments. Those students with an IDI DO of *Acceptance* or *Adaptation* were significantly more likely to have an IAPCC-SV score in the category of *Culturally Competent* compared to *Culturally Aware* ($X2 = 3.70$, p = 0.05).

Discussion

The hypotheses that there would be a strong significant relationship between IDI and IAPCC-SV student scores and a significant difference between expected and observed student IDI PO and DO and IAPCC-SV category distributions was not supported by the study results. Although IAPCC-SV total scores did more strongly correlate with the IDI PO compared to the IDI DO scores, the magnitude of the correlations and the uppermost 95% CI's were far below the standard recommended for convergent validity of two assessments [27]. The discordance of the two measures suggests that the instruments measure unrelated constructs (worldviews, attributes or skills) of CC that are exclusive to each measure and context dependent.

Theory

The theoretical models of the IDI and IAPCC-SV are similar in that both acknowledge the developmental nature of CC [12,15]. The IDI framework is different from the IAPCC-SV in that it is a model of changes in worldview structure and not a descriptive model of changes in attitudes, skills and behavior. The IDI framework aims to improve the ability to recognize and respond to how

Table 4
IDI and IAPCC-SV Correlations, n = 145.

	IAPCC-SV					
	IAPCC-SV Total	**95% CI**	**Cultural Awareness**	**95%CI**	**Cultural Knowledge**	**95% CI**
IDI						
Perceived Orientation	.28 * *	.12-.42	.11	-.05-.20	.28 * *	.12-.42
Developmental Orientation	.19 *	.03-.34	.06	-.10-.22	.22 * *	.06-.37
Denial	.06	-.10-.22	.00	-.16-.17	.11	-.05-.27
Polarization (Defense)	.00	-.16-.16	.08	-.08-.24	.05	-.12-.21
Polarization (Reversal)	.07	-.09-.23	.05	-.12-.21	.11	-.05-.27
Minimization	.06	-.10-.22	-.02	-.18-.14	.11	-.05-.27
Acceptance	.35 * *	.20-.48	.35 * *	.20-.49	.28 * *	.12-.42
Adaptation	.39 * *	.24-.52	.25 * *	.09-.40	.34 * *	.19-.48
	IAPCC-SV Cultural Skill	**95% CI**	**Cultural Encounters**	**95% CI**	**Cultural Desire**	**95% CI**
IDI						
Perceived Orientation	.28 * *	.12-.42	.14	-.02-.30	.16 *	.00-.32
Developmental Orientation	.21 *	.05-.36	.07	-.09-.23	.10	-.06-.26
Denial	.06	-.11-.22	.02	-.14-.18	.05	-.11-.21
Polarization (Defense)	-.03	-.19-.14	-.02	-.18-.14	-.04	-.20-.12
Polarization (Reversal)	.15	-.01-.31	-.04	-.20-.12	.00	-.16-.17
Minimization	.15	-.01-.31	-.06	-.22-.10	-.20	-.35-.04
Acceptance	.18 *	.02-.33	.31 * *	.16-.45	.26 *	.10-.41
Adaptation	.30 * *	.14-.44	.27 * *	.11-.42	.24 * *	.08-.39

*denotes significance < .05.
* *denotes significance < .0001.

Table 5
Category Frequency Distributions (n = 145).

IAPCC-SV Category	IDI Perceived Orientation				
	Denial & Polarization PO*	Minimization PO*	Acceptance & Adaptation PO*	Chi square	p value
Proficient	0	0	4		
Competent	0	5	90	1.48	0.19
Aware	0	5	41		
Incompetent	0	0	0		
total	0	10	135		
IAPCC-SV Category	IDI Developmental Orientation				
	Denial & Polarization DO**	Minimization DO**	Acceptance & Adaptation DO**	Chi square	p value
Proficient	0	2	2		
Competent	20	55	20	3.7	0.05
Aware	9	33	4		
Incompetent	0	0	0		
total	29	90	26		

*Perceived Orientation.
**Developmental Orientation.

cultural difference in general operates in a wide range of intercultural encounters [15] that are not specific to healthcare, where the IAPCC-SV is intended solely for a healthcare setting [12].

Categorization schemes

The IAPCC-SV and IDI have different categorization schemes based on overall student scores. None of the students in this study were categorized in the lowest levels on either measure. Only 3% scored in the highest IAPCC-SV category, while over 90% of students perceived themselves to be in the two highest IDI PO categories. Only 18% of students were categorized in the two highest IDI DO categories. The gap between the PO and DO scores, which is commonly reported, indicates a significant difference in how students perceive themselves and how others experience them during an actual intercultural encounter [28].

Categorization terminology can confuse the interpretation of skill level, learning needs, development, and competencies for clinical practice. The third level of the IAPCC-SV is categorized as *Culturally Competent* which may lead one to believe the student has achieved the goal of CC and thus, no further work or learning is required. This risk with the IAPCC-SV terminology may result in a student seeing their need for growth and development of CC solely in terms of the resultant categories of the measure. Although CC is developed over time, and continues to develop in clinical practice, the intention of the student version of the IAPCC is to assess the student's ability to meet the needs of patients of any culture, in a healthcare setting. It should be the goal of every healthcare education program to graduate students with scores in the top level on the IAPCC-SV as a foundation for the future development of their skills in CC. There is a healthcare provider version

of the IAPCC that further assesses CC skill development beyond entry-level.

Psychometrics

Strong reliability and validity for the IDI has been well-established however, psychometrics properties have not been established in healthcare workers or students [11]. The IDI's, sensitivity to change in healthcare settings and healthcare education programs needs further investigation. After finding no change in IDI scores in three studies of CC in healthcare students, authors concluded either the training was insufficient, the PO DO gap was too large, or the sample size too small [29–31]. None attributed the absence of significant change in IDI scores to the lack of applicability of the IDI in the healthcare setting. One could speculate that with such rich high impact educational practices, changes may have been missed due to low sensitivity of the IDI in the healthcare setting and a more setting-specific measure may have identified development of CC with this population and intervention [29,30].

Context dependent

Measures of CC should be chosen carefully based on many variables, including student outcomes specific to the setting in which the CC skills are applied. Because the IDI is not specific to the healthcare settings, it is unknown if students even in the highest developmental orientation of *Adaptation* would be effective in serving diverse populations in a healthcare setting. Although the IDI framework implies that intercultural sensitivity and intercultural competence are related [15], the findings in this study would suggest that healthcare students who are operating at orientations in *Minimization* or even in the orientation of *Acceptance*, do not

necessarily possess the knowledge, skills and values to act with *cultural proficiency* in the healthcare setting. In other words, a worldview orientation of *Acceptance* in and of itself may not be sufficient for an effective encounter in a healthcare setting with individuals of differing cultural groups. In healthcare specifically, providers who are functioning from a *Minimization* orientation, may be tempted to enter into an intercultural exchange by over simplifying the obvious similarities of people's physical biology [15]. This generalization may be transferred to a subconscious assumption of similarities in healthcare needs, desires, behaviors and motivations. A *Minimization* mindset in healthcare providers has the potential to result in a healthcare system that insists on correcting an individual's healthcare values, beliefs and lifestyle choices to fit with the dominant culture expectations [15]. CC in a healthcare setting requires very specific knowledge, experiences and reflection. At the same time, CC skills in a healthcare setting, without a shift in one's worldview, would not necessarily equate to improved CC in generalized settings [15]. It is interesting that, in this study, the strongest correlation (although low) was found between the IDI DO *Adaptation* item scores and the IAPCC-SV total scores. This suggests that higher *Adaptation* item scores reflect an enhanced ability to change and adapt behavior for successful navigation in an intercultural encounter and could account for higher IAPCC-SV scores and greater cultural awareness, knowledge and skills in healthcare settings.

This study exemplifies the important of a context specific measure of CC. Measures of CC should be chosen carefully based on many variables, including intended student outcomes specific to the setting in which the CC skills are applied. Triangulating data from multiple sources may relieve concerns of biases. Student reflections, assignments and data reflecting the patients' experience during encounters are possible sources. Using feedback from patients as well, can promote the delivery of culturally sensitive healthcare [18]. This method of assessing CC has been supported by experts in the field [8] and is being employed by both authors' academic programs.

Limitations

Results of this study should be considered with the following limitations. The greatest percentage of participants were white females. Generalizability to other student populations beyond physical therapy may be restricted. Replication of this study would require a faculty member who is trained in the IDI.

Conclusion

The results of this study demonstrate that the IDI and IAPCC-SV measure different aspects of CC and are not strongly related. The IDI measures a global, worldview prospective of CC while IAPCC-SV measures CC specific to healthcare. Items on the IAPCC-SV reflect basic skills, competencies and expectations in healthcare students [31,32]. The results of this study exemplify the limits of the IAPCC-SV, when compared to the IDI, in measuring CC beyond the healthcare setting. If the goal of the healthcare education program is for students to become CC in broad settings beyond healthcare, evidence-based curricula and learning experiences must be designed and accompanied by appropriate assessments.

This research suggests that any measure of CC specific to the healthcare setting should be used in combination with less contextually dependent measures of CC when learning objectives include skills that are expected to be generalized to a broader community or setting. Triangulation of quantitative data and qualitative analysis of students' work (self-assessment, reflections, papers, presentations, etc.) would result in a deeper understanding of students' CC development across settings, allow students to set personal goals, and provide rich data for student learning outcomes and programmatic assessments in the healthcare setting and beyond [8].

Declaration of Interest Statement

There are no conflicts of interest to disclose.

Data Statement

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

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