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# Development and implementation of an evaluation tool for measuring Cultural Competency learning activities in Health and Sport Science undergraduate students

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## Introduction

Preparing future health professionals to deliver adequate care necessitates an understanding of the challenges and situations that certain groups may encounter in the pursuit of healthcare and precedes delivering the standard level of care to all. In other words, the promotion of cultural competence is a vital portion of the modern education of health professionals. Cultural competence is a multifaceted concept, defined by Betancourt and colleagues (2003) as the evaluation of socioeconomic and cultural factors that affect the healthcare experience of certain groups, understanding where in the healthcare process factors come into play, and finally developing solutions to ensure quality and equitable health care across all groups. With the increasing diversity across society, understanding cultural competence is an important step towards providing relevant and appropriate healthcare (US Census Bureau, 2019).

Building cultural competence is a continual process. Campinha-Bacote (1998) developed a framework to demonstrate the process of building cultural competency in healthcare providers (Table 1). There are five constructs in the framework. The first construct is cultural awareness and it builds the foundation for cultural competency. In cultural awareness, an individual examines their own bias or prejudice towards others who are different than oneself. Cultural knowledge, skill and encounter follow awareness. The final construct is cultural desire and entails the desire for an individual to engage with others outside of their own cultural group. Therefore, according to Campinha-Bacote (1998), cultural competency is gained by progressing through the five constructs.

**Table 1: Definition of constructs from the Process of Cultural Competency in the Delivery of Healthcare Services**

| Construct | Definition |
|---|---|
| Cultural awareness | Examining self for biases, prejudices, or stereotypes one has for other individuals who are in some way different than self. |
| Cultural knowledge | Obtaining knowledge regarding culturally diverse groups |
| Cultural skill | Gather appropriate information and perform culturally-appropriate and sensitive care. |
| Cultural encounter | Seeking interaction with individuals from culturally-diverse backgrounds |
| Cultural desire | Motivation by the practitioner to want to become culturally competent. |

*Campinha-Bacote, 1998

The promotion of cultural competence has been previously shown to positively impact the outcomes and preparedness of students (Knecht et al., 2018; Sargent et al., 2005; Smith & Silk, 2011). For instance, one study found medical residents who had engaged in activities associated with increasing cultural competence had increased feelings of readiness (Lopez et al., 2008).

Due to the importance of cultural competence in practice, the integration of such competence into student education is prevalent in the accreditation standards of multiple health care disciplines. For example, The Accreditation Council for Education in Nutrition and Dietetics (ACEND, 2016) requires that upon graduation students are able to demonstrate an understanding of cultural competence and translate it into interactions with clients, colleagues and staff. Similarly, the Accreditation Council for Occupational Therapy (2018) mandates that the process of referral, screening, evaluation, and intervention be culturally relevant to adequately serve diverse persons, groups, and populations. The Commission on Sport Management Accreditation (COSMA) likewise highlights the integration of diversity and multicultural components into sport management curriculum (2021). Standards that require the application of counseling and communication skills to diverse populations are included in the accreditation for exercise science programs, outlined by the Commission on Accreditation of Allied Health Education Programs (2004). Physical therapy also validates the integration of multicultural learning experiences in education but does not require its inclusion in the curriculum (Commission on Accreditation in Physical Therapy Education, 2019). While the incorporation of cultural competency standards in the fields of exercise science and physical therapy are less specific, their inclusion is warranted and essential to the development of adequate care.

Hence, identifying pedagogical methods to promote such competency in students is necessitated. Several key themes important to the successful promotion of cultural competence have been acquired from colleges and universities and guide the framework to developing such competency in healthcare students. Different methods include international experiences, curriculum inclusion, simulation, and practice rotations (Arif et al. 2019; Bauer & Bai, 2020; Haack, 2008; Liu et al., 2018, Parker et al., 2020). In one example, the Doctor of Pharmacy program at Drake University took a multi-method approach, requiring all students to take coursework directly related to cultural competency and related ideas, participate in focus groups, and have direct contact with diverse populations as a part of program-mandated clinical rotations (Haack, 2008). Additionally, programs have discovered that beginning a curriculum for cultural competence earlier in student educational endeavors yields better results in terms of building student's cultural competence (Brathwaite, 2006). Focusing on the promotion of a culturally competent curriculum and the incorporation of activities and experiences that are associated with building cultural competence has been demonstrated as an important development in education and the health professions (Choi & Kim, 2018; Daugherty & Kearney, 2017; Singleton, 2017). Depending on the student and institution, different methods and activities may be available for cultural competency development. Therefore, determining which students are participating in as well as the impact of each on promoting competency can inform cultural competency's programmatic development.

Ultimately, understanding how students grasp these concepts is a major component of developing prepared health professionals. Therefore, the primary purpose of this study was to develop an instrument identifying methods and activities promoting cultural competency in university students in the field of health sciences. Secondly, we examined the relationship between engagement in cultural competency building activities and their degree of cultural competence. While there are multiple frameworks of cultural competency available in the literature, we adopted the Process of Cultural Competency in the Delivery of Healthcare Services for this study due to the validity of measures associated with the framework and health focus.

## Methods

Participants

This was a descriptive cross-sectional study completed with students in a department of health and sport science at a mid-sized, private university. Participants included undergraduate freshman and senior students from the following degree programs: dietetics, sport management, pre-physical therapy, exercise physiology or exercise science. This study was approved by the Institutional Review Board of the University.

Instruments

The Inventory for Assessing The Process of Cultural Competence For Healthcare Professionals-Student Version (IAPCC-SV), which is specifically designed for undergraduate students, was used to assess cultural competence in the student sample (Fitzgerald, Cronin and Campinha-Bacote, 2009). The assessment contains 20 statements addressing a range of constructs associated with cultural competence and responses are measured using a 4-point Likert scale containing the responses “strongly agree”, “agree”, “disagree”, and “strongly disagree”. The constructs measured are based on the Process of Cultural Competency in the Delivery of Healthcare Services (Campinha-Bacote, 1998) and include cultural awareness, cultural knowledge, cultural skill, cultural encounters, and cultural desires (Table 1). The assessment also includes a scoring system which was specifically developed, on a scale of 20 to 80, with higher scores being associated with higher levels of cultural competence.

Cultural learning inventory (CLI): Additionally, students completed a cultural learning inventory in which they self-assessed factors that have been previously associated with higher levels of cultural competency in health science students. The assessment was developed by performing a review of the relevant literature concerning cultural competence in students entering the health professions and identifying key factors and experiences that students and faculty identified as being central to the development of cultural competency. These factors were then constructed into definitive statements that the students were asked to mark if they felt the scenario applied to what they experienced in their program. Higher conjugate scores indicated higher levels of engagement in cultural competency building activities in students.

Procedures and Analysis

The IAPCC-SV and CLI were emailed to HSS first- and fourth-year students via Google Forms. The data was then downloaded into IBM SPSS Version 23 for analysis. For CLI, an exploratory factor analysis (EFA) using principle component analysis with varimax rotation was performed to identify latent factors of the construct. In EFA, cutoff criteria such as eigenvalues, item communalities, and factor loadings were used to determine the number of factors derived from the analysis (Hair et al., 2010). Specifically, factors with the eigenvalue greater than 1 were retained. Items with a factor loading smaller than 0.4 or communality value less than 0.5 or with less than 0.2 difference on cross-loadings were removed. Cronbach’s alpha was used to determine the relationship between items within each factor. To examine the correlation between cultural competency and learning activities, bivariate correlations were utilized to examine the relationship between the constructs determined from the cultural learning inventory and cultural

competency. An independent t-test was performed to examine differences in learning constructs and cultural competency between freshman and senior students.

## Results

A total of 167 students participated in the study (100 first year and 67 graduating). Of the graduating students, only 25 completed that IAPCC-SV with all completing the cultural learning inventory questionnaire. Further, all first-year students completed both questionnaires. In regard to programs of study, 58 of the participants were in Pre-Physical Therapy, 40 Exercise Science, 29 Exercise Physiology, 23 Sport Management, and 17 Dietetics.

Factor Analysis and Internal Reliability

A four-factor construct consisting of 14 cultural learning-related items were identified, namely experience and interaction, co-curricular, curricular and training, which accounted for 59.94% of the total variance (Table 2). The KMO test (=0.794) and Bartlett's test (=486.81; p<.001) both indicated adequate sample for structure detection in this study (Hair et al., 2010). The scree plot test also suggested the appropriateness of a four-factor construct. The Cronbach's alpha coefficient scores of extracted factors ranged from .60 to .74, which are deemed acceptable for an exploratory study (van Griethuijsen et al., 2014).

**Table 2: Results of factor analysis for culture learning inventory**

| **Factors and items** | **Factor Loading (communalities)** | | | |
|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| **Experience and Interaction (α=0.71)** | | | | |
| I participated in a community-engagement project within a diverse setting | 0.67 (0.55) | | | |
| I have participated in an experience which gives perspective of the people I will be serving in my future profession | 0.51 (0.45) | | | |
| I interacted with people form diverse cultures and backgrounds on campus during my stint at UD[HP9] | 0.79 (0.65) | | | |
| I interacted with people from diverse cultures and backgrounds off campus as part of my program | 0.80 (0.68) | | | |
| **Training (α=0.73)** | | | | |

| | | | | |
|---|---|---|---|---|
| I completed an internship/clinical rotation in a diverse setting | | 0.76 (0.63) | | |
| I have undergone training about understanding implicit bias and attitudes towards different cultures | | 0.63 (0.61) | | |
| I have received cross-cultural training in my program that I feel has prepared me to serve diverse populations | | 0.71 (0.66) | | |
| I received cultural competence training early on in my program | | 0.69 (0.71) | | |
| **Curriculum (α=0.65)** | | | | |
| I am able to speak multiple languages fluently | | | 0.63 (0.48) | |
| Cultural competence curriculum was delivered in both traditional and interactive ways | | | 0.68 (0.69) | |
| Cultural competence curriculum effectively focused on communication across both language and cultural barriers | | | 0.71 (0.62) | |
| The relationship between cultural competency and organizational leadership has been stressed in my program | | | 0.52(0.49) | |
| **Co-curricular and programmatic (α=0.60)** | | | | |
| I completed coursework that was related to cultural competency or learning about dealing with people not like myself | | | | 0.70 (0.59) |
| I have participated in focus groups or panel discussions that center on cultural competency or what cultural competency means in my field | | | | 0.76 (0.60) |

**Correlations between cultural learning inventory and cultural competency**

Table 3 provides the correlation coefficients for the inventory and cultural competency constructs. Experience and interaction, co-curricular, and training were positively correlated to each of the five cultural competency constructs and total score ($p<.05$). For curricular, only cultural knowledge and total score had a significant positive correlation ($p<.01$).

**Table 3: Correlations between the cultural inventory constructs and cultural competency**

| | Experience and Interaction | Co-Curricular | Training | Curricular |
|---|---|---|---|---|
| Cultural awareness | .22* | .18* | .28** | .05 |
| Cultural Knowledge | .35** | .36** | .54** | .32** |
| Cultural Skill | .39** | .28** | .44** | .15 |
| Cultural Encounter | .29** | .25** | .36** | .14 |
| Cultural Desire | .39** | .23* | .22* | .02 |
| IAPCC Total Score | .48** | .39** | .53** | .29** |

*Note: Differences in cultural inventory between first year and graduating health science students *<.05, **<.01*

First year students indicated significantly less exposure to each of the four cultural inventory constructs (Table 4). Further, when first-year students (n=98) were compared to graduating students (n=25), they had a significantly lower score for each of the five cultural competency constructs ($p<.01$) as well as overall competency score ($t=-6.91$, 110; $p<.01$).

**Table 4: Differences in cultural inventory constructs between First year and Graduating Seniors**

| | First Year (n=98) | | Graduating (n=62) | | *p-value* |
|---|---|---|---|---|---|
| | M | SD | M | SD | |
| Experience and Interaction | 2.30 | .60 | 3.56 | .82 | <.01 |
| Co-Curricular | 2.04 | .60 | 3.67 | 1.30 | <.01 |

| | | | | | |
|---|---|---|---|---|---|
| Training | 1.37 | .59 | 3.21 | 1.19 | <.01 |
| Curricular | 1.75 | .60 | 2.70 | 1.15 | <.01 |

## Discussion

In the present study, we identified multiple methods and activities that were positively associated with cultural competence in undergraduate students. The strongest correlations were observed between training and cultural knowledge, as well as training and overall cultural competency score. Experience and interaction were also associated with a greater overall score, indicating their significant contribution to the development of students' cultural competency. Among undergraduates, first year students indicated significantly less exposure to each of the 4 cultural inventory constructs and additionally had a lower score for each cultural competency construct. These results suggest that exposure to experience and interaction, co-curricular, training, and curricular education were successful in raising cultural competency in graduating students. These findings may be helpful in developing a framework for cultural competence in educational settings to positively impact the outcomes and preparedness of students.

Cultural training had the greatest association with higher cultural competence, which advocates for its inclusion in undergraduate, health science settings. Cultural training programs include online modules, workshops and seminars and studies indicate effectiveness in various healthcare settings. For instance, Parker et al. (2020) found that culturally-tailored communication training increased the frequency of culturally competent behaviors in 3 multi-disciplinary care management teams consisting of nurses, pharmacists, and non-clinical support staff. The topic of the training was centered around the awareness of the African American culture and barriers within the healthcare system. It included a 25-minute web-based module and a 1.5-hour interactive, live session that consisted of a presentation and discussion of scenarios and experiences. Staff reported a significant increase in culturally competent behaviors two weeks after participating in a bicomponent training (Parker et al., 2020). Similarly, nursing students in China had increased scores of cultural awareness, knowledge, understanding, and skills after participating in a one-day workshop (Liu et al., 2018). Furthermore, these improvements were maintained 1 month and 3 months post-intervention, advocating for both the short- and long-term effects of the training workshop. The one-day workshop included 8 to 12 students that participated in instructive lectures, self-reflective activities, a cross-cultural simulation game, and role play. During this time students also watched a documentary and completed a Social Attitude Implicit Association Test (Liu et al., 2018). The effectiveness of cultural training was also observed among health care professionals that participated in a 4-hour cultural competency workshop integrating topics related to established healthcare standards (Khanna et al., 2009). Utilizing a retrospective post-then-pre evaluation, participants reported both a heightened understanding of diverse individual's experiences in healthcare as well as an improvement in their skills to work in cross-cultural environments (Khanna et al., 2009). In addition to the results of the current study, these findings suggest that the integration of culturally-focused training into students' education may be effective in raising students' overall cultural awareness, knowledge, skill, encounters, and desire.

Similar to training, culturally-focused curriculum was significantly related to overall cultural competency and knowledge. It was not, however, associated with higher cultural awareness, skill, encounters, or desire. These findings are similar to Sandell and Tupy (2016), who found that student's cultural competence did not improve after participation in cross-cultural undergraduate classes but increased significantly after participating in higher-impact activities such as cultural partnerships indicating the importance of interactions.

In the present study, first year students indicated significantly less exposure to each of the four cultural inventory constructs compared to graduating students. Additionally, graduating students scored higher in all 5 competency constructs and overall score, suggesting students' cultural competence improved after exposure at the undergraduate level. There are limited studies evaluating the effectiveness of cultural exposure in undergraduate programs, however multiple studies have focused on exposure at the graduate level (Mokel & Canty, 2020; Bauer & Bai, 2020). Mokel and Canty (2020), for example, found that a 15-week online cultural competency course improved the knowledge, awareness, and ability to promote culturally relevant health approaches to practice in graduate-level nursing students. In a Masters in Nutrition and Food Science program, students participated in a nutrition counseling class focused on improving cultural competency through multiple assignments and activities. At the conclusion of the class student's total competency score increased from "culturally aware" to "culturally competent" (Bauer & Bai, 2020). The development of cultural competence is progressive and has been described as a lifelong process, therefore its inclusion in undergraduate curriculum promotes its early development in future health care professionals. Competence at the undergraduate level would also allow for increased exposure to cultural constructs over time, as opposed to a single exposure through one class. Integrating multiple methods and activities starting at the undergraduate level will allow for the beginning of this continuing process.

Findings in the study can be helpful as institutions look for ways to measure and track cultural competency-related activities in their students. With this said, the study is not without limitations. First, this was a one-site study and lacks generalizability across universities. Therefore, confirmatory tests of the 4-factor measurement model can be conducted by implementing the CLI questionnaire at other higher education academic institutions in the future. If found to be valid and reliable, the measure can be more widely used to examine the extent various activities have in regard to promoting cultural competency in university students. Secondly, the graduating student completion rate of the IAPCC-SV was relatively low (n=25). Thirdly, future studies can measure cultural competence and exposure to cultural competency building activities longitudinally, which provide stronger evidence of the effect of activities on competency; Fourthly, this study did not examine the variations regarding cultural competency building efforts across different majors within health science. Studies specific to certain major/discipline/program could add more nuanced knowledge to educators. Lastly, with the development of new educational tools and pedagogies, future research is needed to continuingly expand the cultural learning inventory in practice.

In conclusion, identifying influencers to building cultural competency in undergraduate students can inform the implementation of activities and pedagogical methods throughout the curriculum and university experience. Future studies are needed to determine the pedagogical methods of

most influence as well as their long-term effects on the development of culturally competent health professionals.

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