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## Enhancing Intercultural Competence: Can it be done without Studying Abroad?

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## Enhancing Intercultural Competence: Can it be done without Studying Abroad?

### Cover Page Footnote

The authors would like to thank all the students who participated in this project: those enrolled in the course, as well as the control participants.

## Introduction

Cultural competence is an important skill in any healthcare profession to work successfully with individuals from diverse backgrounds. The American Speech-Language-Hearing Association (ASHA) acknowledges this by requiring students in audiology and speech-language pathology (SLP) to receive instruction and demonstrate knowledge and skills in this area in order to meet the needs and demands of an increasingly culturally and linguistically diverse patient population (Council on Academic Accreditation; CAA, 2017). The ASHA CAA in Audiology and Speech-Language Pathology emphasizes the importance of understanding the impact of one's own culture as well as of the individuals being served on delivering effective care, and includes cultural competence as a requirement in its list of professional practice competencies for graduate students (Standards 3.1.1A and 3.1.1B; CAA, 2017). Although there are no ASHA standards specifically for undergraduate students, it follows that these standards would also apply to undergraduate students entering the professions. Likewise, the ASHA Council for Clinical Certification (CFCC) mandates that individuals applying for clinical certification from ASHA demonstrate knowledge and skills to provide developmentally, linguistically and culturally appropriate services to individuals from diverse backgrounds (CFCC, 2018). The importance of training students in providing culturally sensitive care has also been recognized across other healthcare professions such as nursing (e.g., Kelleher, 2013), medicine (e.g., Godkin & Savageau, 2001), pharmacy (e.g., Steeb et al., 2020), and physical therapy (e.g., Hayward & Li, 2014). However, across disciplines, there are no consistent guidelines or clear evidence to differentiate between the various instructional approaches used to teach cultural competence (e.g., Kelleher, 2013).

### **Pedagogical Approaches to Intercultural Learning in Audiology and SLP Programs.**

Given that there are no consistently accepted guidelines regarding instruction in cultural competence, university programs are implementing this in their curricula in a variety of ways.

#### *Infusion Across the Curriculum.*

A survey of accredited speech and hearing programs in the United States revealed that the most common instructional model was to infuse multiculturalism throughout the curriculum, although there was no consensus on the concept or definition of "infusion" (Stockman et al., 2008). These authors reported that 56% of respondents using the infusion model indicated that they devoted minimal time to instruction on cultural content in their courses. Most respondents (58%) judged students to be only somewhat or poorly prepared, or they were unsure as to students' ability to apply the infused content to diverse populations. Another nationwide survey of program directors revealed that although all respondents indicated that their graduate SLP students received at least some academic training and practicum experiences related to issues of cultural and linguistic diversity, there was large variability among programs (Hammond et al., 2009).

More recently, Crowley et al. (2015) described their individual approach to teaching cultural competence, by infusing knowledge of bilingualism and multiculturalism throughout their curriculum and offering bilingual students the opportunity to receive state certification as bilingual clinicians. Another study examined curricular content on cultural competence from a student and faculty perspective (Halvorson-Bourgeois et al., 2013) and found a discrepancy between student and faculty responses. Student reviewers of course content reported far fewer references to cultural and linguistic diversity than the faculty reported, suggesting that the content may not be

successfully transmitted to students. These authors suggest that the infusion model may be improved by adding more explicit references regarding cultural and linguistic diversity within courses.

### ***Courses Dedicated to Teaching Cultural Competence.***

A foundational course on multicultural issues has also been suggested as a means of facilitating cultural competence (Horton-Ikard et al., 2009). One description of a cultural diversity course found improved attitudes among undergraduate students, with significant gains in the recognition of white privilege (Preis, 2008). Pedagogical approaches to teaching a course dedicated to multiculturalism have been previously described (Franca & Harten, 2016). Such courses appear to be more effective than infusion across the curriculum, as 65% of their instructors felt students were adequately or exceptionally prepared for a diverse patient population (Stockman et al., 2008).

### ***Experiential Learning.***

Goldberg (2007) reported on a course for undergraduate students that used service learning and student reflections as tools to facilitate cultural competence. However, only a few excerpts from student reflections were shared without formal analysis of the qualitative data. Only one other study has investigated the effectiveness of an experiential learning approach in which undergraduate students served as conversational partners to English language learners (Vale & Arnold, 2019). These authors found an increase in cognitive cultural competence in the small group of eight students who participated in the experiential learning opportunity compared to a control group who did not.

**Study Abroad.** Another pedagogical approach to experiential learning through which students can develop intercultural competence is via study abroad (SA) (Vande Berg et al., 2009). Much of the work in the area of study abroad has been in the profession of nursing. Multiple studies have demonstrated gains in areas such as self-awareness, ability to connect with others, and sensitivity to other cultures, beliefs and values subsequent to study abroad experiences (Kelleher, 2013). Benefits to students include higher levels of respect, compassion, and comfort with patients of other cultures, as well as increased knowledge about them in the profession of medicine (Godkin & Savageau, 2001); increased awareness of influences of culture on healthcare and communication skills in pharmacy practice (Steeb et al., 2020); and increases in cultural desire, awareness, knowledge, encounters, and skill in physical therapy (Hayward & Li, 2014).

Although SA programs related specifically to the professions of audiology and SLP have been increasing significantly over the past few years (ASHA, n.d.), literature regarding such programs is limited. The literature includes some descriptive reports of specific international programs (e.g., Williams et al., 2013; Crowley & Baigorri, 2011, 2012; McBride and Belus, 2014). Only a few studies have focused on cultural learning outcomes subsequent to SA (de Diego-Lázaro, 2018; Hofstedt et al., 2019; Krishnan et al., 2016; Krishnan et al., 2017), and two of them used their own author-developed scales and questionnaires. Using the unpublished Cultural Awareness and Competence Scales, students' cultural competence was shown to increase following a one-week program to Nicaragua (de Diego-Lázaro, 2018). A self-developed questionnaire was used to demonstrate that students had a more open mindset after a short-term study abroad (Hofstedt et al., 2019). Two studies have used published, validated scales to demonstrate increases in cultural competence. Participant cultural competence was shown to increase using the Public Affairs Scale

(Levesque-Bristol & Cornelius-White, 2012) subsequent to a two-week intensive service-learning program to Zambia called *SLHS in Zambia* (Krishnan et al., 2016). Increases in participant cultural competence were further demonstrated when intentional intercultural learning (ICL) exercises were included (Krishnan et al., 2017), as measured by a tool more specifically developed to measure intercultural competence: the Intercultural Development Inventory (IDI®; Hammer et al., 2003).

#### ***A New Teaching Tool: Massive Open Online Courses.***

Massive open online courses (MOOCs) are free online courses of study, accessible to large numbers of individuals from across the globe. The first MOOC was offered from the University of Manitoba, Canada in 2008 (McGill Association of University Teachers, 2015), to exploit the possibility for interactions between a wide variety of participants using online tools. The goal was to provide a richer learning environment that facilitates diversity, connectivity and opportunities for sharing knowledge. Subsequently, Stanford, MIT, Harvard and other institutions have offered MOOCs to hundreds of thousands of learners worldwide. However, participant retention and course completion rates have been low, with as few as 4.6% of participants obtaining a completion certificate (Breslow et al., 2013).

Several factors important for MOOC success have been identified, including the importance of empowering learners with networked learning strategies that foster critical thinking and collaboration (Guàrdia et al., 2013) and interaction with the instructor (Hone & El Said, 2016). Important pedagogical factors include the instructional design and assessment tools, and technological factors include the user interface, video content, learning and social tools, and learning analytics (Yousef et al., 2014). However, despite the potential for a very wide reach, the vast majority of MOOC learners never return after their first year, growth in MOOC participation has been concentrated almost entirely in affluent countries, and the low completion rates have not improved over six years (Reich, 2014). It has been suggested that the more autonomous, diverse and open the MOOC, the more the potential for learning may be limited by the lack of structure, support and moderation normally associated with an online course, and the more learners may seek to engage in traditional groups as opposed to an open network (Mackness et al., 2010).

Due to these limitations with traditional, fully-online MOOCs, face-to-face courses have incorporated online learning units, creating blended courses where instructors can incorporate existing MOOCs or portions of a MOOC into their courses (e.g., Mangan, 2012). Students in an on-campus course may also participate in a MOOC (in part or in its entirety) hosted by a different instructor. In an early qualitative study on such a blended course, students found the MOOC content to be a great resource and appreciated differing viewpoints of the instructors. However, they suggested stronger coupling and cohesion between the face-to-face content and the MOOC content (Bruff et al., 2013). In another study, 56.1% of students preferred the blended course over the MOOC or the traditional course (Bogdan, 2017). Other factors to be considered in a successful blended course include sourcing multiple MOOCs and allowing students to choose one they are most interested in, and ensuring a reasonable workload and expectations for students (Bralić & Divjak, 2018).

In the professions of audiology and SLP, there are very few reports of virtual or online learning. Outcomes of a “flipped classroom” approach have been described in an undergraduate and

graduate-level course in SLP (Tattersall, 2015) and in a graduate level course on swallowing (Affoo et al., 2020). Additionally, an online module to teach phonetic transcription has also been reported as successful (Krimm et al., 2017). To our knowledge, there is no literature available on the use of a MOOC in audiology and SLP education or for intercultural learning.

### ***Reflection.***

Across pedagogical approaches, reflection has been identified as a key component of professional practice (Schön, 1987). It aids in the development of intercultural competence by identifying, evaluating, and reconstituting one's assumptions (Brookfield, 1990). The developmental model of reflective judgement proposes discrete stages of development (Kitchener & King, 1990) which are similar to the developmental processes of cultural competence, moving from ethnocentric to ethnorelative mindsets or orientations. Participant qualitative reflections have been utilized in much of the literature related to intercultural competence (e.g., McAllister et al., 2006; Krishnan et al., 2016). Importantly, rather than single measures of cultural competence, multiple assessment measures including quantitative scales and qualitative data (narrative reflections and interviews) have been recommended to assess intercultural competence (Deardorff, 2006).

### **Assessment Tool for Cultural Competence: Intercultural Development Inventory.**

A variety of assessment tools are available to assess intercultural competence. Some previous studies in the area of cultural competence development in audiology and SLP students have used self-developed questionnaires (deDiego-Lázaro, 2018; Hofstedt et al., 2019). Published scales have also been utilized, such as the no-cost Public Affairs Scale (Levesque-Bristol & Cornelius-White, 2012) used by Krishnan et al. (2016), as well as scales that have a per-person cost such as the Intercultural Development Inventory (IDI®; Hammer et al., 2003) used by Krishnan et al. (2017), and the Cultural Intelligence Scale (Ang et al., 2007) used by Vale & Arnold (2019).

The IDI® is a 50-item questionnaire developed specifically to measure intercultural competence. It is based on the Developmental Model of Intercultural Sensitivity (DMIS; Bennett, 1986; Hammer et al., 2003) which was then modified as the Intercultural Development Continuum (IDC®: Hammer, 2011) used in the present version. This developmental approach describes intercultural development along a continuum from an ethnocentric (monocultural) to an ethnorelative (intercultural) orientation towards cultural differences and commonalities. The questionnaire generates a developmental orientation (DO) score, which represents the individual's primary orientation as assessed by the IDI®.

Five primary developmental orientations or mindsets have been identified along the continuum based on the DO scores: 1) denial orientation (DO = 55-70): individuals may not notice, and avoid or withdraw from cultural differences; 2) polarization orientation (DO = 71-85): individuals have a judgmental approach and view cultural differences in terms of "us" and "them"; 3) minimization orientation (DO = 86-115): individuals are in a transitional phase between the ethnocentric (denial and polarization) and ethnorelative (acceptance and adaptation) orientations, and focus on cultural similarities which may mask deeper recognition of cultural differences; 4) acceptance orientation (DO = 116-130): individuals recognize and appreciate cultural differences and commonalities; and 5) adaptation orientation (DO = 131-145): individuals can shift cultural perspective and change behaviors in culturally sensitive ways (IDI®, 2019). DO scores are calculated using a weighted proprietary validated formula and represent standardized (*z*-scores) presented as a normal

distribution (Hammer, 2011). The IDI® was chosen because it has been shown to have strong content and construct validity and reliability across diverse cultural groups (Hammer, 2011; Hammer et al., 2003; Paige et al., 2003), and has been used previously by the first author to evaluate her study abroad programs.

Overall, approaches to developing cultural competence among audiology and SLP students have primarily included infusion throughout the curriculum (Stockman et al., 2008) with limited data on outcomes. Several recent studies have reported on cultural learning outcomes after SA programs (Krishnan et al., 2016; Krishnan et al., 2017; de Diego-Lázaro, 2018; Hofstedt et al., 2019). However, although SA programs appear to be an effective means of increasing cultural competence, only a small fraction of students in the US study abroad. The number of Americans studying abroad has steadily increased over the past 25 years, with a 2.7% increase in 2017-2018 over the previous year (Redden, 2019). Despite these increases, only about 10.9% of all undergraduates (including community college students) and 16% of all students enrolled in baccalaureate programs study abroad during their program (Redden, 2019). Therefore, it is imperative to evaluate other means of enhancing student cultural competence without travelling abroad. Blending a MOOC into a face-to-face course offers a new option to incorporate intercultural learning into an on-campus course with the potential to reach a much larger numbers of students. Thus, the primary aim of this study was to evaluate the impact of an on-campus course with embedded intercultural learning activities via a MOOC on enhancing student cultural competence. A secondary aim was to examine the impact of prior travel abroad on intercultural competence for students who completed the MOOC.

## Methods

### Course Description.

A module focused on intercultural learning (ICL) was included in the syllabus of an introductory course on Audiology and Hearing Science that is an elective for students in the Speech, Language, and Hearing Sciences (SLHS) major. The course also meets a university core requirement in the area of Science, Technology, and Society, and is therefore open to students from all majors. The module on ICL included the following in-class elements over the course of the semester: 1) Viewing of the video *Practical Applications of the Intercultural Development Inventory* (IDI®) (Practical Applications, n.d.) with discussion following. This video explains the intercultural development continuum including the five developmental orientations or mindsets (denial, polarization, minimization, acceptance and adaptation) with examples and the purpose is for participants to understand the developmental continuum and orientations prior to the group debrief; 2) Group debrief regarding the IDI® score at the start of the semester. The group debrief provides participants with the group developmental orientation (DO) score, explains the developmental orientation/mindset of the group and their leading orientation – the direction along the continuum to increase their intercultural competence; 3) Completing a MOOC on *Understanding Diversity and Inclusion* (Calahan, n.d.) with reflection papers following completion of each unit; and 4) Group debrief regarding the IDI® score at the end of the semester. Homework assignments related to ICL were collected and are detailed below.

### **Participants.**

Participants included 34 undergraduate students enrolled in the course who comprised the intervention group (Group E). Control group participants (Group C) were 41 undergraduate students recruited via flyers placed across campus and provided to instructors of undergraduate courses in SLHS. The inclusion criteria for control group participants were that they were not enrolled in the course including the MOOC taught by the first author or in any other course related to cultural competence development during the semester. The study protocol was approved by the university Institutional Review Board (IRB).

### **Research Procedures.**

A mixed methods approach including quantitative and qualitative measures to assess intercultural competence (Deardorff, 2006) was utilized.

### ***Intervention Group (Group E).***

All Group E participants completed a survey questionnaire with demographic questions (see Table 2) and questions regarding prior exposure to cultural differences, travel abroad, and courses geared towards cultural learning at the start of the semester. All Group E participants also completed the IDI® at the beginning of the semester (pre-test) and were administered the IDI® again at the end of the semester (post-test). The IDI® was administered by the third author who is a qualified administrator of the inventory.

In addition to viewing the video and having a group debrief as described earlier, Group E participants completed the MOOC titled *Understanding Diversity and Inclusion* (Calahan, n.d.) taught by the third author. The five general learning outcomes for this MOOC were: (1) Describe the stages of diversity dexterity, (2) Explore attitudes, skills, and knowledge supporting diversity, (3) Evaluate unconscious biases, (4) Investigate ethnocentric and ethnorelative mindsets, and (5) Engage elements of inclusion. The MOOC was divided into three units, and participants had two weeks to complete each unit. The first unit addressed topics relating to understanding diversities and providing the tools, attitudes, skills, and knowledge, to manage diversities. The second unit examined stereotyping and managing unconscious biases. The third unit considered types of biases, self-awareness, metacognition of diverse others, and developing dexterity to bridge differences and diversities.

Reflection is a key component of intercultural learning. As part of the intercultural learning activities, at the end of each unit, Group E participants wrote a reflection paper using directions loosely based on the debriefing model proposed by Thiagarajan (1992) and provided in the course syllabus as follows:

Please write a thoughtful narrative paper incorporating information together. Select two activities you found most meaningful / helpful / impactful (in Week 1, Week 2 and Week 3), and write a paragraph that answers the following questions about each activity:

- How did you feel after completing the activity?
- Describe what you did for the activity
- What did you learn from the activity (about yourself, about others)?
- How did the activity relate to your real-world experiences?
- What if the activity was different in some way – how would that affect your/others' behavior?



- How can you apply what you learned from the activity into your behavior?
- What are your goals?

Thus, each participant in the class completed three reflective papers over the course of the semester, after the pre-test, and before the post-test. Reflection papers were not graded but rather points were given for completion. This approach was used to increase the trustworthiness of the qualitative data and reduce the influence of grading on the content of the papers.

### ***Control Group (Group C).***

Control group participants completed the demographic questionnaire and the pre- and post-IDI® but were not enrolled in the course and did not have access to the MOOC, the video, or group debriefs regarding their IDI® score.

### ***Data Analysis.***

Paired and independent samples *t*-tests were used to compare mean DO scores within and across groups. Cohen's *d* and Hedges' *g* were also calculated as a measure of effect sizes to compare changes in pre- to post-DO scores as well as between the intervention and control groups. A value less than .20 suggests a small effect, .50 medium effect and .80 large effect (Cohen, 1977; Hedges & Olkin, 1985).

De-identified electronic copies of the reflection papers were analyzed using a constant comparative method as an analytic strategy (Glaser & Strauss, 1967; Kolb, 2012; Strauss & Corbin, 1998). The Association of American Colleges & Universities (AAC&U) Intercultural Knowledge and Competence VALUE Rubric (AAC&U, 2009) displayed in Table 1 was used as a framework to support the identification and description of the themes developed by the researchers. First, the primary coder (first author) analyzed a sample of 15 reflections to develop initial categories of themes. These were then shared and discussed with the second coder (second author). Open coding (attaching codes to observed data by describing or naming the observations) and axial coding (identifying connections or relationships between open codes) were used to develop categories by connecting data. Then, the core categories were refined in a selective coding process (Strauss & Corbin, 1998). Descriptive categories (themes) were developed as researchers explored them, through generating and comparing codes applicable to each category (Glaser, 1965). Subsequently, the two coders independently analyzed reflective papers for the themes discussed. The coders discussed the emerging themes frequently to resolve any differences. Through this process, sub-themes and second-order themes were identified around the framework displayed in Table 1.

**Table 1***Dimensions of the Intercultural Knowledge and Competence VALUE Rubric (AAC&U, 2009)*

	Cultural self-awareness
Knowledge	Cultural worldview frameworks
	Empathy
Skills	Verbal and non-verbal communication
	Curiosity
Attitudes	Openness

## Results

### Demographics.

Table 2 displays the demographics of the participants in the two groups. The mean age of the participants in each group was similar, with age ranges of 17-22 years in the intervention group and 18-21 years in the control group. The majority of participants in both groups were female (71% in the intervention group and 90% in the control group). Roughly half the participants in both groups were SLHS majors (50% of the intervention group and 49% of the control group) while the remaining half were from a variety of other majors. Fifty percent of participants in the intervention group and 88% of the control group were White. The remaining participants were Hispanic (n=3 in Group E and n=1 in Group C), Asian (n=7 in Group E and n=4 in Group C), mixed race (n=3 in Group E and n=1 in Group C), African-American (n=1 in Group E and n=0 in Group C) and other (n=2 in Group E and n=0 in Group C). Just over 50% of the participants in each group indicated that they had significant prior experiences abroad. Participants who had been on brief trips (<2 weeks) for family vacations or cruises to Mexico, Canada, Bahamas, Costa Rica and Jamaica were not considered to have significant travel abroad experience. The majority of participants in both groups were underclassmen (freshmen or sophomores): 71% of the intervention group and 88% of the control group.

**Table 2**  
*Participant Demographic Information*

Group	Intervention (n=34)	Control (n=41)
Mean age	19.6 years	19.2 years
Gender	24 females	37 females
Major	17 SLHS	21 SLHS
<b>Race/Ethnicity</b>		
White	17	36
Hispanic	3	1
Asian	7	4
Mixed race	3	1
African-American	1	0
Other	2	0
Travel abroad	18*	21
<b>Year in college</b>		
Freshman	15	21
Sophomore	9	15
Junior	3	3
Senior	6	2

*Note.* \* = one male participant who was not in the SLHS major did not complete this information

### **Quantitative Results.**

Pre- and post- DO scores were compared within and across groups to evaluate whether completion of the MOOC led to increases in participant intercultural competence.

#### ***Intervention (MOOC) and Control (no MOOC) Groups.***

Table 3 and Figure 1 display the descriptive statistics and pre- and post-DO scores for the two groups of participants. Independent-samples *t*-tests were conducted to compare the pre- and post-DO scores of the two groups. There was no significant difference in the pre-DO scores for the intervention group ( $M = 87.53$ ,  $SD = 12.52$ ) and the control group ( $M = 87.05$ ,  $SD = 13.83$ );  $t(73) = 0.493$ ,  $p = 0.88$ ,  $d = 0.036$ ). However, there was a significant difference in the post-DO scores for the intervention group ( $M = 98.76$ ,  $SD = 16.64$ ) and the control group ( $M = 87.85$ ,  $SD = 13.47$ );  $t(73) = -3.14$ ,  $p = 0.002$ ,  $d = 0.72$ ).

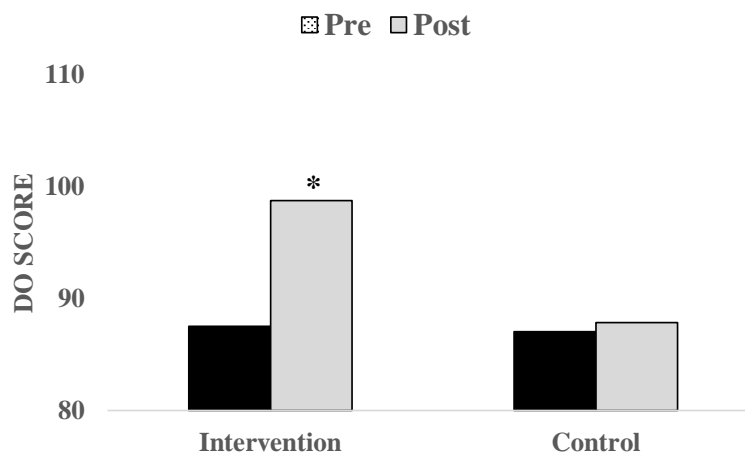
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Paired-samples *t*-tests were conducted to compare the pre- and post-DO score for each group. There was a significant difference between the pre- ( $M = 87.53$ ,  $SD = 12.52$ ) and post-DO score

( $M = 98.76$ ,  $SD = 16.64$ );  $t(33) = -4.46$ ,  $p < .001$ ,  $g = 0.74$ ) for the intervention group. There was no significant difference between the pre- ( $M = 87.05$ ,  $SD = 13.83$ ) and post-DO score ( $M = 87.85$ ,  $SD = 13.47$ );  $t(40) = -0.76$ ,  $p = .573$ ,  $g = 0.057$ ) for the control group.

**Figure 1**

*Comparison of Pre- and Post-DO Scores for the Intervention and Control Groups*



Note. \* $p < .001$

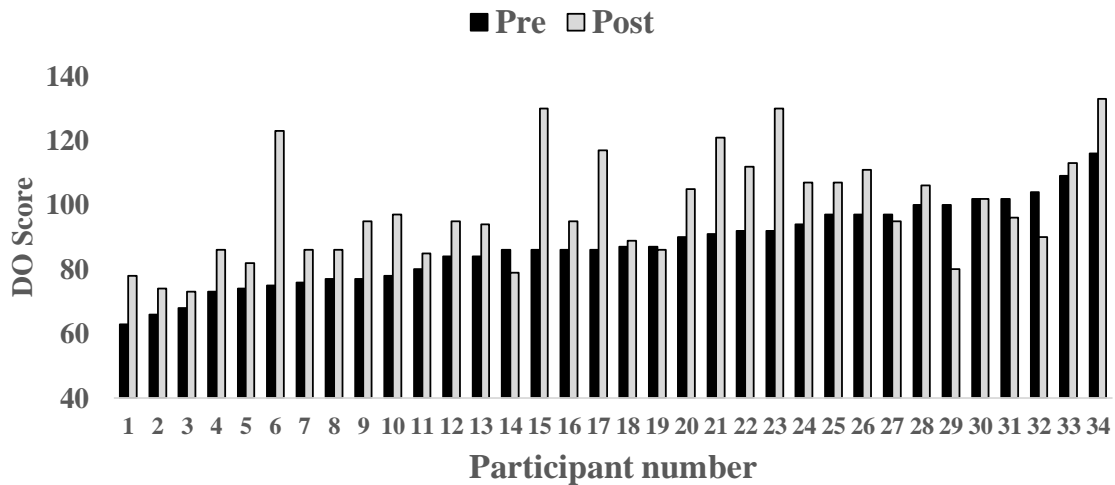
**Table 3**

*Descriptive Statistics for the Pre- and Post-DO Scores for the Two Groups*

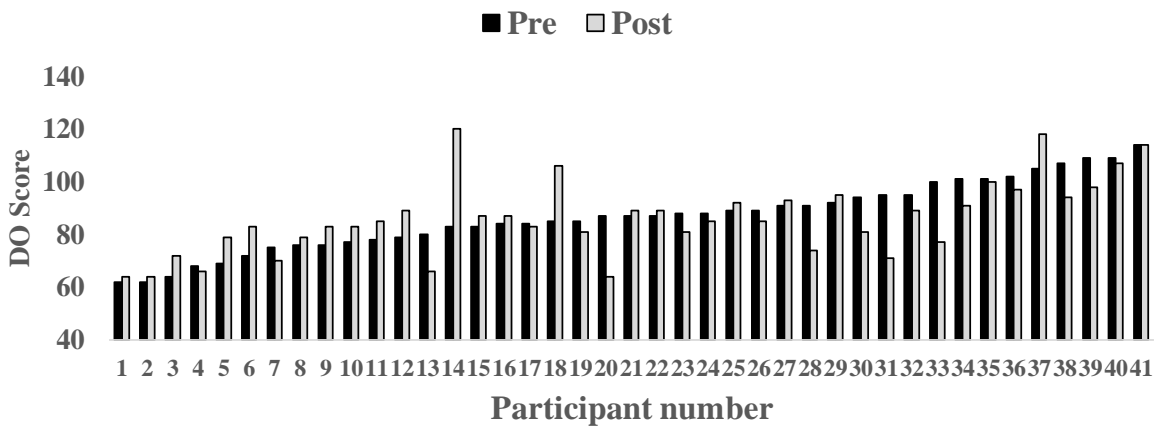
Group	N	Pre-test		Post-test	
		M	SD	M	SD
Control	41	87.05	13.83	87.85	13.47
Intervention	34	87.53	12.52	98.76	16.64

In addition to the group comparisons, individual pre- and post- DO scores for each participant are displayed in Figures 2 and 3. Overall, the majority of participants (27 of 34; 79.4%) in the intervention group had an increase in their DO score, and the mean increase in score in this group was 16 points. One participant had no change in score, two participants had a 1–2 point decrease, while four participants had substantial decreases in score of 6, 7, 14, and 20 points respectively. Three of these four participants had pre-DO scores in the 100–104 range. By comparison, 20 of 41 (48.8%) participants in the control group showed an increase in score, and the mean increase in this group was 7.8 points. Ten of the 20 increases were 2–4 point increases, eight were in the range of 6–13 points, and there were two participants who had 21 and 37 point increases in score respectively. Overall, as seen in Figures 2 and 3, many more participants in the intervention group had substantial DO score increases.

**Figure 2.**  
*Individual DO Scores for each Participant in the Intervention Group*



**Figure 3.**  
*Individual DO Scores for each Participant in the Control Group*



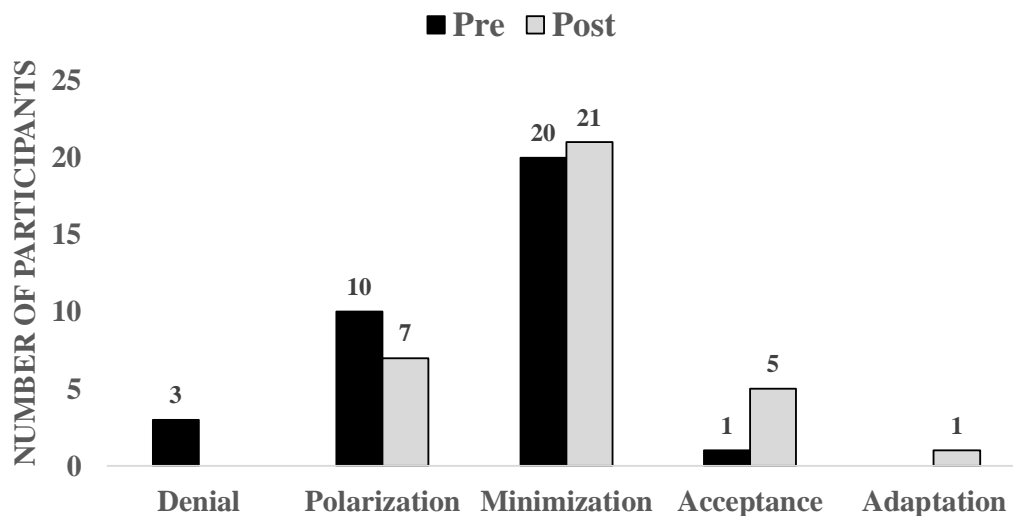
Another approach was used to evaluate DO scores by examining changes in the mindsets or orientations of the participants. Figures 4 and 5 display the pre- and post- distribution of mindsets in the two groups. As a group, participants in the intervention group showed a shift along the developmental continuum, with all three participants who were in the Denial orientation moving to Polarization, seven of the ten participants moving from Polarization to Minimization, four participants moving from Minimization to Acceptance and one from Acceptance to the Adaptation mindset. Overall, 16 of the 34 participants (47%) demonstrated a positive shift in their mindset, 16 stayed in the same mindset (2 in Polarization, both of whom demonstrated score increases within the mindset, and 14 in Minimization), while two participants moved back a mindset. It is important to note that the transitional mindset of Minimization spans 30 points (compared to 15 points for

all the other mindsets). Of the 14 participants in Minimization who did not demonstrate a change in their mindset, 9 participants had increases in their scores, with a mean increase of 10.3 points (range 2-20).

By contrast, as a group, participants in the control group did not demonstrate a clear shift along the developmental continuum. Although eight of the 41 control participants (19.5%) did demonstrate a positive shift in their mindset (2 from Denial to Polarization, 4 from Polarization to Minimization, and 2 into the Acceptance stage), the majority of participants (26 of 41; 63.4%) stayed in the same stage, and seven participants moved back a stage. Of the 15 participants in the transitional Minimization orientation who did not demonstrate a change in their mindset, only five participants had a score increase, and the mean increase was 2.4 points.

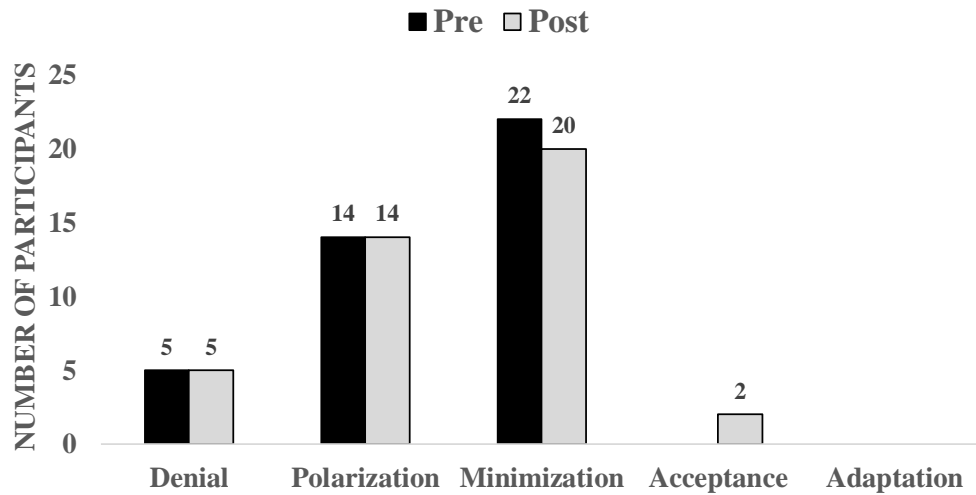
**Figure 4.**

*Pre- and Post- Distribution of DO Mindsets for Participants in the Intervention Group*



**Figure 5.**

*Pre- and Post- Distribution of DO Mindsets for Participants in the Control Group*

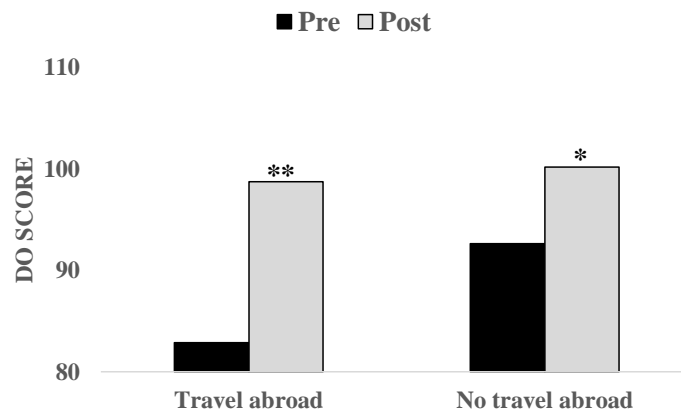


***Sub-Groups within Intervention Group (Travel Abroad and No Travel Abroad).***

A secondary research question was whether prior travel abroad had an influence on intervention group participant DO scores, to understand if prior travel abroad experiences influenced participants’ perception and behavior towards the MOOC. Participants in the intervention group were divided into two sub-groups: those who had a significant prior experience abroad ( $n = 18$ ) and those who did not ( $n = 15$ ). One participant who did not answer the question regarding travel abroad was excluded from this analysis. Table 4 and Figure 6 display the descriptive statistics and DO scores for the two sub-groups.

**Figure 6.**

*Comparison of Pre- and Post- DO Scores for the two Sub-groups: Participants with Prior Travel Abroad and those with no Prior Travel Abroad*



*Note.* \*  $p < .05$ ; \*\*  $p < .001$

Independent-samples *t*-tests were conducted to compare the DO scores of the two sub-groups. There was a significant difference between the pre-DO scores of participants who had prior experiences abroad ( $M = 92.61, SD = 11.73$ ) and those who did not ( $M = 82.87, SD = 10.63$ ),  $t(31) = -2.48, p < .05, d = 0.87$ .

Paired-samples *t*-tests were conducted to compare the pre- and post-DO score for each sub-group. There was a significant difference between the pre- ( $M = 92.61, SD = 11.73$ ) and post-DO score ( $M = 100.17, SD = 15.58$ );  $t(17) = -2.22, p < .05, g = 0.55$  for the sub-group that had prior experiences abroad and also between the pre- ( $M = 82.87, SD = 10.63$ ) and post-DO score ( $M = 98.73, SD = 17.66$ );  $t(14) = -4.2, p < .001, g = 1.09$  for the sub-group that had no/limited prior experience abroad. There was no significant difference between the increase in the pre- to post-DO scores for the sub-group that had experiences abroad ( $M = 7.56, SD = 14.44$ ) and the sub-group that did not ( $M = 15.87, SD = 14.63$ );  $t(31) = -2.04, p = 0.11, g = 0.57$ .

**Table 4**

*Descriptive Statistics for the Pre- and Post-DO Scores for the two Sub-groups*

Group	N	Pre-test		Post-test		Pre-post difference	
		M	SD	M	SD	M	SD
Experience abroad	18	92.61	11.73	100.17	15.58	7.56	14.44
No experience abroad	15	82.87	10.63	98.73	17.66	15.87	14.63

### Qualitative Results.

Participants in the intervention group wrote three reflection papers, one after completion of each unit of the MOOC. Qualitative data are used to support and derive meanings from the quantitative data (Chi, 1997). Participant reflections demonstrated how they had changed and developed their intercultural knowledge, attitudes and skills (Deardorff, 2011; Havis, 2019). The themes were informed by the concepts used in the AAC&U VALUE rubric for Intercultural Knowledge and Competence, and Figure 7 displays the final thematic structure which includes themes and sub-themes based on the AAC&U rubric, supported by several second-order themes.



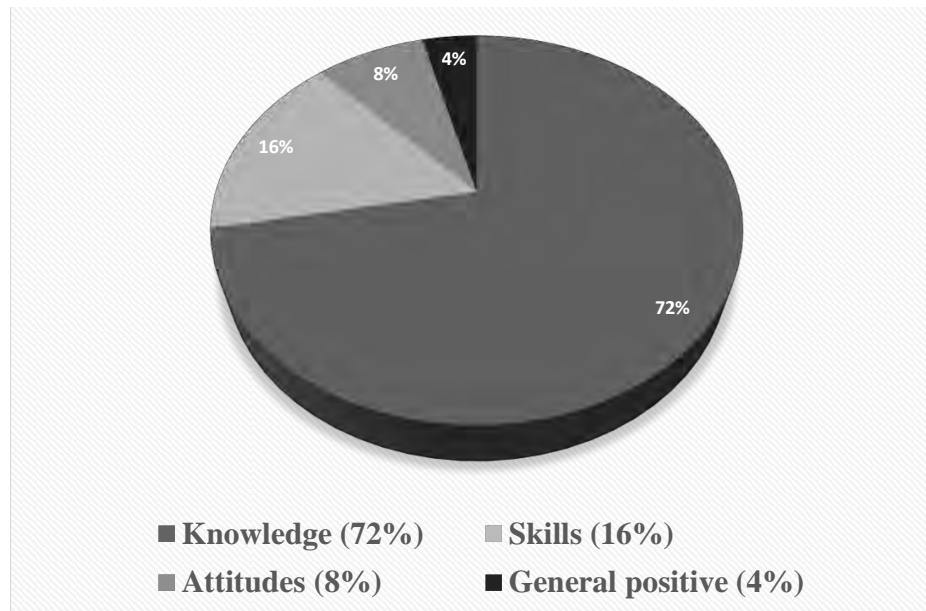
**Figure 7.**

*Final Thematic Structure that Resulted from the Data Analysis Displaying the Themes, Sub-themes, and Second-order Themes.*

Themes	Sub-themes	Second-order themes
	Cultural self-awareness	Knowledge of biases/stereotyping
		Empowerment
		Cultural goals
<b>Knowledge</b>		
	Cultural worldview frameworks	Understanding elements of diversity
		Knowledge/experience with diversity
		Diversity can be invisible
	Emotional responses	
<b>Skills</b>		
	Verbal and non-verbal communication	
<b>Attitudes</b>		
	Openness and curiosity	

*Note.* The shaded area represents the AAC&U VALUE rubric framework.

Overall, 288 items were coded, and Figure 8 displays the distribution of items across the three first-order themes. The majority of comments (72%) were in the Knowledge theme, with 56% in the cultural self-awareness sub-theme and 16% in the cultural worldview sub-theme. Sixteen percent of the comments related to Skills (Emotional responses and communication), and the smallest proportion (8%) were in the Attitudes (openness and curiosity) theme. There were also 12 general positive comments (4%). Quotations from the data set will be presented in support of each theme, with the participant associated with each quotation indicated in parentheses.

**Figure 8.***Distribution of Coded Comments among the Three First-order Themes*

Representative of the general positive reflections about the MOOC and associated activities were comments appreciative of the online environment of the activities: “I enjoyed the environment of this course because it allowed myself and others to be vulnerable in a safe, accepting space” (S29); a recommendation for more widespread use of the MOOC activities: “I believe that this course is something that all of [our university] students should be required to take, it’s a short course, but very eye opening” (S17); as well as a desire to keep learning more: “I kind of wish this course wasn’t ending because I felt that I was learning a lot through this program” (S12).

### ***Theme 1: Knowledge.***

**Sub-theme 1: Cultural Self-awareness.** The majority of participant comments (56.3%) were classified in this sub-theme, which included comments related to their own cultural rules and biases. Participant reflections suggested that they developed a greater sense of their cultural self-awareness upon completion of the MOOC units. For this category, the AAC&U rubric describes advanced benchmarks as “articulates insights into own cultural rules and biases (e.g., seeking complexity; aware of how her/his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description.)” (AAC&U, 2009, p2). The following quotes represent a reflection of understanding of the importance of self-awareness and the development of cultural self-awareness: “I specifically enjoyed the self-awareness article because you need to understand your own values and mindset before you can begin to understand someone else” (S19); “I learned that as we look more and more into the spectrum and perspectives of cultures and also listening to others talk about their experiences, we learn more about ourselves as well” (S8); and “Becoming self-aware is very important in order to accept others and their differences” (S11).

The three second-order themes identified within the sub-theme of cultural self-awareness are described below with representative quotations.

***Knowledge of Biases and Stereotyping.*** Overall, the greatest percentage of comments were in this sub-theme, with 22.2% of the total comments and 40% of those within the major theme of cultural self-awareness. Many participants noted that the activities made them realize how common it is to have biases, such as: “This activity made me realize I make unconscious biases every day without thinking” (S1); “The activities made me realize the mistakes I’ve been unconsciously making...and how easy it is to jump to assumptions or conclusions about someone without even talking to them” (S17); and “I learned that we are all under some type of influence of stereotyping and unconscious biases even when we least expect it” (S5).

Participants also commented on the realization that biases and stereotyping are learned through mass media, social networks and other surroundings, and that all individuals unconsciously have biases, regardless of their race, gender, and other characteristics. Participants stated that people tend to categorize others automatically and stereotype unconsciously, “because it’s easier to put people in a certain group that we expect them to act” (S6). Some examples of such quotations include: “This week taught me that stereotyping is a learned behavior. You don’t just grow up and automatically stereotype against others. These stereotypes are learned through social media, our parents, friends, other people we surround ourselves with etc.” (S12); “I felt a little better knowing that implicit bias is something that all people, no matter their race or experience, have. Sometimes it feels like you are the only person when you realize you are acting on an unconscious bias” (S24); and “I was able to learn that it is natural to try and place others in “boxes” regarding what their role is in the world based off of what group they belong to, but that doesn’t make it right” (S14)

Another line of thought from participant reflections was that recognizing these stereotypes and biases is an important step in changing behavior, but that what is more important is how they react to the stereotypes. For example: “The more we recognize these thoughts [stereotypes] the more we are able to switch our thinking and turn it into an accepting mindset” (S11); “This activity [stereotyping] allowed me to look at how I use stereotypes and show me where I can improve by exposing some unconscious ones I can hope to pick up on and avoid when interacting with diverse others” (S7); and “We can’t easily change the fact that we have been programed [sic] by society to stereotype but we can change how we let those stereotypes affect our actions” (S27).

In addition, participants recognized that their self-evaluation of their own inclusivity was inaccurate, saying,

“I discovered that even though I thought I had been treating others well, I had been qualifying whom was worthy of being respected. This showed me that I have incredible room to grow and should be constantly thinking about my treatment and inclusion of others. This respect for others would most likely positively impact my interactions with people I had previously thought to be too hostile, etc.” (S24)

One participant who recognized being the recipient of stereotyping said, “I remember when I was in middle school my mother made my friend and I breakfast tacos. My friend asked “Do you Mexican’s [sic] make everything into tacos? ...I didn’t realize till years later that this was

stereotyping.” (S12). These re-evaluations of prior experiences deepened participants’ understanding of biases and stereotyping.

**Empowerment.** This second-order theme included a small set of comments (8% within the major theme of cultural self-awareness; 4.5% of total comments) that focused on taking action to change behavior or effecting change in behaviors. Participants indicated that they were empowered through the activities and became more confident in addressing stereotyping and unconscious biases. For instance: “I thought that the educating others activity is so important. After this activity, I felt empowered and I actually thought there was hope to make a difference” (S1); and “This video and prompts after it really helped me learn how situations can be handled in a positive manner with helping educate people on why words can affect people more than they think” (S9).

Some participants also recognized that it is important to speak up and confront biases:

I have been enlightened and would even say inspired to be more cognizant of others’ words, and to speak up for those who are being targeted. All it takes is one person to say something, or to at least be heard, to cause a change. (S10)

Some people aren't always aware of how their actions could affect others and need to be educated on the topic. It is often left to minorities to call people out but as a white person I would be doing a disservice to my minority friends by not calling out my fellow white person when they are being racist and offensive. (S11)

**Cultural goals.** Overall, 37.7% of the comments within the major theme of cultural self-awareness (21.2% of total comments) included cultural goals stated by the participants. Several comments focused on suspending judgments or incorrect assumptions, and being more conscious of the stereotypes they may have, in the form of goals to: “not make first impressions based on stereotypes and keep in mind of any unconscious biases during conversations. It is important to treat everybody equally in terms of diversity and cultural differences” (S5); “not make a judgment of some, but get to know them closer before I make any thoughts on a person” (S6). “be able to recognize when I make some initial assumptions-based stereotypes in order to avoid making such assumptions in the future” (S7); and “be able to get rid of my unintentional biases and instead be able to be open to have a conversation with people no matter my initial opinions” (S18).

Many participants spoke about applying the knowledge they have learned in work and everyday life to overcome stereotypes, appropriately interact with people who are different from them, and be more empathetic in intercultural interactions. For example, “I hope to remember this activity and apply the understanding that I don’t always have all the facts when making decisions so that I can better look for the answers before making the wrong choice” (S24); “I can apply what I learned from this activity into my behavior by not creating first assumptions until I get to know them. My goal is to have respect to everyone, no matter how different we are” (S6); and “I can use this knowledge by trying to think how the other side may feel in situations more often than I do already. Maybe this will allow me to be more empathetic in situations where maybe I should be.” (S7).

Other goals included taking action to stop inappropriate behaviors and educate others with comments such as, “I have seen people engage in inappropriate actions and words that have hurt other peoples’ feelings. Hopefully, the next time this happens, I can use the skill of productive

confrontation to step in and help someone realize their error” (S16); and “I hope to spread my knowledge and teach people that we should not judge others who come from a different background than us” (S18). Participants also addressed being more open to learning about and being more understanding of other cultures: “My goal is to involve myself in a culture that I am unfamiliar with and use what I learned in this activity to create new connections (S18) and “My goal from this activity [empathy] is to be more understanding to other people and what’s going on in their lives and being respectful overall” (S17).

Overall, participant reflections within the theme of cultural self-awareness focused largely on an increased knowledge of the ubiquitous nature of biases and stereotyping and cultural goal-setting to become more aware of their own biases and avoid stereotyping.

**Sub-theme 2: Cultural World-view.** This sub-theme included participant reflections that related to understanding diversity. Participants commented that they learned that different people have their own beliefs, ways of communication, and customs that they wish to follow. They improved their cultural worldview, knowledge of other cultures, respect for others’ beliefs and values by realizing that it is important to understand these ideas and take the time to learn from these differences. The three second-order themes within this sub-theme are described below.

***Understanding Elements of Diversity.*** This sub-theme included comments related to biases and stereotyping that expanded beyond knowledge (coded in the self-awareness theme) and reflected on experiences, reactions, and understanding in relation to others. These made up 42.2% of comments within this theme (6.6% of total comments). Several participants spoke of societal and cultural influences in forming stereotypes, which strengthened their understanding of diversity and the complexity of elements that influence people’s beliefs and behaviors. For example, they stated: “...everyone experiences stereotyping and if we can all just let go of those, we can build relationships with others. It is important to be aware of the stereotypes in our society to be able to dismiss and avoid them” (S2); and “I learned that unintentional biases do not only stem from a cultural point of view. Unintentional reactions may be based on societal issues such as generational differences” (S18) Another participant added:

I firmly believe that when you first encounter something new, your first thought is what you were conditioned or raised to believe, and the second thought you have is based on your character, and who you want to be. The idea of stereotypes being mainly learned from family and friends while growing up goes along with that belief. (S23)

Participants also expressed the need for society to stand up to overcome biases and stereotyping: People may not realize what they are saying to people they may most of the time think they’re being funny. People who have those things said to them may not want to say anything to avoid the situation being uncomfortable. We as a society need to confront those who say things like this to them to show it’s really not okay. (S1)

Participants also commented on fear of diversity, stating, “From this week’s activities, I understood how easy it can be to make assumptions and categorize people into stereotypes. In the fear of interacting with diversity, many people tend to avoid meeting and talking with people different from them” (S32); and recognized that diverse individuals may encounter stereotyping on a regular basis and still come out ahead: “I learned that I am not the only person who has gone

through this [experienced stereotyping]. I might have dealt with this once, but there are people who face this issue constantly and yet they still come out strong.” (S25)

**Knowledge/experience with Diversity.** A few participants reflected on the importance of knowledge of diversity and experience with diversity, and realized that this lack of knowledge and awareness may contribute to stereotyping and biases. These included 24.4% of comments within the major theme of cultural worldview (3.8% of total comments). Comments included statements such as: “I learned that we interpret and evaluate incorrectly when we lack experience with diverse others...looks can be deceiving and that we don't always know what is right in front of us” (S6). Another participant stated:

This activity [describing, interpreting, and evaluating] showed me how easy it was for my ignorance of a topic...to make my beliefs about it wrong...this was an eye-opening activity because it reiterated the fact that sometimes our reactions to things are wrong not because we set out to be close-minded or mean, but because we are ill-informed and not able to make an educated decision. (S24)

**Diversity can be Invisible.** Another small set of comments (11% within this major theme; 1.7% of total comments) focused on the understanding that diversity is not always obvious and can sometimes be invisible. For example: “This activity [looking at our own diversity] helped make us aware that we all have our diversities, both visible and invisible and biases about that” (S9); “I was better able to understand that we cannot always see everyone’s diversities and that I should take that into consideration when talking to someone that may not seem like they have had to deal with being different” (S11); and “By reflecting on my own identities, I learned that I can never assume that of others... Now I know to not make judgements about others visible and invisible identities” (S18).

Overall, comments within the major theme of cultural world-view focused on understanding diversity on a deeper level including being more aware of the importance of experiences with diverse others, and the knowledge that diversity may not always be overtly obvious.

## **Theme 2: Skills**

This major theme included 16% of the total comments and focused on two distinct sub-themes: emotional responses to the MOOC activities, and new methods learned for communication.

**Sub-theme 1: Emotional Responses.** Participants expressed a range of emotions (68% of comments in this sub-theme; 5.2% of total comments) including feeling bad, sad, uneasy, shocked, angry, regretful, and ashamed after completing some of the MOOC activities. Activities included for example watching a video of quotes personifying stereotyping, such as “I bet you’re good at math.” and “Did you grow up on a reservation?” Participants reflected, responded to prompts, and shared their own experiences and stories on stereotyping in online discussion. The emotional responses suggest that participants became more empathetic and the experiences were triggers for them to dig deeper, reflect on their own experiences, and make a difference. Sample comments included: “I honestly felt angry and wanting change after completing this activity [stereotyping]” (S1); “I regretted while recalling past memories because there were times when I judged someone based on a stereotype” (S6); “When I was forced to think of a time that I have stereotyped another person, too many instances came to mind and I felt a bit ashamed of myself” (S27); “This activity

[diversity wheel] made me feel a little sad because I ended up listing three areas that make me uncomfortable when they really shouldn't since I know it is okay for others to be different from me" (S14). One participant expanded on these thoughts saying:

At first what the students were thinking shocked me, but then the longer I watched the more I thought "wow I'm guilty of doing the same thing every day". After this activity I felt a little sad because I did not know how judgmental my first thoughts about people really are. Most of the time I don't give others the chance to tell me they are before I think I really know them. (S14)

Some participants acknowledged that they were not as empathetic as they thought they were, stating, "I think I learned that I am less empathetic than other people" (S7); and "pausing before jumping to conclusions may improve this skill...if I take the time to slow down and think, I may be able to consider the rationale for the decisions of some people and therefore have empathy towards them" (S22).

**Sub-theme 2: Verbal and Non-verbal Communication.** A small set of comments (32% within this sub-theme; 2.4% of total comments) focused on learning ways to communicate effectively about diversity in a manner that may change inappropriate behaviors. Comments included: "I learned a few different, more soft approaches that will help me in the future be more understanding of the people I am trying to talk to" (S24); "It's made me realize that civil conversations about diversity can happen and that there are people willing to understand and see the perspective through the eyes of someone else." (S29); and "...one must be able to confront the situation. However, the confrontation must be conducted in a respectful manner so as to not offend anybody and hurt sentiments. It can prove to be very productive and helpful" (S42).

Overall, comments within the theme of intercultural skills reflected participants' communication skills in terms of their ability to discuss inappropriate behaviors, and emotional reactions to their awareness of their own or others' biases.

### ***Theme 3: Attitudes***

**Sub-theme: Openness and Curiosity.** The comments in this theme (8% of total comments) focused on being receptive to interacting with others who are culturally different, often expressed as goals. Several participant comments reflected an understanding that the more one knows about others, the better one might understand and accept culturally diverse people. These included comments such as: "The more we interact with others from different diversities the more comfortable we become with the differences between us" (S1); "The longer that I am experiencing new cultures/genders the better I will become at understanding and accepting them" (S14); and "After completing the activities, I feel more open to learn about other people and to understand their perspective on life" (S22). One participant summarized this stating "We can't preach about something that we don't know about, so we can apply the behavior of learning about these groups and cultures before evaluating or interpreting them and having biases towards them" (S30).

Participants also commented on seeking opinions and using discussion to learn more about diverse others, such as: "I can use what I learned in this video to search out other opinions rather than only looking for ways to confirm mine" (S16); and "Starting a discussion with someone with opposing views than yours, helps you become more accepting of others" (S18). Other participants expressed

goals such as “I think some goals are to...not be afraid to communicate with people who have different beliefs or values...” (S9); and “This made me want to talk and be friend those who are different from me, so I can’t have another incorrect first impression” (S17). One participant expanded on this stating:

The best way to get comfortable with other cultures is to be open to learning more. I think this not only shows people that they can get more comfortable with diversity but also gives learners a starting point on campus; cultural centers and club events. My goal is to attend more of these in order to expand my horizons. (S9)

Overall, comments within this theme reflected participants attitudes of being willing to initiate interactions with diverse others and seek to understand diversity by engaging in cultural activities.

## **Discussion**

The primary aim of this study was to evaluate the impact of including ICL activities via a MOOC in an on-campus course in increasing student cultural competence. Overall, results from this study showed that utilizing the MOOC on *Understanding Diversity and Inclusion* (Calahan, n.d.) as an ICL activity was an effective means of teaching intercultural competence and led to a significant increase in mean DO scores in the intervention group compared to the control group that did not participate in the MOOC. Qualitative data from participant reflections supported the quantitative findings with the most substantial gains appearing to be increased self-awareness, as well as a broader cultural world-view, and increased openness to explore diversity.

Little previous work has been done in this area, and to our knowledge this is the first study that evaluated the use of a MOOC for increasing cultural competence. In the professions of audiology and SLP, the primary model utilized to educate students in cultural competence has been to infuse aspects of cultural competence across the curriculum, and most of the literature focuses on graduate students in SLP (e.g., Stockman et al., 2008; Crowley et al., 2015). One recommendation regarding the infusion model has been to add more explicit references to cultural learning within the context of the course (Halvorson-Bourgeois et al., 2013). This study, which specifically included development of cultural competence as a course objective within an introductory undergraduate course in audiology, appears to support this idea.

Only two other reports were found that evaluated cultural competence in undergraduate students: Goldberg (2007) utilized a service learning model in an introductory course regarding practice settings. Students were placed at a variety of community partner organizations and student reflections were reported. The other had undergraduate students serve as conversational partners to English language learners and reported an increase in cognitive cultural competence in the small group of eight students compared to control group participants (Vale & Arnold, 2019). This is the first study demonstrating an increase in cultural competence utilizing an online course. This finding is particularly important given the current global circumstances with restrictions to travel and socialization due to the pandemic.

### **Prior Experiences Abroad.**

A new finding that emerged in this study was the significant difference in pre-DO scores between the sub-group of participants in the intervention group that had prior experiences abroad vs. those



who did not. Participants with prior experiences abroad had a significantly higher pre-DO score than those who had limited or no experiences abroad. Two possible explanations for this may be considered. First, it is possible that the prior experiences abroad were effective in increasing participant DO scores. However, previous work has shown that merely travelling abroad without any focused ICL activities may not necessarily increase DO scores (Krishnan et al., 2017; Vande Berg et al., 2009). The second possible explanation is that perhaps participants who desire to travel abroad are already further along the developmental continuum because they are open to exploring a different culture abroad and therefore have higher DO scores. Further research is needed to explore this question.

### **Comparing On-Campus ICL to Study Abroad.**

Results from this study showed a group mean increase in DO score of 11.2 points subsequent to completion of the MOOC. By comparison, previous data from the SA program to Zambia (Krishnan et al., 2017), showed that participants had a group mean increase in DO score of 12.38 points (14 points in 2015 and 10.76 points in 2016). This overall finding indicates that the completion of the MOOC as an ICL activity appears to be nearly as effective as the extensive pre-departure ICL activities and intensive SA experience.

In the current study, participants who had prior experiences abroad had a significantly higher pre-DO score and showed a smaller mean increase of 7.56 points, while those who had little to no prior experience abroad had a lower pre-DO score and showed a larger 15.87-point increase. However, this difference in the amount of increase in score was not significant. Although no information is available on the SA to Zambia participants' prior experiences abroad for comparison, it is notable that similar to the current findings, the group that started with a lower DO score in 2015 demonstrated a greater increase in score (14 points) compared to the group that started with a higher DO score in 2016 (10.76-point increase). Although not significant, this is a trend that deserves further exploration to determine whether ICL activities are more effective for individuals who have lower DO scores, and perhaps whether different targeted ICL activities are warranted depending on where an individual is along the developmental continuum.

### **Limitations**

There were a few limitations to this study. Although the MOOC offers a unique pedagogical approach, oversight of participant completion of MOOC activities is difficult. Some participants were much more engaged in the MOOC activities than others, and the level of participation is a factor that could not be controlled or assessed. Additionally, the use of the MOOC is limited by the dates that the course is offered, which may not always fit into the academic calendar. Another limitation is the participant pool including the small sample size, and the homogeneity of the control group (88% Caucasian compared to 50% of the intervention group). It may be beneficial if participants in the control and intervention groups could be better matched. Additionally, although student reflections were not graded for content, they were completed as part of the course assignments, which could have influenced participants to write reflections that they thought would be viewed more positively or graded better.

## Conclusion

The overall findings of this study indicate that the on-campus completion of the MOOC was an effective means of increasing participant intercultural competence as measured by the IDI® and this was supported by the qualitative data. Further, when compared to DO-score increases achieved via participating in a SA program, the completion of the MOOC appeared almost as effective as SA, with a similar mean DO-score increase. This study is the first to make a direct comparison of on-campus online vs. experiential (study abroad) approaches to teaching intercultural competence. The findings of the study are positive as they indicate that including ICL activities within an on-campus course can be an effective means of improving intercultural competence, and a means of reaching the more than 80% of undergraduate students in the USA who do not have the opportunity to study abroad. These findings offer academic programs in audiology and SLP an alternate means of including intercultural competence training to students on campus.

## Disclosures

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## References

- Affoo, R. H., Bruner, J. L., Dietsch, A. M., Nellenbach, C. E., Jones, T. M., & Lehman, M. E. (2020). The Impact of Active Learning in a Speech-Language Pathology Swallowing and Dysphagia Course. *Teaching and Learning in Communication Sciences & Disorders*, 4(2), 4. <https://doi.org/10.30707/TLCS4.2/POPG6689>
- American Speech-Language-Hearing Association. (n.d.). EdFind. [https://find.asha.org/ed#sort=relevancy&f:@offerings=\[Study%20abroad\]](https://find.asha.org/ed#sort=relevancy&f:@offerings=[Study%20abroad])
- Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and Organization Review*, 3(3), 335–371. <https://doi.org/10.1111/j.1740-8784.2007.00082.x>
- Association of American Colleges and Universities (AAC&U). (2009). *Intercultural knowledge and competence VALUE rubric*. <https://www.aacu.org/value/rubrics/intercultural-knowledge>
- Bennett, M. J. (1986). Toward ethnorelativism: A developmental model of intercultural sensitivity. In R. M. Paige (Ed.), *Cross-cultural orientation: New conceptualizations and applications* (pp. 21–70). University Press of America.
- Bogdan, R. (2017). Integrating MOOCs in embedded systems blended Courses. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 8(3), 101-107.
- Bralić, A., & Divjak, B. (2018). Integrating MOOCs in traditionally taught courses: achieving learning outcomes with blended learning. *International Journal of Educational Technology in Higher Education*, 15(1), 2. <https://doi.org/10.1186/s41239-017-0085-7>
- Breslow, L., Pritchard, D. E., DeBoer, J., Stump, G. S., Ho, A. D., & Seaton, D. T. (2013). Studying learning in the worldwide classroom research into edX's first MOOC. *Research & Practice in Assessment*, 8, 13-25.

- Brookfield, S. (1990) Using critical incidents to explore learner's assumptions, in: J. Merziow (Ed.) *Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning*. Jossey-Bass.
- Bruff, D. O., Fisher, D. H., McEwen, K. E., & Smith, B. E. (2013). Wrapping a MOOC: Student perceptions of an experiment in blended learning. *Journal of Online Learning and Teaching*, 9(2), 187.
- Calahan, C. (n.d.). *Understanding Diversity and Inclusion* [MOOC]. Class Central. <https://www.classcentral.com/course/diversity-inclusion-awareness-9883>
- Chi, M. T. H. (1997). Quantifying qualitative analyses of verbal data: A practical guide. *The Journal of the Learning Sciences*, 6 (3), 271-315. [https://doi.org/10.1207/s15327809jls0603\\_1](https://doi.org/10.1207/s15327809jls0603_1)
- Cohen, J. (1977). *Statistical Power Analysis for the Behavioral Sciences*. Academic Press.
- Council for Clinical Certification in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association. (2018). *2020 Standards for the Certificate of Clinical Competence in Speech-Language Pathology*. <https://www.asha.org/certification/2020-SLP-Certification-Standards>.
- Council on Academic Accreditation in Audiology and Speech-Language Pathology. (2017). Standards for accreditation of graduate education programs in audiology and speech-language pathology <https://caa.asha.org/siteassets/files/accreditation-standards-for-graduate-programs.pdf>
- Crowley, C., & Baigorri, M. (2011). Effective approaches to inter- national work: Substance and sustainability for speech-language pathology student groups. *Perspectives on Global Issues in Communication Sciences and Related Disorders*, 1(1), 27–35. <https://doi:10.1044/gics1.1.27>
- Crowley, C., & Baigorri, M. (2012, October). International service that really serves. *The ASHA Leader*, 17(13), 30–33. <https://doi.org/10.1044/leader.WB1.17132012.30>
- Crowley, C. J., Guest, K., & Sudler, K. (2015). Cultural competence needed to distinguish disorder from difference: Beyond Kumbaya. *Perspectives on Communication Disorders and Sciences in Culturally and Linguistically Diverse (CLD) Populations*, 22(2), 64-76. <https://doi.org/10.1044/cds22.2.64>
- de Diego-Lázaro, B. (2018). A Study Abroad to Nicaragua: Measuring Cultural Competence in Speech and Language Pathology Students. *Perspectives of the ASHA Special Interest Groups*, 3(17), 38-48. <https://doi.org/10.1044/persp3.SIG17.38>
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, 10(3), 241-266. <https://doi.org/10.1177%2F1028315306287002>
- Deardorff, D. K. (2011). Assessing intercultural competence. *New Directions for Institutional Research*, 149, 65-79.
- Franca, M. C., & Harten, A. C. (2016). Pluralistic education in speech-language pathology: Above and beyond didactic trails. *Perspectives of the ASHA Special Interest Groups*, 1(14), 90-103. <https://doi.org/10.1044/persp1.SIG14.90>
- Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, 12(4), 436-445. <https://doi.org/10.2307/798843>
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.

- Godkin, M. A., & Savageau, J. A. (2001). The effect of a global multiculturalism track on cultural competence of preclinical medical students. *Family Medicine and Community Health Publications and Presentations*. [https://escholarship.umassmed.edu/fmch\\_articles/1](https://escholarship.umassmed.edu/fmch_articles/1)
- Goldberg, L. R. (2007). Service-learning as a tool to facilitate cultural competence. *Perspectives on Communication Disorders and Sciences in Culturally and Linguistically Diverse (CLD) Populations*, 14(1), 3-7. <https://doi.org/10.1044/cds14.1.3>
- Guàrdia, L., Maina, M., & Sangrà, A. (2013). MOOC design principles: A pedagogical approach from the learner's perspective. *elearning papers*, (33). [https://r-libre.telug.ca/596/1/In-depth\\_33\\_4.pdf](https://r-libre.telug.ca/596/1/In-depth_33_4.pdf)
- Halvorson-Bourgeois, B., Zipse, L., & Haynes, C. (2013). Educating culturally competent clinicians: Using multiple perspectives to review curriculum content. *Division 10 Newsletter*, 16(2), 51-62. <https://doi.org/10.1044/ihe16.2.51>
- Hammer, M.R. (2011). Additional cross-cultural validity testing of the Intercultural Development Inventory. *International Journal of Intercultural Relations*, 35, 474-487. <https://doi.org/10.1016/j.ijintrel.2011.02.014>
- Hammer, M. R., Bennett, M. J., & Wiseman, R. (2003). The Intercultural Development Inventory: A measure of intercultural sensitivity. *International Journal of Intercultural Relations*, 27(4), 421-443. [https://doi.org/10.1016/S0147-1767\(03\)00032-4](https://doi.org/10.1016/S0147-1767(03)00032-4)
- Hammond, C., Mitchell, P., & Johnson, M. (2009). Academic and clinical preparation for cultural and linguistic diversity in speech-language pathology: Program director perspectives. *Contemporary Issues in Communication Science and Disorders*, 36(Spring), 63-76.
- Havis, L. R. (2019). Promoting intercultural competence among criminal justice students using interview-based signature assignments. *Transformative Dialogues: Teaching & Learning Journal*, 12 (1), 1-17.
- Hayward, L. M., & Li, L. (2014). Promoting and assessing cultural competence, professional identity, and advocacy in Doctor of Physical Therapy (DPT) degree students within a community of practice. *Journal of Physical Therapy Education*, 28(1), 23-36.
- Hedges, L. V. & Olkin, I. (1985). *Statistical Methods for Meta-Analysis*. Academic Press.
- Hofstedt, M., Harbers, H. & Yacucci, A. (2019). Long-Term Effects of a Short-Term Study Abroad on Mindset. *Graduate Independent Studies - Communication Sciences and Disorders*, 18. <https://ir.library.illinoisstate.edu/giscsd/18>
- Hone, K. S., & El Said, G. R. (2016). Exploring the factors affecting MOOC retention: A survey study. *Computers & Education*, 98, 157-168. <https://doi.org/10.1016/j.compedu.2016.03.016>
- Horton-Ikard, R., Munoz, M. L., Thomas-Tate, S., & Keller-Bell, Y. (2009). Establishing a pedagogical framework for the multi-cultural course in communication sciences and disorders. *American Journal of Speech-Language Pathology*, 18, 192-206. [https://doi.org/10.1044/1058-0360\(2008/07-0086\)](https://doi.org/10.1044/1058-0360(2008/07-0086))
- Kelleher, S. (2013). Perceived benefits of study abroad programs for nursing students: an integrative review. *Journal of Nursing Education*, 52(12), 690-695. <https://doi.org/10.3928/01484834-20131118-01>
- Kitchener, K. S. & King, P. M. (1990) The reflective judgement model: transforming assumptions about knowing, in: J. Mezirow (Ed.) *Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning*. Jossey-Bass.

- Kolb, S. M. (2012). Grounded theory and the constant comparative method: Valid research strategies for educators. *Journal of Emerging Trends in Educational Research and Policy Studies*, 3(1), 83-86. <https://doi.org/10.1.1.301.9451>
- Krimm, H., Schuele, M. C., & Brame, C. (2017). Viability of online learning for ensuring basic skills in speech-language pathology. *Perspectives of the ASHA Special Interest Groups*, 2(10), 49-58. <https://doi.org/10.1044/persp2.SIG10.49>
- Krishnan, L. A., Masters, C., Holgate, H., Wang, C., & Calahan, C. A. (2017). Structured study abroad enhances intercultural competence. *Teaching and Learning in Communication Sciences & Disorders*, 1(1), 5. <https://doi.org/10.30707/TLCSD1.1Krishnan>
- Krishnan, L. A., Richards, K. A. R., & Simpson, J. M. (2016). Outcomes of an international audiology service-learning study-abroad program. *American Journal of Audiology*, 25(1), 1-13. [https://doi.org/10.1044/2015\\_AJA-15-0054](https://doi.org/10.1044/2015_AJA-15-0054)
- Levesque-Bristol, C., & Cornelius-White, J. (2012). The public affairs scale: Measuring the public good mission of higher education. *Journal of Public Affairs Education*, 18(4), 695. <https://doi.org/10.1080/15236803.2012.12001709>
- Mackness, J., Mak, S., & Williams, R. (2010). The ideals and reality of participating in a MOOC. In *Proceedings of the 7th international conference on networked learning 2010* (pp. 266-275). University of Lancaster.
- Mangan, K. (2012, October 1). MOOC Mania. *The Chronicle of Higher Education*. <http://www.chronicle.com/article/Massive-Excitement-About/134678/>
- McAllister, L., Whiteford, G., Hill, B., Thomas, N., & Fitzgerald, M. (2006). Reflection in intercultural learning: examining the international experience through a critical incident approach. *Reflective practice*, 7(3), 367-381. <https://doi.org/10.1080/14623940600837624>
- McBride, I., & Belus, G. (2014, November). *Humanitarian audiology: Are you making a difference?* Seminar presented at the Annual Convention of the American Speech-Language-Hearing Association, Orlando, FL.
- McGill Association of University Teachers. (2015, November 16). *A Brief History of MOOCs*. <https://www.mcgill.ca/maut/current-issues/moocs/history>
- Paige, R. M., Jacobs-Cassuto, M., Yershova, Y. A., & DeJaeghere, J. (2003). Assessing intercultural sensitivity: An empirical analysis of the Hammer and Bennett Intercultural Development Inventory. *International Journal of Intercultural Relations*, 27, 467-486. [https://doi.org/10.1016/S0147-1767\(03\)00034-8](https://doi.org/10.1016/S0147-1767(03)00034-8)
- Practical Applications of the Intercultural Development Inventory® (n.d.) available at <https://idiinventory.com/video/practical-applications-video/?id=361>
- Preis, J. (2008). Effect of an undergraduate elective course, cultural diversity in communication, on attitudes and behaviors of communication sciences and disorders students: A pilot study. *Journal of allied health*, 37(4), 255E-277E.
- Redden, E. (2019 November 18). 'Open Doors' data show continued increase in numbers of Americans studying abroad. <https://www.insidehighered.com/news/2019/11/18/open-doors-data-show-continued-increase-numbers-americans-studying-abroad>
- Reich, J. (2014) MOOC completion and retention in the context of student intent. *Educause Rev*. <https://er.educause.edu/articles/2014/12/mooc-completion-and-retention-in-the-context-of-student-intent>.
- Schön, D. (1987) *Educating the reflective practitioner*. Jossey-Bass.
- Steeb, D. R., Miller, M. L., Schellhase, E. M., Malhotra, J. V., McLaughlin, J. E., Dascanio, S. A., & Haines, S. T. (2020). Global health learning outcomes in pharmacy students completing

- international advanced pharmacy practice experiences. *American Journal of Pharmaceutical Education*, 84(3). <https://doi.org/10.5688/ajpe7586>
- Stockman, I. J., Boulton, J., & Robinson, G. C. (2008). Multicultural/ multilingual instruction in educational programs: A survey of perceived faculty practices and outcomes. *American Journal of Speech-Language Pathology*, 17, 241–264. [https://doi.org/10.1044/1058-0360\(2008/023\)](https://doi.org/10.1044/1058-0360(2008/023))
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research Techniques*. Sage publications.
- Tattersall, P. (2015). “Flipped” classroom: Benefits versus challenges for communicative sciences and disorders faculty and students. *Perspectives on Issues in Higher Education*, 18, 4–15. <https://doi.org/10.1044/ihe.18.1.4>
- The Intercultural Development Inventory® (IDI®)*. (2019, May 24). Intercultural Development Inventory | IDI, LLC. <https://idiinventory.com/generalinformation/the-intercultural-development-inventory-idi/>
- Thiagarajan, Sivasailam (1992). Using games for debriefing. *Simulation and Gaming*, 23(2), 161-173.
- Vale, L., & Arnold, H. S. (2019). The Effects of International Experiential Learning on the Cultural Competence of College Students in Communication Sciences and Disorders. *Perspectives of the ASHA Special Interest Groups*, 4(5), 1074-1084. [https://doi.org/10.1044/2019\\_PERS-SIG14-2018-0026](https://doi.org/10.1044/2019_PERS-SIG14-2018-0026)
- Vande Berg, M., Connor-Linton, J., & Paige, R. M. (2009). The Georgetown consortium project: Interventions for student learning abroad. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 18, 1-75.
- Williams, A. L., Louw, B., Scherer, N. J., Bleile, K. M., Keske-Soares, M., & Trindade, I. E. K. (2013). Academic and clinical preparation in speech-language pathology and audiology: A global training consortium. *Contemporary Issues in Communication Science and Disorders*, 40 (Spring), 40-49.
- Yousef, A. M. F., Chatti, M. A., Schroeder, U., & Wosnitza, M. (2014, July). What drives a successful MOOC? An empirical examination of criteria to assure design quality of MOOCs. In *2014 IEEE 14th International Conference on Advanced Learning Technologies* (pp. 44-48). IEEE. <https://doi.org/10.1109/ICALT.2014.23>