



2022

Innovative Changes to Study Abroad: Virtual Intercultural Learning during the Pandemic

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Recommended Citation

Krishnan, Lata A.; Jin, Lan; Stahl, Aletha; Sreekumar, Sita; Sundaram, Saumya; Subrahmanian, Manju; and Davis, Praveena (2022) "Innovative Changes to Study Abroad: Virtual Intercultural Learning during the Pandemic," *Teaching and Learning in Communication Sciences & Disorders*: Vol. 6: Iss. 2, Article 1. Available at: <https://ir.library.illinoisstate.edu/tlcsd/vol6/iss2/1>

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Innovative Changes to Study Abroad: Virtual Intercultural Learning during the Pandemic

Cover Page Footnote

The authors gratefully acknowledge the support from both academic institutions in the U.S. and India; the U.S. students who participated in the new format of the course; and the Indian students who added this extra course into their curriculum.

Authors

Lata A. Krishnan, Lan Jin, Aletha Stahl, Sita Sreekumar, Saumya Sundaram, Manju Subrahmanian, and Praveena Davis

Introduction

The development of intercultural competence (ICC) is regarded as both an imperative for, and a potential outcome of the internationalization of higher education. ICC is defined as the ability to interact effectively and appropriately with people from culturally diverse backgrounds (Hammer et al., 2003). It requires the acquisition of knowledge as well as the development of attitudes and skills (Deardorff, 2006), and has been identified as increasingly important for healthcare professionals in the twenty-first century (Godkin & Savageau, 2001; Hayward & Li, 2014; Kelleher, 2013; Steeb et al., 2020). The purpose of this study was to determine whether participation in virtual intercultural learning activities embedded in an audiology course improved ICC.

One approach to growth in ICC has been through study abroad programs, particularly when intentional intercultural learning (ICL) activities and intensive intercultural interactions are embedded into the program curriculum (Krishnan et al., 2017; Krishnan et al., 2021a; Vande Berg et al., 2012). Cultural benefits subsequent to study abroad have been reported across a variety of healthcare disciplines. Medical students report increased comfort with patients from other cultures, and higher levels of respect and compassion (Godkin & Savageau, 2001). Students of physical therapy have shown increases in cultural desire (motivation to become more culturally competent), awareness, knowledge, encounters, and skill (Hayward & Li, 2014). Greater self-awareness, ability to connect with others, sensitivity to other cultures, beliefs and values, and more positive perceptions of the other culture have been demonstrated in nursing students (Kelleher, 2013; Philips et al., 2017); and pharmacy students have shown increased awareness of influences of culture on healthcare and communication skills (Steeb et al., 2020).

Despite the ICC benefits from study abroad, with the global pandemic restricting travel and leading to cancellation of these programs, it became imperative to investigate innovative approaches to incorporate ICL into courses taught on campus (in person or online) that did not involve travel.

Pedagogical approaches to teaching ICC in audiology and speech-language pathology. In the professions of audiology and speech-language pathology (SLP), there have been a few reports of courses dedicated to teaching cultural competence (Horton-Ikard et al., 2009; Preis, 2008); but the majority of accredited programs report infusing cultural competence education throughout their curriculum (Hammond et al., 2009; Stockman et al., 2008). However, most respondents using the infusion model (56%) indicated that they devoted minimal time to instruction on cultural content in their courses. Most respondents (58%) also indicated that they judged students to be only somewhat or poorly prepared, or were unsure of students' ability to apply the infused content to diverse populations. By contrast, 65% of instructors of courses dedicated to teaching multiculturalism indicated that they felt students were adequately or exceptionally prepared to work with diverse others (Stockman et al., 2008). In another study, program directors' median rating of student preparation to work with culturally and linguistically diverse clients was 5 on a 7-point scale, with 7 indicating they were extremely well prepared (Hammond et al., 2009). The only study to examine the question of infusion of curricular content related to cultural competence from a student perspective (Halvorson-Bourgeois et al., 2013) revealed a discrepancy between student and faculty responses. The two graduate students who reviewed course content reported far fewer references to cultural and linguistic diversity than the 15 faculty interviewed regarding

their courses reported, suggesting that the content may not be successfully transmitted to students. These authors suggest that students may benefit from more explicit references regarding cultural and linguistic diversity within a course that infuses cultural content.

There are also a few reports of experiential learning as a tool to teach ICC. Goldberg (2007) reported on an undergraduate course in communication sciences and disorders that used service learning as a tool to facilitate cultural competence. Students enrolled in the course were required to spend time with community partners who provide services to persons with, or at risk for, communication difficulties and their families/caregivers. Qualitative reflections indicated increased awareness, but no quantitative measures were obtained. More recently, Vale & Arnold (2019) described their approach in which students in an undergraduate course served as conversational partners to international students who were English language learners, and demonstrated gains in the cognitive dimension using the Cultural Intelligence Scale (Ang et al., 2007).

Benefits of virtual learning approaches. Over the past two decades, virtual learning environments and communities have begun to be incorporated into education in a variety of ways. Multiple benefits of such pedagogies have been reported including flexibility, a sense of community, improved critical thinking, and enhanced confidence and learning (Aspden & Helm 2004; Boud et al., 1999; Casquero et al., 2010; Clarke & Abbott 2008; Gannon-Leary & Fontainha, 2007; Greenlaw 1999; Grosbeck 2009; Leese, 2009; Lyndon & Hale, 2014; Romanov & Nevgi, 2007). Another advantage is that sensitive topics can be discussed in a more neutral environment, and students have more time to reflect (Bertera & Littlefield 2003; McFerrin, 1999; Schoech, 2000). More specifically, a virtual community of practice, defined as a network of individuals who share an interest about which they communicate online, has also been shown to have similar benefits as well as a shared passion and a deepening of knowledge (Gannon-Leary & Fontainha, 2007). Additionally, online forums have also been found to enhance learning relating to cultural diversity and societal oppression (Van Soest et al., 2000).

Several factors have been identified as important for the success of virtual learning including ease of use of the technology, relevance of the task, creation of a safe space for discussion, a sense of belonging among members, a common sense of purpose, and longevity (Gannon-Leary & Fontainha, 2007; Lyndon & Hale, 2014). Success is also dependent on paying careful attention to cross-cultural differences (Gannon-Leary & Fontainha, 2007) and student learning styles and personality type (Maltby & Mackie 2009; McNulty et al., 2006).

Virtual approaches to ICL. Virtual learning approaches have been utilized for ICL, particularly in relation to language learning. A variety of virtual learning tools have been used including videoconferencing, e-mail, course related learning management systems (such as Blackboard), blogs, chats, wikis, podcasts, and more (Çiftçi & Savas; 2018; Shadiev & Sintawati, 2020). However there has been a trend for videoconferencing and chats to increase from 2014-2019, while the use of e-mail decreased perhaps as it is less useful for the purpose of learning language (Shadiev & Sintawati, 2020). The use of videoconferencing has enabled students to increase their interactions, communicate in real-time, and have more in-depth conversations (Jin, 2015; Lee & Markey, 2014; Yang et al., 2014). Two recent review papers in combination evaluated the literature in the area of virtual ICL between the years of 2010 to 2019 (Çiftçi & Savas; 2018; Shadiev &

Sintawati, 2020). Although mixed methods were used in many studies, most studies gathered qualitative data from participants in the form of interviews, questionnaires, and observations (Shadiev & Sintawati, 2020). Overall, findings indicated that participants increased their knowledge, interest, curiosity, cooperation, communication, empathy, and awareness toward their own as well as other cultural perspectives (Angelova & Zhao, 2016; Bailey & Gruber, 2020; Chen & Yang, 2016; Freiermuth & Huang, 2020; Hyett et al., 2019; Kröger & Urdzina-Deruma, 2015; Lee & Markey, 2014; Liaw & Bunn-Le Master, 2010; O'Dowd, 2003; Schenker, 2012).

Several studies have identified facilitating factors as well as challenges to intercultural growth using a virtual platform. After a year-long e-mail exchange, students who had a receptive and curious partner, the ability to build a personal relationship with their partners via e-mail, were sensitive to their partners' needs and communicative style, and used engaging and in-depth correspondence were able to successfully develop their ICC (O'Dowd, 2003). Using a wiki site, friendliness and the opportunity to reflect upon the ways that culture may impact intercultural communication and online group relationships were found to be important (Crossman & Bordia, 2011). Successful intercultural communicators also put greater effort into the depth and context of the exchanges and moved from information-seeking questions to contextualized topics (Ware & Kessler, 2016).

Across studies, although most participants showed improvements in language and intercultural learning, not all communications between partners or groups were positive (Bueno-Alastuey & Kleban, 2016; Gannon et al., 2016; O'Dowd & Ritter, 2006; Ware & Kessler, 2016). Several challenges to virtual ICL have been identified including lack of student participation, effort, and depth of questioning; lack of collaboration; language barrier; scheduling difficulties; time zone differences; and difficulty with technology and connectivity (Antoniadou, 2011; Bueno-Alastuey & Kleban, 2016; Chun, 2011; Lee & Markey, 2014; Patterson et al., 2012; Ware & Kessler, 2016). One other important challenge has been the need to set different goals and objectives for the two sets of participants due to differences in the cultural context and academic backgrounds (Angelova & Zhao, 2016; Antoniadou, 2011; Bueno-Alastuey & Kleban, 2016).

Although most of these studies have focused on undergraduate students who were language learners, two studies were particularly relevant to the context of the current study (graduate students in audiology): one with graduate students and the other with students in allied health professions similar to audiology. A large majority of graduate students in Hospitality and Tourism from three European institutions rated their virtual collaboration positively: 87.5% agreed that the ability to interact effectively with diverse others is a useful career skill; and 75% agreed that the collaboration provided insights into the challenges of working across cultures to a moderate or great extent (Gannon et al., 2016). One of the few studies that utilized a quantitative questionnaire with questions selected from three different scales was with a large group of 201 undergraduate students in allied health fields (occupational therapy and oral health). Qualitative findings indicated that students learned intercultural communication skills such as active listening, being curious, asking questions, and adapting their language and word choices; increased cultural sensitivity, respect, and empathy; gained greater awareness and appreciation for diversity at home and abroad; and increased their social and cultural awareness. However, there were no quantitative differences found on the pre- and post- surveys (Hyett et al., 2019).

To our knowledge, there is only one previous report using an online approach for ICL in the field of audiology and SLP (Krishnan et al., 2021b). These authors incorporated an online unit on Diversity and Inclusion into an introductory level undergraduate audiology course. They reported increases in participant ICC using the Intercultural Development Inventory (IDI®; Hammer, 2019) and included supporting qualitative reflections from participants.

Based on the extensive qualitative literature supporting virtual ICL, the purpose of this paper is to a) describe a novel approach towards “study abroad” without travelling abroad that involved partnering with an institution in India, and b) evaluate participant gains in ICC with a virtual international ICL experience embedded into a graduate level pediatric audiology course.

Methods

All study procedures were approved by the university Institutional Review Board (U.S.) and the Institution Ethics Committee (India).

Participants. All participants were enrolled in the pediatric audiology course offered by the U.S. institution during the fall 2020 semester and included nine second year Doctor of Audiology (AuD) students in the U.S. and ten first year Master’s in Audiology (MSc.) students in India. Participant demographics are displayed in Table 1; there was one male participant in each group. Eight of the U.S. participants were white and one was multiracial; all the Indian participants were from the southern state of Kerala and spoke Malayalam as their first language, but were fluent in English. Almost all had never lived outside Kerala, except for two participants who were in another state for a 4-month internship. Nine of the Indian participants were Hindu and one was Muslim. Among the U.S. participants, only two students had not travelled outside the country, while among the Indian participants, the only student who had travelled abroad grew up and completed high school in a middle eastern country before returning to India. All U.S. participants described prior intercultural experiences with diverse others (ethnicity, nationality, race, socio-economic status, disability) through close friends, family, heritage, family friends, fraternities, clubs or groups, roommates, school, and church. Of the five Indian participants who had prior intercultural experiences, two had 4-month internships in another state in India, one described neighbors, colleagues and friends of various nationalities, one grew up in the middle east, and one participant had previous experience partnering with a U.S. student as part of the first author’s study abroad program in 2018. Seven of the U.S. participants also described prior courses they had taken that incorporated ICL. These included courses on diversity, multicultural characteristics, social change, Deaf culture, dance and music across cultures, language courses (Spanish and American Sign Language), and a course on multilingual language disorders. None of the participants from India reported taking a course geared towards ICL.

Program development and description. *SLHS in India* was a study abroad program at a large public university in the Midwestern United States that was offered in 2018 and 2019 in collaboration with various community partner organizations, including a Speech and Hearing institution in India that offers Bachelor’s and Master’s degrees in audiology and SLP. Upon cancellation of study abroad programs in 2020, the U.S. university implemented a new grant opportunity called the Virtual Experiential Intercultural Learning (VEIL) grant, to encourage faculty to continue international ICL opportunities.

Table 1*Participant Demographic Information*

Demographics	USA	India
Number of students	9	10
Mean age	23.6	23.2
Prior travel abroad		
Locations	Europe = 6 Latin America/Caribbean = 2	Middle East = 1
Duration	1-2 weeks = 6 6-weeks = 1	17 years = 1
Prior ICL experiences	9	5
Prior ICL courses	7	0

Note. IC = intercultural; ICL = intercultural learning

Pediatric Audiology is a required graduate level course taught to AuD students at the U.S. university that offers a valuable opportunity to incorporate ICL. More than 42% of Deaf and hard-of-hearing school-age children in the U.S. are non-White (Mitchell, 2004), with the proportion of non-White students showing a small but steady increase from 1998-2004 (Mitchell & Karchmer, 2006). More recently, U.S. census data have indicated that 50.4% of children younger than age 1 year, and 49.7% of children younger than age 5 years were minorities (U.S. Census Bureau, 2012). The likelihood that audiology students in the U.S. may encounter a diverse caseload of children is high, and students need to develop the skills to provide culturally sensitive and appropriate care to these families. Therefore, it was decided to embed ICL activities into the syllabus of the graduate level course in pediatric audiology taught at the U.S. university.

Based on the prior relationship between the two institutions, faculty from the U.S. university approached faculty at the Indian institution regarding a virtual ICL program for Indian students via enrollment in the pediatric audiology course. Participation in the course was voluntary for the Indian students, and it was an addition to their typical course load. The course was taught by U.S. faculty (first author), while faculty at the Indian institution acted as facilitators to ensure clear communication and a positive experience for their students enrolled in a course outside of their institution. Due to the time difference of 9.5-10.5 hours, the class which was in-person for the U.S. students, was offered online and asynchronously to the Indian students. In addition to pediatric audiology content, the ICL activities in the class included watching videos and/or TED talks, reading articles on relevant topics, and regular online communication between the U.S. and Indian participants. All course materials (recorded lectures, articles, readings, TED talks, etc.) posted for the U.S. students were also shared with the Indian students. The ICL objectives as stated in the course syllabus were to increase cultural competence by learning more about a culture that is very different from one's own and therefore be able to more effectively work with a diverse patient population. Specific learning objectives were to: (a) increase self-awareness of own cultural biases; (b) increase awareness of others' cultural beliefs; (c) enhance communication skills with diverse others; and (d) increase curiosity, openness, and empathy towards cultural differences.

Table 2 displays the timeline of events for program development through the conclusion of the course. Initial meetings between faculty at the U.S. and Indian institutions occurred in July 2020 to discuss the feasibility of the program. The various factors that were considered and discussed included the different academic calendars, the course syllabi in India being regulated by a national body (Rehabilitation Council of India), the time difference, access to course materials for the Indian students, and recognition for completion of the course by the Indian students.

Table 2

Timeline and Aspects of Course Planning and Implementation

Dates	Institution	Activities		
July 22-27, 2020	Both	Initial e-mails	Virtual meeting	Agreement to collaborate
July 28-Aug. 23, 2020	Indian	Committee formation	Ethics Committee approval	Student orientation
	U.S.	Syllabus preparation	IRB approval	ICL activity planning
Aug. 24-Dec. 11, 2020	Indian: 10 MSc. Students U.S.: 9 AuD students	Pre- and post-test of ICC	Buddy pairs	ICL activities and reflection papers

Note. ICC = intercultural competence; ICL = intercultural learning

Committees. Once the collaboration was agreed upon, the Indian faculty formed four committees. The committees were formed to oversee all aspects of the program to be offered to their 1st year MSc. students in Audiology.

Student program coordination committee. This committee provided a detailed orientation to the 1st year MSc. Audiology students regarding the course requirements including information about the U.S. University and the previous collaboration via study abroad, the intercultural exchange program, and the pediatric audiology course. Students were informed that they would receive a certificate of completion at the conclusion of the course. Although this was an additional course to the already prescribed MSc. Program, all ten students volunteered to participate.

Intercultural learning (ICL) activities committee. Indian faculty on this committee together with the U.S. faculty teaching the course (first author) decided on topics for the ICL activities that ranged from discussing differences in pediatric audiology assessment and management protocols to cultural differences including festivals and celebrations (e.g., Onam, Halloween, and Christmas), similarities and differences in the education system, family dynamics, parenting practices, gender roles, colorism, arranged and child marriage, dowry, poverty, and the caste system in India. Since ICL is a new and unfamiliar topic in India, the Indian faculty oriented their students to the ICL program and its objectives, the assessment process using a pre- and post-questionnaire (the Intercultural Development Inventory: IDI®), the ICL topics, and reflection papers. ICL topics (see Table 3) were selected based on previous experiences and planning for the

study abroad program to India (e.g., arranged marriage was a topic discussed between U.S. and Indian student buddies in previous years); known cultural differences between the two nations (e.g., caste system and dowry), as well as topics that the U.S. and Indian faculty jointly considered relevant to pediatric audiology (e.g., family dynamics, parenting practices, pediatric assessment protocols).

Table 3

ICL Topics Included in the Course Syllabus

September	October	November
Festivals and celebrations	Gender roles	Poverty
Education system	Skin color	Housemaids
Parenting practices	Arranged marriage	Caste system
Family dynamics	Child marriage	Menstruation taboo
Newborn hearing screening	Dowry system	Management of hearing loss in children
Infant assessment	Toddler hearing assessments	

Academic learning committee. Indian faculty on this committee created a Google classroom so the Indian student participants could have access to the U.S. course syllabus, readings, video lecture recordings, and all information relevant to the course that was also provided to the U.S. students. The Indian students received feedback on class assignments, but did not receive any grades. They were provided a certificate of completion of the course from the U.S. university at the end of the semester.

Project approval committee. Indian faculty on this committee presented the proposal for the course to the Institutional Ethics Committee (IEC) at their institution, the equivalent of the Institutional Review Board (IRB) in the U.S. and received approval to conduct the pre- and post-assessments of intercultural competence.

During the same time frame (July-August 2020), the course instructor in the U.S. (first author) prepared the course syllabus, selected readings, videos, and/or TED talks for each chosen ICL topic, and applied for and received IRB approval to perform the pre- and post-tests of ICC. On the first day of class, the course instructor (first author) provided detailed information regarding the embedded ICL activities including the rationale for including these in the pediatric audiology course. During the first week of class, each U.S. student was assigned an Indian student partner to form “buddy pairs,” and one class session was used to have a group virtual meeting during which all students and faculty introduced themselves to each other. Student buddies were encouraged to talk freely and openly with each other, discuss the range of monthly suggested ICL topics included in the syllabus (see Table 3), and reflect on each topic/activity. Buddies were asked to start communications via e-mail but also encouraged to use a popular text messaging app, audio or video calls, and social media or other platforms that they preferred. The U.S. class meetings were primarily in person, but all lectures were recorded and made available to both groups of students. Since the Indian students received all course materials online asynchronously, they requested

meetings with the course instructor. Three virtual meetings were held between the course instructor and the Indian students (October, November, and December 2020) to answer their questions.

Materials. The online English version of the Intercultural Development Inventory (IDI®) was used to obtain quantitative data on each participant's intercultural competence. The IDI® is a 50-item questionnaire developed specifically to measure ICC. The inventory is based on the developmental model of intercultural sensitivity (DMIS; Bennett, 1986; Hammer et al., 2003), which was modified as the Intercultural Development Continuum (IDC®: Hammer, 2011). The model describes intercultural development along a continuum from a monocultural or ethnocentric mindset to an intercultural or ethnorelative orientation towards cultural differences and commonalities. A developmental orientation (DO) score is generated upon completion of the IDI®, which represents an individual's primary mindset or orientation. DO scores are calculated using a proprietary weighted and validated formula and represent standardized scores presented as a normal distribution (Hammer, 2011). An intercultural development plan (IDP®) is also generated based on the DO score which includes suggested activities for intercultural growth.

Five developmental orientations are identified based on the DO scores: (a) individuals with scores of 55-70 are in a denial mindset, and may not notice or avoid cultural differences; (b) those with scores of 71-85 are in the polarization orientation and have a judgmental approach, viewing cultural differences in terms of "us" and "them"; (c) individuals with scores of 86-115 are in a minimization orientation and focus primarily on cultural similarities while ignoring differences; (d) individuals with scores of 116-130 are in an acceptance mindset and recognize and appreciate cultural differences; and (e) those with scores of 131-145 are in an adaptation mindset and can shift cultural perspective and change behaviors in culturally sensitive ways (IDI®; Hammer 2019). Although each mindset encompasses 15 points with the transitional mindset of minimization covering 30 points, a change in score of 7 points or more is considered meaningful, as it exceeds the 95% confidence interval (Hammer, 2021). The IDI® has been extensively studied (more than 60 published articles and book chapters and more than 80 PhD dissertations) and shown to have strong content and construct validity and reliability across diverse cultural groups (Hammer et al., 2003; Hammer, 2011; Paige et al., 2003). It is also available in 17 different languages.

Research procedures. Participant demographics and information regarding prior intercultural experiences were obtained using an online survey. A mixed methods approach using both quantitative and qualitative measures was utilized as is recommended for measures of ICC (Deardorff, 2006).

Quantitative measures (IDI®). The first author, who is a qualified administrator of the inventory, administered the IDI® online once at the start of the semester (pre-test), and then again at the conclusion of the semester (post-test). After the pre-test, each group of participants received a group debrief regarding the results. The group debrief included explanation of the intercultural development continuum (Hammer, 2011), as well as the DO score for the group and general goals to increase their DO score and move along the developmental continuum. Each participant also received an individual debrief along with their intercultural development plan (IDP®) with suggested activities for intercultural growth. The course instructor (first author) provided the debriefs for the Indian participants. In order to reduce any bias in course grading, the second author who was not associated with the course provided individual debriefs to the U.S. participants.

Individual debriefs followed the guidelines provided to qualified administrators by the IDI® and included an explanation of the individual's DO score and developmental orientation with examples, as well as specific next steps for them to continue intercultural growth based on their current orientation using the intercultural development plan generated by the IDI®.

Qualitative measures. As part of the course, each participant wrote three (Indian participants) or four (U.S. participants) reflection papers; reflection papers were required for the U.S. participants while all course activities were voluntary for the Indian participants. Reflections were based on monthly ICL topics assigned, and participants were asked to reflect after each ICL activity they completed (e.g., TED talk, conversation with buddy, reading, etc.). Participants were asked to follow the Describe-Interpret-Evaluate (DIE) framework (Bennett et al., 1977) when writing their reflections and include what they did or learned (Describe), what they thought about what they learned (Interpret) and how they felt about it (Evaluate). For the final reflection paper, participants were asked to include what they had learned over the course of the semester, what they felt was most impactful, how the activities impacted their perspective or behaviors, and how they might generalize the new knowledge and skills to other cultures and into clinical practice.

Data analysis: Quantitative. Paired sample *t*-tests were used to compare the pre- and post- mean DO scores for the overall sample and for the participants from the two institutions separately. Cohen's *d* was also calculated as a measure of effect sizes: a value less than .20 suggests a small effect, .50 medium effect, .80 large effect and 1.20 very large effect (Cohen, 1977; Cohen, 1988).

Data analysis: Qualitative. The qualitative data were analyzed by the first, second, and third authors. The second and third authors were not involved in the course and did not know the participants. Students' reflection papers were de-identified before analysis and analyzed using thematic analysis (Gavin, 2008). Through thematic analysis, the researchers identified patterns of how experiences and interpersonal interactions during the course influenced the participants' ICC development. The Association of American Colleges & Universities (AAC&U) Intercultural Knowledge and Competence (IKC) VALUE Rubric (AAC&U, 2009) was used as a framework to facilitate the identification of the themes emerging from the data. The three coders followed Braun & Clarke's (2006) six-phase guide for the thematic analysis (Maguire & Delahunt, 2017). Specifically, the first step involved becoming familiar with the entire body of data through reading and re-reading the raw data. The coders did this step independently and generated initial ideas about codes. They then discussed their thoughts and developed preliminary ideas about codes together. Next, each coder worked through the coding process on five reflection papers, using open coding to develop and modify codes. They started to generate initial codes by coding segments of data that were relevant to the purpose of the study and learning objectives of the course. After coding five reflection papers each, they compared codes, discussed and modified them before continuing to analyze the rest of the reflections. In the third step, the coders searched for themes, following the AAC&U IKC VALUE Rubric to make the themes generally aligned with the domains of the rubric. They completed coding on all reflections independently, and then worked together to examine the codes and categorize them into themes that were specific to the purpose of the study (see Figure 5 for the thematic structure). During the fourth step, the coders reviewed, modified, and developed the initial themes emerging from the previous step. They discussed whether the data supported each theme, and whether the themes made sense across the entire data set. They also worked together to ensure the themes were coherent and removed or combined

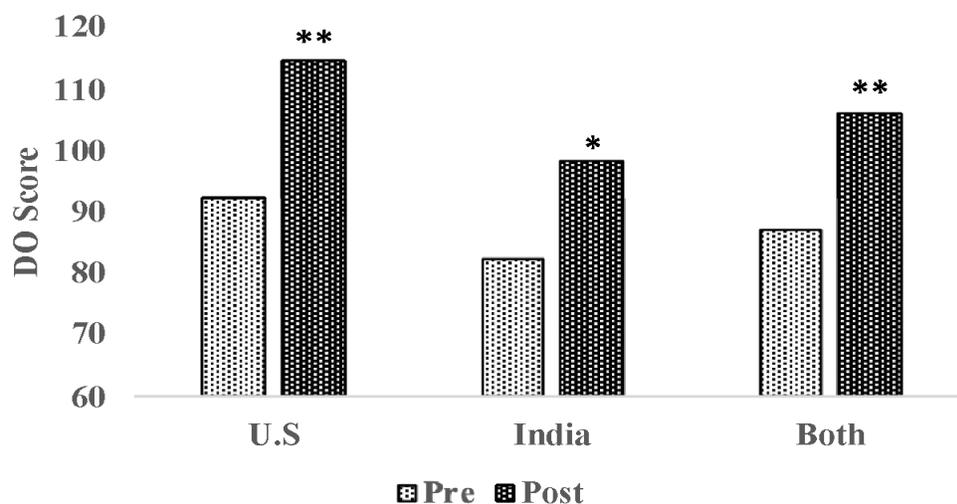
overlapping themes. In the fifth step, the coders defined the themes to identify the central content of each theme (i.e., defining what each theme is about), Finally, the coders wrote and reported on the finalized themes and findings.

Results

Quantitative changes in DO scores and mindsets. Pre- and post- DO scores were compared using paired sample *t*-tests for the overall sample and for participants from the two institutions and are displayed in Figure 1 with descriptive statistics shown in Table 4. There was a significant difference between the pre- ($M = 87.03$) and post- ($M = 106.13$) DO score for the overall sample ($t(18) = 5.78, p < .0005, d = 1.37$), a significant difference between the pre- ($M = 92.38$) and post- ($M = 114.75$) DO score for the participants at the U.S. institution ($t(8) = 5.08, p < .0005, d = 2.37$), and a significant difference between the pre- ($M = 82.21$) and post- ($M = 98.38$) DO score for the participants at the Indian institution ($t(9) = 3.30, p = .009, d = 1.1$).

Figure 1

Pre- and Post- DO Scores for Participants at the two Institutions and for the Overall Sample



Note. * = $p < .05$; ** = $p < .005$

Table 4

Descriptive Statistics for Participants at each Institution and for the Overall Sample

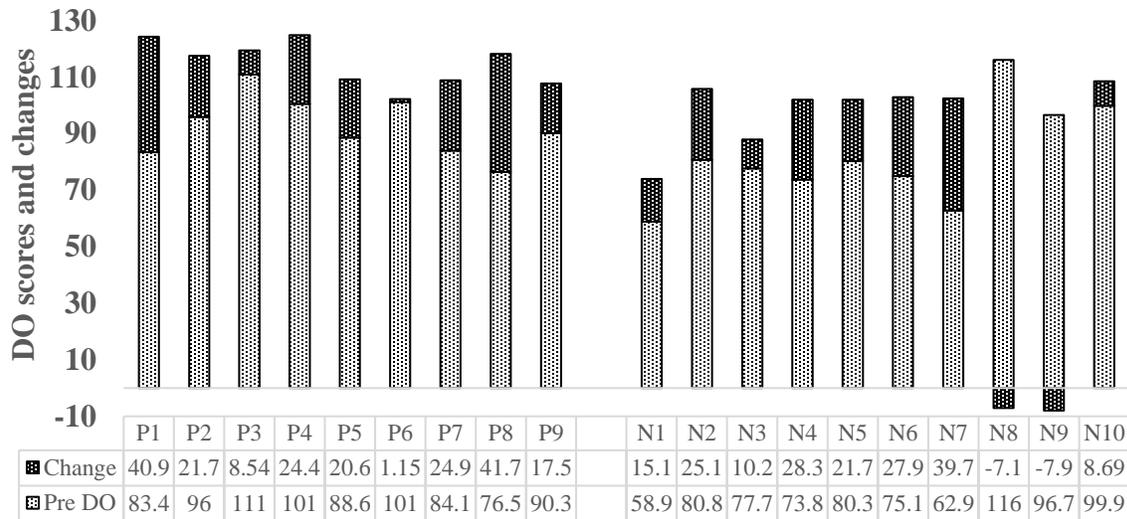
Institution	N	Pre-		Post-	
		Mean	SD	Mean	SD
U.S.	9	92.38	10.72	114.75**	7.95
India	10	82.21	17.43	98.38*	11.23
All	19	87.03	15.17	106.13**	12.72

Note. * = $p < .05$; ** = $p < .005$

In addition, individual changes in pre- to post-DO scores for each participant were compared and are displayed in Figure 2. All nine U.S. participants, and eight of the ten Indian participants demonstrated an increase in their DO scores.

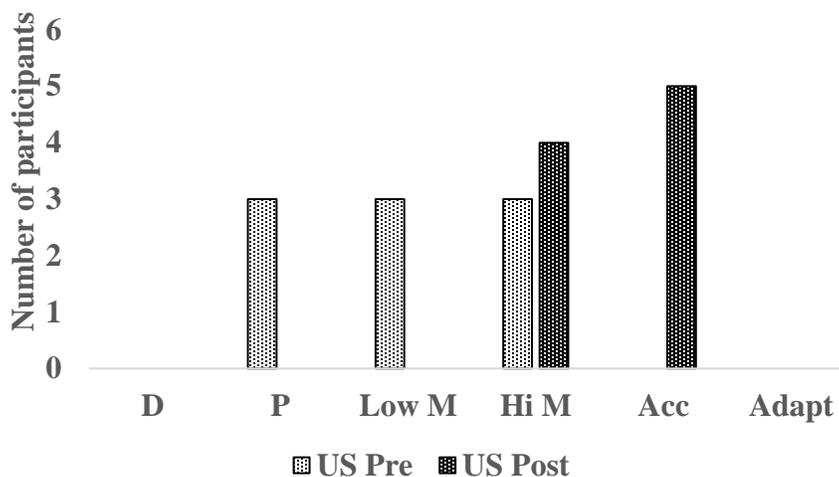
Figure 2

Individual Participant Pre- to Post- DO Score Changes

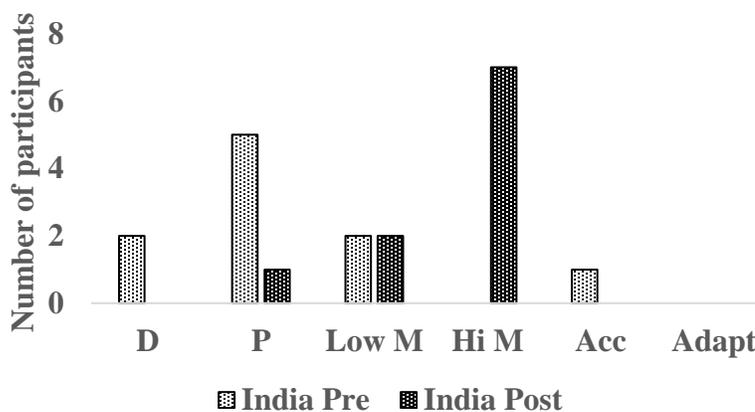


Note. P1 to P9: U.S. participants; N1 to N 10: Indian participants

Pre- to post- changes in developmental orientations or mindsets were also evaluated. As a group, the mindset of the overall sample shifted from low minimization (87.03) to high minimization (106.13); the U.S. group’s mindset shifted from low minimization (92.38) to the cusp of acceptance (114.75); while the Indian group’s mindset shifted from polarization (82.21) to the cusp of high minimization (98.38). Individual participant mindsets are displayed in Figures 3 and 4 for the U.S. and Indian participants respectively. An overall shift along the developmental continuum is evident for both groups. The U.S. participants who were distributed evenly across polarization, low, and high minimization before the program are clustered in the high minimization and acceptance mindsets after the program. Likewise, the Indian participants who were primarily in denial, polarization, and low minimization before the program are clustered primarily in low and high minimization after the program.

Figure 3*U.S. Participant Pre- to Post- Changes in Mindset*

Note. D = denial (55-70); P = polarization (71-85); Low M = minimization scores of 86-100; Hi M = minimization scores of 101-115; Acc = Acceptance (116-130); Adapt = Adaptation (131-145)

Figure 4*Indian Participant Pre- to Post- Changes in Mindset*

Note. D = denial (55-70); P = polarization (71-85); Low M = minimization scores of 86-100; Hi M = minimization scores of 101-115; Acc = Acceptance (116-130); Adapt = Adaptation (131-145)

Qualitative results. A total of 66 reflection papers were analyzed: 30 papers from Indian participants and 36 papers from the U.S. participants. Despite the activities being voluntary, all Indian participants submitted papers, although they were generally shorter than the U.S. participant papers. Overall, 473 items were coded across all the participant reflections, with 72% of coded items from U.S. participant papers and 28% from the Indian participants. The final thematic structure that emerged is displayed in Figure 5, and generally followed the AAC&U VALUE Rubric (AAC&U, 2009) for attitudes (curiosity and openness) and knowledge (cultural self-awareness and cultural worldview frameworks). The thematic structure differed from the rubric

for skills with themes of emotions (that lead to or generate empathy) and connections to clinical practice (instead of communication). Additionally, the theme of knowledge included two sub-themes: new knowledge and comparing similarities and differences.

Figure 5

Thematic structure from analysis of qualitative data

	Themes	Sub-themes
	Cultural worldview frameworks	New knowledge
		Comparing similarities and differences
Knowledge		
	Cultural self-awareness	
	Emotions	
Skills		
	Connections to clinical practice	
	Curiosity	
Attitudes		
	Openness	

The majority of coded items were in the theme of knowledge of cultural worldview frameworks (43%) with items about evenly distributed between the two sub-themes of new knowledge learned (20%), and comparing similarities and differences across cultures (23%). About one quarter of all quotes (26%) were coded in the theme of increasing cultural self-awareness. Fewer items were coded in the remaining themes of openness (13%), emotions (9%), connections to clinical practice (6%) and curiosity (5%). There were also several general positive comments and commitments to continued ICL such as “Being paired with a buddy was the most impactful part of this process for me” (P7, paper 4); “...this [ICL] has probably been one of the best parts of this class” (P5, paper 4); “...it has been a wonderful experience and I plan to continue my own independent cultural learning outside of this course” (P6, paper 3); and “we were able to discuss many relevant topics positively within a few months” (N5, paper 3). The qualitative data are summarized below with exemplar quotes in each theme, with the participant number (P = U.S. and N = Indian) and paper number in parentheses.

Knowledge of cultural worldview frameworks. This theme included the largest proportion of participant comments. The comments included the two sub-themes of new knowledge learned and comparisons of similarities and differences across cultures.

New knowledge learned. All participants from both institutions had detailed comments about new things they learned about the other culture regarding festivals and celebrations, gender roles, marriage and family dynamics, skin color, poverty, etc. An example comment from one participant about marriage states:

...our idea of marriage is that you love someone so much that you want to spend the rest of your life with them. Being uneducated, I always assumed that arranged marriage wasn't as 'progressive,' and it was like the woman didn't have the choice. I never considered the belief that arranged marriages are done to join, grow, and strengthen two families (P2, paper 2).

She went on to add how she learned about colorism as being different from racism stating:

...there is a distinction between colorism and racism. Colorism is (knowingly or unknowingly) discriminating against someone solely based on the color of their skin, and it can occur within one racial or ethnic group. Even within their own race, people may still discriminate against those with darker skin and have a more favorable view of those with lighter skin (P2, paper 2).

An Indian participant similarly expressed her new knowledge about racism in the U.S. stating:

I was shocked to know about systemic racism in America, meaning that the system has been established in such a way that discriminates against and limits the voice of those of color. Not everyone perpetuates this racism, but there are deep roots of racism against people of color (African American, Hispanic, especially) while people that are white are favored (N3, paper 2).

One participant summed up her thoughts on new knowledge learned saying, "I knew that culture was a broad term encompassing things such as beliefs, traditions, and customs, but I never would have thought it also included things such as menstruation taboo and housemaids, two topics that I learned about for November" (P7, paper 4).

Comparing similarities and differences. All participants also had comments that in some form compared their own experiences to those in the other culture, and mentioned similarities as well as differences that they perceived. For example, participants commented on differences in family dynamics and marriage:

I was surprised to learn that sons tend to continue to live with their parents after they are married, while daughters will live with their husband and his parents...It makes me feel as if a marriage is very much about a unity of two families. I feel like this is what marriage means on paper in the U.S., but that there are so many families that do not get along (P3, paper 1); we discussed gender roles and [my buddy] was quite astonished to hear that the majority of India belongs to a patriarchal society which was dissimilar to the U.S. but she also said that some form of male dominance exists in different parts of the U.S. as well (N1, paper 2).

Others spoke about differences in life and poverty, and the stark differences between their own life and that of the poor:

Two stories from these TED talks which have remained with me are about the woman who walked her animals 35 kilometers and was nearly denied entry because she had no identification, and the woman who gave birth at the cattle camp because it had some access to water, whereas her village only received water every 17 days. As I listened to these accounts, I was sitting at my desk, in my apartment, drinking my coffee and enjoying a smoothie for breakfast. The juxtaposition shook me to my core and is something that will remain prominent in my mind because the disparity between my life and that of the women's is beyond unfair (P6, paper 3).

Yet another participant remarked on differences in student life stating:

I came to know that my buddy is also working part time in a day care center! I heard that in the States, it is common to have a part time job along with studies. I was glad to hear that she is independent. This is unlike the situation in our place. Here, students usually don't work. They will be totally dependent on their parents until they get a job after studies (N5, paper 2).

One participant compared current events in the U.S. to what she learned about the caste system in India saying, "I think this is certainly comparable to the protests we're seeing now in the U.S. and across the world against police brutality targeted at people of color." (P4, paper 3). To sum up commonalities and differences, another participant added, "I often felt that our differences were quite vast as I watched a TED Talk...Later, I would realize our similarities as well, when [my buddy] would talk about a wedding that she had attended or a birthday celebration for someone in her family" (P3, paper 4).

Increasing cultural self-awareness. Many participants indicated that their cultural self-awareness was greatly increased, and they were more aware of their own cultural rules and biases. Participants provided several in-depth reflections and re-evaluations of their own experiences, describing their increased awareness of the root of family traditions, the underlying factors that influence their behavior in early life, as well as how prior experiences had shaped their beliefs and personalities. For example:

Speaking with my buddy reminded me that there is a reason we celebrate these holidays and there is more tradition behind it than simply eating food. I think this interaction helped me to recognize and appreciate my own culture more, which is my first step to having a more multicultural mindset (P7, paper 2).

Now I understand that I can identify with parts of Greek culture, American culture, and other cultures if I feel they are important to me. That is what is unique about culture – everyone's is a little bit different (P7, paper 4).

Each country has its own way of culture and lifestyle which many people accept and many people protest. India is a multi-religious country. The constitution allows us to live the way we wish to live, the culture we wish to hold on, but what matters is the family in which the particular person belongs to (N8, paper 3)

Recognizing their own biases, participants were thankful that they got the chance to learn to correct these biases, stating:

“I am thankful that I have learned more information to correct my outdated view. This makes me wonder what other views I hold that are inaccurate – of both India and other countries” (P7, paper 2).

[The TED talk] explores how overcoming our own biases can be a unifying experience, but I also believe that it can be a healing one. While we may never be able to overcome all our biases, we should strive to at least be aware of them. In this, we may attempt to harmonize with one another (P4, paper 1).

Other participants shared thoughts regarding stereotyping:

Maybe as I saw in the “danger of a single story” [TED talk], I just concluded my thoughts regarding U.S. parents, that they are less protective, or they provide more freedom to their children. But I realized that I can't generalize these thoughts for the entire community (N2, paper 1).

Emotions. Participants frequently expressed emotions such as anger, sadness, frustration, shock and heartbreak in response to something they learned in an assignment or in discussion with their buddy. These emotions stimulated participants' attention, triggered the learning process, and were often accompanied by an articulation of empathy, which is considered an important intercultural skill that allows effective intercultural communication (AAC&U, 2009). For example, after viewing a TED talk on colorism, a participant expressed anger, but also empathy (trying to put herself in another's shoes):

[She] discussed how growing up, she never felt comfortable in her skin. She mentioned how family members would give her “remedies” to try to lighten her skin. I can't imagine how that must feel coming from a family member or close friend. . . I tried to put myself in her shoes, and I felt angry about this. I feel that young girls already have so many insecurities about their body, and this skin color bias is just adding to the pain of growing up. I know I often felt uncomfortable about how I looked, especially in my early teenage years, but now I see that I'm lucky I never had to worry about my skin color too (P7, paper 2).

Another participant stated, “I realized that I have never experienced any type of discrimination like that shown in the film, and gained empathy for those that are forced to suffer through the hardship” (P2, paper 3).

After viewing a video on child marriage, one participant expressed fear and discomfort, but also recognition that increased awareness may bring about social change:

This topic [child marriage] was difficult to wrap my mind around because I have never been exposed to this before. I felt fear for these young girls and the horrible experiences they must face. I felt sick to my stomach when learning about initiation camps in places like Malawi. Despite this, I am grateful to have been exposed to this reality because exposure to the truth allows for it to come into the light so that change can occur (P9, paper 2).

Participants also expressed appreciation for the interactions with their buddies. For example:

My interactions with [my buddy] made the cultural topics all the more interesting because I have developed a friendship with a person from this culture, and in wanting to get to know her better, I want to understand her culture better too (P6, paper 4).

Students also acknowledged empathy expressed by their buddies:

I really appreciated that even though [my buddy] says they would not do it [live with their partner], they are acknowledging that it is okay that I do it. I have had experience with others, even my own family, that have told me I am “living in sin” for living with my fiancé before marriage. It was extremely refreshing to hear that they respected our differences (P8, paper 1).

Curiosity. Over the course of the semester, students came to own the process of gaining deeper cultural knowledge, evident from comments such as:

I think the readings, TED Talks, and ICL activities impacted my behaviors because they taught me how important it is to “go a little deeper.” If you do not understand something, you need to ask more questions. If you are still curious, you need to ask more questions, or do more research (P1, paper 4).

Though our semester is going to end, it doesn’t mean our interactions ends. We learn things, shares our concepts. Now I got an idea like how to learn about cultural differences, how to search for it (N8, paper 3).

At times, the process of gaining deeper knowledge also entailed taking advantage of the buddy relationship:

When [my buddy] first mentioned caroms, I got a little scared because I had not heard of it before. My first instinct was just to Google it and go along with it. However, I realized that this was my opportunity to truly learn about it from someone who enjoys playing it. I wanted to learn why it is important to her, so I just asked her to explain more. I am glad that I did not let my initial instinct take over. . . she even sent me a picture of what the board looks like. . . I felt excited to learn more about something that was important to her! (P7, paper 1).

Openness. Intercultural openness includes a suspension of judgment coupled with taking initiative in engaging across differences (AAC&U 2009). U.S. and Indian participants alike associated openness with mutual risk-taking that paid off:

In the beginning, I actually didn’t expect this much easiness in interacting with her. But interaction was very comfortable. She is really a nice person to chat with (N5, paper 3).

It is scary but enriching to be vulnerable and honest with someone from a completely different culture, even though we have our passion of audiology in common. I was further humbled on our first video call when she introduced me to all her family and they all had known about me, eager to meet the girl from America. I had approached the first video call honored to get to meet her and learn from her, and yet, she was wanting to get to know me as well. Our relationship has been wonderful so far and feels reciprocal (P9, paper 4).

We were able to leave judgement at the door and just freely ask questions so that we could educate ourselves. We both had a mutual understanding that we were not here to offend or judge, but we just wanted to educate ourselves more and that is exactly what we did. My buddy did a fabulous job being so receptive to questions and not once made me feel any question of mine was too ignorant (P1, paper 4).

Connections to clinical practice. Participants compared clinical protocols across the two institutions and commented that clinical practices were not so different, “Clinical protocols are essentially the same is what I understood...procedures are almost the same” (N10, paper 2). However, the clinical training programs are very different: “...the sad part is that they cannot work after 4 years, but they have to take an AuD degree, which lasts for another 4 years... they will be more exposed to clinical practicals during the degree, which may make them more experienced professionals” (N2, paper 1).

Several U.S. participants also commented that the intercultural learning will help them be better clinicians with comments such as, “I feel that I am better equipped to see patients in the clinic too. This includes all patients – not just patients who look different than me or have different values than me” (P7, paper 4). They also commented on the importance of intercultural competence for clinical practice:

I now see how important it is to be aware of cultural differences and why it is crucial to respect these differences...should there be a clash of cultures where my patient and their family have different goals or desires, I now know to respect my patient’s wishes...I hope to continue pursuing empathy and humility as I discover beautiful cultures and patients in the future (P9, paper 4).

I will be better equipped when I encounter a culture that is different than my own...I now understand more deeply the importance of learning about other cultures in order to not impose my views on them or to accidentally say or do something that would cause offense. I used to be a bit intimidated or shy when I would encounter an individual from a culture that is vastly different from my own, but now I am excited to use my new-found skills and to stretch myself. Of course, this is going to take continued growth! I know that I am not suddenly the master of ICL, and it will take work and self-application, but I feel that I view ICL in a better light and am eager to see all that I can absorb to ultimately better myself for future patients (P5, paper 4)

Discussion

The primary aim of this study was to describe a novel pedagogical approach towards study abroad utilizing virtual intercultural exchange while partnering with an institution in India, and to evaluate participant gains in ICC. To our knowledge, this is also the first study to report on intercultural gains not only in U.S. students but also overseas students who partnered in the program. Overall, the results of the study demonstrate significant increases in group mean IDI® DO scores for both groups of participants. All nine U.S. students and eight of the ten Indian students had an increase in their DO scores. As can be seen in Figure 2, the two Indian participants who had a decline in score had higher DO scores on the pre-test compared to their peers. While it is not clear why their scores declined, this is not an uncommon finding. For example, one of 19 participants in a study abroad program to Zambia had a decline in score (Krishnan et al., 2017); and 3 of 21 participants

in a program to India had declines in their DO scores (Krishnan et al., 2021a). Growth in ICC is complex and individual variables and events that are difficult to isolate likely play a role. Further research is needed to determine factors that may facilitate or hinder growth in ICC.

Comparison with study abroad. Previous studies that have utilized the IDI® have reported small but significant increases in DO scores after study abroad (Hansel & Chen, 2008; Rexeisin et al., 2008; Vande Berg et al., 2009). In the audiology and SLP professions, previous data from study abroad programs to Zambia (n=19) and India (n=21) have shown group mean DO score increases of 10-14 points (Krishnan et al., 2017; Krishnan et al. 2021a). Results from the current study showing DO score increases for both U.S. and Indian participant groups are in general agreement with the previous findings. However, the group mean DO score increase for the U.S. participants was substantially greater (22.37 points) compared to the study abroad groups (10-14 points). Two possible factors may have contributed to this larger score increase: (a) study abroad is stressful, particularly to challenging destination countries such as Zambia and India that are culturally very different from Western countries. It is possible that the ability to experience “study abroad” in a virtual exchange format from the comfort and safety of their home environment facilitated greater intercultural growth in the U.S. participants, and (b) racial and political events that occurred in the U.S. in 2020 such as the Black Lives Matter movement may have contributed to increased U.S. participant awareness of cultural differences during the semester that the course was taught (fall 2020). Additionally, the group mean DO score increase for the Indian group of participants was 16.17 points. To our knowledge, no previous study has reported such data on international student partners. These novel data are encouraging as they indicate that the joint ICL activities described here were effective for both groups of participants, making the program mutually beneficial.

Comparison with virtual learning approaches. The findings of this study are in agreement with previous work that has shown ICL benefits using a variety of virtual learning tools such as emails, virtual meetings, and mobile apps (e.g., Çiftçi & Savas; 2018; Shadiev & Sintawati, 2020). However, the previous work has primarily relied on qualitative data and to our knowledge this is one of the first reports using a quantitative measure of ICC. Only one previous study using a virtual format for ICL was found in the audiology and SLP literature (Krishnan et al., 2021b). This previous study incorporated a massive open online course (MOOC) on Diversity and Inclusion in an undergraduate course. The mean group DO score increase reported was 11.23 points; substantially less than the 22.37-point increase observed in the current study. Potential factors that facilitated the larger increase seen in this study could be that participants in the current study were graduate students who had not only more life experiences, but clinical experiences working with a variety of patients. Additionally, the previous work included only the MOOC with opportunities to comment and read other comments as the ICL activity, while the current study included assigned topics and guided virtual interactions with participants in India specifically assigned as buddies.

Challenges in the current program were similar to those reported previously including scheduling (Bueno-Alastuey & Kleban, 2016; Chun, 2011; Ware & Kessler, 2016), time zone differences (Lee & Markey, 2014), and technological tools (Antoniadou, 2011; Ware & Kessler, 2016). The 10.5-hour time difference posed a particular challenge for the buddy pairs to interact with each other outside of class. Additionally, it has been previously reported that students who were friendly, reflective, curious and sensitive to their partners' needs and communicative style, were more successful at developing their ICC (Crossman & Bordia, 2011; O'Dowd, 2003). Student

personalities, curiosity, and openness may account for some of the variability in DO score changes that ranged from 1 to 42 points for the U.S. students and -8 to 40 points for the Indian students. One additional factor that has been previously reported on is the level of effort put into intercultural exchanges (Ware & Kessler, 2016). Although the intercultural assignments including reflection papers were required for the U.S. participants, they were graded for completion and therefore the effort put in may have varied among students. The Indian participants were not required to complete assignments, but all wrote reflection papers throughout the semester.

Some other factors may also have facilitated intercultural growth in the current study. Having to navigate through culturally uncomfortable situations and reflect upon them has been cited as an opportunity to grow personally and intellectually (Helm et al., 2012; Lilley et al., 2015). The assignments in this study included specific topics such as child marriage, the caste system, and taboos around menstruation that were likely difficult to discuss and pushed participants out of their comfort zones. Additionally, it has been suggested that a competent facilitator can help learners to have constructive dialogues and create stimulating environments to discuss different viewpoints non-judgmentally (O'Dowd, 2015). The course instructor had a multicultural background both in the U.S. and India. Having an instructor with intimate firsthand knowledge and experiences with the cultural differences across India and the U.S. may have benefitted the participants. Finally, ensuring high motivation for active participation has been raised as a critical issue and it has been suggested that students' efforts be assessed to increase the likelihood of active participation (Bueno-Alastuey & Kleban, 2016). In the current study, the ICL assignments were optional for the Indian student participants, while they were required for the U.S. participants, although graded only for completion.

Qualitative data. The qualitative comments from participants support, elucidate, explain, and add insights to the quantitative data. It should be noted that there was a much greater proportion of qualitative data from U.S. participants compared to the Indian participants. Reflection papers from Indian participants were shorter, primarily descriptive, and often did not include deeper thoughts. This may be due to cultural differences because reflection papers are not typical in the Indian curriculum, while the U.S. participants had prior experience writing reflection papers. Overall, participants reflected about the cultural knowledge they gained, compared commonalities and differences between cultures, and expressed increased self-awareness, curiosity, and openness to learning about different cultures. These themes from the current virtual study abroad experience were all similarly expressed by U.S. participants from the study abroad program to India (Krishnan et al., 2021a), suggesting that participants perceived individual growth in a variety of aspects of ICC through the virtual experience similar to the study abroad experience.

In addition, many participants expressed emotional responses as an indicator of engagement and learning, which were also previously reported with the study abroad to Zambia program activities (Krishnan et al., 2016, 2017). While it was previously thought that emotions interfere with learning, more recent work indicates that emotions influence the meaning students make of what they learn and determine whether the information will be processed deeply and remembered, and whether it will influence thinking in the future (Immordino-Yang, 2015). Even negative emotions such as anger and fear (expressed by several participants in the current study) can have a positive impact on learning, for example, by increasing motivation and drive (Rowe & Fitness, 2018). While emotional experiences are important for facilitating meaningful, transformative learning

experiences (Cheng et al., 2011; Hyett et al., 2019; Wright & Hodge, 2012), it is suggested that educators be mindful when designing ICL activities that may lead to discomfort or distress to ensure student anxiety is at a manageable level (Gudykunst, 1993; Guntersdorfer & Golubeva, 2018). Finally, participants also commented on similarities in clinical audiology protocols across the globe and recognized the importance of increasing intercultural competence in order to provide more effective clinical services to patients from different cultural backgrounds. This recognition is an important step for the professional skill development of student participants who will soon be independent clinicians serving diverse patients.

Limitations

Although the findings of this study show that a virtual experience can be effective in participant intercultural growth, an important limitation is the small sample size. Additionally, since ICL activities were completed outside of class, there could be no direct oversight. The level of participation and engagement is a factor that could not be controlled or assessed and varied between buddy pairs. Another limitation is evident from the qualitative data (participant reflections). Despite individual feedback to each Indian participant to reflect more deeply on interpreting and evaluating cultural differences (in addition to describing them), the proportion of quotes from the Indian participants is substantially lower than from the U.S participants. Finally, as stated in the discussion, student personalities were variable with some being more outgoing and curious, and others shyer and more reserved. These variables were not addressed in the current study.

Conclusion and Future Research

Overall, the findings from this study indicate that a virtual intercultural exchange can be an effective means of facilitating intercultural growth in participants from the U.S. and also those from the partner country. Additionally, the approach can be embedded into an existing course thus emphasizing ICL through the typical curriculum. The virtual approach has the added benefit of being accessible to all students regardless of socio-economic status that may affect ability to travel abroad. The virtual study abroad experience may be a mechanism to better prepare students in audiology and SLP, as well as other healthcare professions to work with diverse patients that they are likely to encounter in their clinical practice. Future work should evaluate how this type of program can be implemented more broadly and identify individual factors that may facilitate intercultural growth.

Disclosures

Lata Krishnan received a Virtual Experiential International Learning (VEIL) grant from Purdue University to support this project. The authors have no other financial or non-financial disclosures.

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