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Student Perceptions of Interprofessional Practice and Cultural Humility after International Clinical Experiences

Kris L Brock[1]*, Kate Barlow[2] and Evan Liu[3]

[1]*Department of Communication Sciences and Disorders, Idaho State University, 1311 E. Central Dr., Meridian ID*

[2]*St. Catherine University, Occupational Therapy Bridge Program, 2004 Randolph Ave, St Paul, MN*

[3]*Pacific University, School of Physical Therapy & Athletic Training, 222 SE 8th Ave, Hillsboro, OR*

***Corresponding author:** Kris L Brock, Idaho State University, Department of Communication Sciences and Disorders, 1311 E. Central Dr., Meridian, ID, USA

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ABSTRACT

This study examined changes in perceptions of cultural humility and interprofessional practice following short-term international interprofessional clinical experiences. Undergraduate and graduate students from speech-language pathology, occupational therapy, and physical therapy programs participated in experiences in Belize, Bulgaria, the Dominican Republic, or Thailand. Of 501 students surveyed, 107 provided matched pre- and post-trip responses and comprised the analytic sample. Students completed the Interprofessional Socialization and Valuing Scale (ISVS) and Foronda's Cultural Humility Scale (FCHS). Mixed-measures ANOVAs examined effects of time, student level, and country, and paired-samples t tests examined change in the two established FCHS factors with Tukey adjustment for multiple comparisons. Post-trip ratings were significantly higher than pre-trip ratings on both the ISVS and FCHS. ISVS change varied significantly by country, with follow-up comparisons indicating a greater increase in Thailand than Belize. Student level was not significantly associated with ISVS ratings, whereas graduate students reported higher overall FCHS ratings than undergraduate students; however, change over time did not differ significantly by student level. Both FCHS factors increased significantly following Tukey adjustment. Participation in the international experiences was associated with higher post-trip perceptions of interprofessional practice and cultural humility.

Keywords: Allied Health; Cultural Humility; Interprofessional Practice; Service Learning

Abbreviations: AOTA: American Occupational Therapy Association; ASHA: American Speech-Language-Hearing Association; FCHS: Foronda's Cultural Humility Scale; IPE, Interprofessional Education; IPP: interprofessional practice; IpSLE: Interprofessional Service-Learning Experience; ISVS: Interprofessional Socialization and Valuing Scale; OT: Occupational Therapy; PT: Physical Therapy; SLP: Speech-Language Pathology

Introduction

Service learning integrates academic instruction with structured community-based experiences, providing students opportunities to apply knowledge in authentic contexts [1-5]. Active learning approaches can also promote more positive attitudes toward learning than didactic instruction alone [6]. Within allied health education, international service-learning experiences may extend this application to settings in which students integrate clinical reasoning, communication, collaboration, and reflection across cultural contexts. When global service learning is combined with interprofessional service-learning experiences (IpSLE), it creates a structured and critically reflective practice that enhances not only comprehension but also the application of knowledge. The constructs important to the current study included interprofessional practice (IPP) and cultural humility. IPP is a collaborative approach in which professionals from various disciplines, such as speech-language pathologists (SLP, occupational therapists (OT), and physical therapists (PT), work together toward common, client-centered goals, as described by the Interprofessional Education Collaborative (IPEC) [7]. Foronda

et al. [8] stated that "…cultural humility is a process of openness, self-awareness, being egoless, and incorporating self-reflection and critique after willingly interacting with diverse individuals" (p. 213). While these international IpSLEs can serve as effective recruitment tools for allied health programs, there is limited research on best practices to enhance student learning outcomes [9]. Moreover, there is limited data to guide faculty on international IpSLE best practices. The purpose of this study was to examine changes in allied health students' self-perceptions of cultural humility and interprofessional practice following a highly structured two-week, international IpSLE on allied health students' self-perception of cultural humility and interprofessional practice (IPP).

Interprofessional Education and Practice

The World Health Organization (WHO) [10] established a framework that advocated for the integration of health, education, and care for children to enhance overall well-being and inclusion. Subsequently, accreditation standards for OT, SLP, and PT emphasized the importance of interprofessional education (IPE), opening the door for more IPP experiences [11-13]. IPP is a collaborative model involving multiple disciplines, and professionals must understand both their own roles and the roles of their team members while engaging in joint learning and goal development [14]. To foster these skills, educational programs must integrate IPE, allowing students to practice clinical reasoning, problem-solving, and teamwork with peers from different fields [7]. IPEC [7] established core competencies for developing effective collaborative practice: (a) values and ethics; (b) roles and responsibilities; (c) interprofessional communication; and (d) teams and teamwork. These competencies reflect best practice to promote knowledge exchange, scope of practice information, and interprofessional communication and teamwork [14]. With the inclusion of IPE in accreditation standards, OT, PT and SLP programs are working to incorporate IPE experiences throughout their curricula. The American Speech-Language-Hearing Association (ASHA) IPP Survey [15] findings indicated that a majority (65%) of SLP respondents received IPE or IPP training, while 77% of OT programs [16] and 78% of PT programs [17] received training. About 82% of OT students indicated feeling very prepared for IPP experiences while just over 57% of SLPs felt very prepared to contribute effectively to IPP teams [15,18].

Although exposure to IPE has expanded, opportunities to apply interprofessional skills in authentic practice remain inconsistent. Training often relies on medical scenarios [19], which may not reflect the settings in which many allied health professionals ultimately practice. Approximately one quarter of OTs and half of SLPs work in school-based settings [20,21], where collaboration often involves educators, caregivers, administrators, and related service providers rather than primarily medical teams. Variation in training context may therefore leave students unevenly prepared to transfer IPE principles across practice settings. Preparation for IPP requires more than familiarity with professional roles. Students must learn to communicate across disciplines, negotiate shared goals and responsibilities, and adapt to organizational and interpersonal barriers. Although 65% of SLP respondents reported exposure to IPE or IPP training [15], engagement in collaborative practice after graduation is influenced by both professional preparation and workplace conditions. Graduate training experiences have also been associated with later service-delivery decisions and use of team input [22]. Among school-based SLPs, prior collaboration training has been associated with greater engagement in IPP, whereas scheduling constraints, limited administrative support, and resistance from other professionals have been identified as barriers [23]. These findings support providing students with opportunities not only to learn IPE concepts, but also to apply collaborative skills in authentic clinical and educational contexts.

Cultural Humility in IpSLEs

Cultural humility is an ongoing process of self-reflection and self-critique in which individuals recognize the limits of their cultural perspectives and commit to understanding and respecting diverse identities [8,24]. It emphasizes lifelong learning, awareness of power imbalances, and respectful partnerships. Workforce demographics show that 84% of OTs [20], approximately 84% of American Physical Therapy Association (APTA) member PTs [25], and 90% of SLPs [21] identify as White, highlighting the need for culturally responsive training. In this context, culturally responsive training prepares students to recognize how culture and language shape clinical interactions, examine their own assumptions and power, and adapt communication and service delivery in partnership with clients and communities [8,24]. International IpSLEs provide immersive experiences that promote cultural humility, adaptability, and collaboration within diverse, multilingual, and resource-variable contexts that may transfer to work with marginalized and underserved populations in the U.S. Previous research on international service-learning opportunities has shown that these experiences positively impact students' cultural humility and responsiveness, especially when compared to students participating in domestic community service [4]. IpSLE opportunities in India [3], Morocco [1], Nicaragua [2], and Ecuador [5] have all noted positive impacts of international and interprofessional education, personal growth and improvements in cultural humility.

Specifically, students on these trips demonstrated significantly better understanding of cultural and racial differences. They also reported higher levels of social responsibility and citizenship skills compared to students with domestic service-learning experiences [4]. Similarly, researchers found that the experience not only facilitated interprofessional communication but magnified the importance of it [5]. Research supports that a reduction of multidisciplinary communication barriers could reduce nearly 671,000 adverse medical events, saving $6.8 billion annually [26]. Not all findings

on international service-learning experiences have been positive, resulting in ethical and practical risks. Short-term programs may prioritize student learning over community needs, reduce continuity of services, or apply clinical standards inconsistently across settings [27]. Educational benefits must therefore be considered alongside host-community priorities, sustainability, appropriate supervision, continuity of care, and the potential for unintended harm. Importantly, the present study evaluated student outcomes and did not measure outcomes for clients, caregivers, local professionals, or host communities. In the programs examined here, sustainability was supported through ongoing partnerships between third-party organizations and host-country agencies rather than through isolated university faculty planning trips. Formal memoranda of understanding with Ministries of Education and special education entities established shared priorities for service delivery, student activities, and clinical decision-making.

This structure created continuity between short-term university groups by maintaining local partnerships across cohorts, coordinating multiple visiting teams, and supporting longer-term licensed professional placements of up to 2 years. In this way, the third-party organization functioned as an intermediary between individual university programs and host-country partners, helping align student learning opportunities with locally identified priorities and reducing reliance on one-time annual service activities. Although this organizational model was intended to promote continuity and responsiveness to host-country needs, the present study did not directly evaluate sustainability, community benefit, or stakeholder perceptions. Overall, IPP and cultural humility have become essential competencies for allied health professionals, as they improve collaboration across disciplines and enhance culturally responsive care. IPP and cultural humility are only as effective as the educators providing the training [28]. Current professionals may not have the knowledge or experience to effectively implement IPE and IPP into the curriculum [29]. Therefore, accurately measuring these competencies is crucial to ensure students are effectively prepared. Two widely used tools, the Interprofessional Socialization and Valuing Scale (ISVS-21) [30] and Foronda's Cultural Humility Scale (FCHS) [31], were utilized to assess students' perceptions of their interprofessional skills and cultural humility and responsiveness.

This study addresses the gap in best practices for international IpSLEs by asking, how do undergraduate and graduate allied health students' (OT, PT and SLP) self-perceptions of cultural humility and IPP change following a structured, short-term international interprofessional clinical experience?

Method and Materials

Ethical Approval

The university Institutional Review Boards approved the study for the first (IRB-FY2023-67) and second authors (IRB-2022-11-5).

Participants

Through convenience sampling, this study recruited 501 participants that were enrolled in OT, PT, or SLP programs in the U.S. and elected to participate in an international IpSLE utilizing the same third-party travel abroad company that specializes in providing rehabilitative services. A total of 107 undergraduate (N=83) and graduate (N=24) participants voluntarily completed the pre- and post-surveys (see Table 1). Participants received an online survey request via email and if students clicked on the survey link, they were initially directed to the consent form. Respondents were provided information regarding the purpose of the study and the approximate time for completion (i.e., 20-30 minutes). Participants who agreed to take part had their data stored anonymously. Approximately 78% of the students had between 0 and 1 year of clinical experience, while 11% had 1 year, 5% had 2 years, 4% had 3 years, and 2% had 5 years of clinical experience.

Table 1: Students per Country.

		Country			
Student level	**Program**	**Belize**	**Thailand**	**Dominican Republic**	**Bulgaria**
Graduate	SLP	19	2	1	1
	PT	0	0	0	0
	OT	0	0	0	1
Undergraduate	SLP	55	5	5	4
	PT	0	10	0	0
	OT	0	3	0	1
Totals		74	20	6	7

Research Design

This study used a mixed measures pretest-posttest design to examine changes in cultural humility and interprofessional perceptions associated with participation in an international clinical experience. By combining within- and between-subject factors, this design increased statistical sensitivity and power. Participants completed structured cultural humility activities involving didactic lectures, small and large group discussions prior to the trip and during the trip. Students directly interacted with clients during meet-and-greets to build rapport prior to clinic, dynamic assessment activities, and during individual and group intervention under licensed professional supervision. They also participated in caregiver and local stakeholder coaching (e.g., teachers, OTs, PTs, SLPs), clinical planning, documentation, and debriefing.

Measures

Interprofessional Socialization and Valuing Scale

The ISVS [30,32] was used to assess students' perceptions of functioning within interprofessional teams. King et al. [30] indicated that the ISVS was unidimensional (i.e., no factors), measuring overall interprofessional socialization and other constructs such as collaboration. It has been widely applied across disciplines including OT, PT, SLP, medicine, and nursing, and captures interprofessional attitudes and behaviors [30,32,33]. The ISVS uses a 7-point Likert scale (0 = not at all to 6 = to a very great extent) with a "not applicable" option. It demonstrates excellent internal consistency (α = .90), strong reliability (α = .98), and high agreement across groups (ICC = .993, 95% CI [0.991, 0.994]), with similar reliability reported in international samples (α = .98) as a unidimensional scale that measures overall interprofessional value rather than distinct constructs within the scale [34].

Foronda's Cultural Humility Scale

The FCHS [31] was used to measure students' self-perceived cultural humility. It employs a 19-item, 5-point Likert scale (1 = never/rarely to 5 = all the time) and demonstrates strong content validity (item CVI = .83 to 1.00; scale CVI = .96) and good internal consistency (α = .85). Concurrent validity is supported through moderate correlations with the Intercultural Effectiveness Scale [35]. In international samples, the FCHS shows acceptable reliability across two factors: Outcomes of Cultural Humility (α = .87) and Context for a Different Perspective (α = .85) [34]. The previously established factor structure was used in the present study to organize factor-level inferential and descriptive analyses.

Procedures

Clinical Experience

Each student group traveling abroad included between 10 and 18 students. Licensed OT, PT, and SLP professionals from the U.S. supervised these students according to their regulating body standards. Each group spent approximately 2 weeks abroad in either Belize, Bulgaria, Dominican Republic, or Thailand. The clinical experience included three features: (1) caregiver/local stakeholder coaching, (2) client meet and greet with dynamic assessment, and (3) individual and group intervention. Interprofessional collaboration occurred during clinical preparation, assessment, intervention, caregiver or stakeholder coaching, and post-session debriefing. When multiple disciplines were represented within a student group, students worked across disciplines to review client information, prepare assessment and intervention activities, discuss clinical observations, plan subsequent sessions, and reflect on client and family priorities under licensed supervision.

The composition of the interprofessional team varied across host countries based on the availability of local allied health professionals. In Belize and the Dominican Republic, where access to rehabilitation professionals was more limited, collaboration extended beyond the visiting student teams to include caregivers, teachers, and other local education personnel (e.g., school principals). These stakeholders contributed contextual knowledge about clients' communication, learning, functional needs, and priorities within home and school environments and participated in clinical discussions and intervention planning.

Their involvement was particularly important because they provided continuity across home, school, and community settings and helped ensure that clinical recommendations were relevant, feasible, and sustainable within the local context. In Bulgaria and Thailand, where allied health services were more established, students also collaborated with local OTs, PTs, and SLPs through clinical activities, site visits, discussion, and shared planning. These interactions exposed students to differences in professional roles, service delivery models, available resources, and culturally informed approaches to care while creating opportunities for bidirectional exchange with host-country professionals. Across settings, the interprofessional model was adapted to the professionals and stakeholders available within each host country rather than applying a uniform team structure. The third-party travel abroad company that organized all student experiences also provided the pre-departure training for clinicians and in-country staff. Because the programs occurred in multilingual settings, linguistic preparation was incorporated into pre-departure and in-country clinical preparation. Students received country-specific resources addressing relevant languages and dialects, bilingual clinical terminology and scripts, and linguistic characteristics relevant to distinguishing language difference from disorder. In every country except Belize, where local stakeholders spoke English, communication was supported by bilingual supervisors, local professionals interpreting, trained interpreters, caregivers, and/or bilingual members of the student group.

Students received country-specific resources addressing relevant languages and dialects, bilingual clinical terminology and scripts, and linguistic characteristics relevant to distinguishing language

difference from disorder. Students also had access to monolingual and multilingual standardized and non-standardized assessment materials such as the Multilingual Assessment Instrument for Narratives [36]. In Bulgaria, SLP and OT students had the QuickSort cognitive screening [37] and the Centers for Disease Control and Prevention's "Learn the Signs. Act Early." developmental monitoring program [38] for children from birth to five years old in both English and Bulgarian. It is important to note that the meet and greet assessment was dependent upon the licensed professionals' decisions and client needs, as the groups did not have the same clinical experience.

Cultural Humility and Country-Specific Programming

Students and their supervisors received a structured cultural humility programming packet two to four weeks before departure. Although the overarching framework was consistent across programs, materials and activities were adapted to the cultural, linguistic, clinical, and community context of each host country. Prior to departure, the first author met with the licensed supervisors to review the curriculum, discussion prompts, reflective activities, and expectations for implementation. The licensed supervisors, rather than members of the research team, subsequently facilitated six structured cultural humility sessions across the approximately two-week international experience (Table 2). The core curriculum addressed culture and its relationship to health and communication; distinctions between cultural competence and cultural humility; culturally responsive language and word choice; assumptions and implicit biases; power differentials; partnership building; perspective taking; self-reflection; social determinants of health; and the influence of communication/motor environments on clinical interactions. Students engaged in large- and small-group discussions, structured check-ins, individual journaling, and small-group activities. These activities were scheduled throughout the experience so that students could connect didactic concepts with clinical encounters, community interactions, and cultural experiences occurring during the trip (see Table 2).

Table 2: Cultural Humility Training and Travel Itinerary.

Day	Activity	Time	Topic(s)	Clinic Activity	Example Activity
Pre-trip	**NA**	**20 minutes**	**Complete the survey: 20-30 min**		
Day 1 or 2	Group discussion	45 minutes	Understanding culture: What is culture? What is included in culture? In what ways does culture influence our health and wellbeing? What does culture look like in this country? 45-60 min	N/A	Belize: Cultural orientation and exploring market place
					Thailand: Cultural orientation and Old City scavenger hunt
Day 2 or 3	Group discussion	45 minutes	Review understanding culture. What is the difference between cultural humility and cultural competency? What is the importance of language/word choice during cultural exchange? What does cultural humility mean within health professions? Personal life? Workplace? Policy? What are the characteristics/ traits of being culturally humble? 45-60 min	Overview of client files, clinic documentation procedures, and clinical preparation (e.g., therapy activity development). Six to Eight hours:	Belize: Elementary school tour
					Bulgaria: Etara Open-Air Ethnographic Museum
					Thailand: Local fishing village tour
Day 3 or 4	Journaling	30 minutes	Checking for our assumptions, beliefs, and biases before we engage and form opinions. Reflect on the group discussion and explore your intentions/goals while working abroad. 30-45 min	During business hours: Preparation for group therapy activities. Six to Eight hours:	Belize: Maya Women's Collective (local group empowering women farming and chocolate making)
					Thailand: Traditional medicine experience

Note: The Social Determinants of Health include

1) Economic stability,
2) Education,
3) Social and Community Context,
4) Health and Health Care, and
5) Neighborhood and built environment. Journaling and discussions were not analyzed to maintain trust and anonymity while engaging in these sensitive and personal interactions.

For example, students were asked to reflect on assumptions they held before departure, reconsider those assumptions following interactions within the host country, and examine how culture, language, access to services, and social context could influence clinical decision-making. The didactic and reflective components were therefore integrated with, rather than delivered separately from, the experiential activities. Country-specific materials extended this common framework. In Belize, programming incorporated social determinants of health, Belize Kriol and other linguistic variations, communication environments, and consideration of language difference versus disorder. Students were provided resources addressing Kriol phonology, grammar, vocabulary, and discourse characteristics, as well as culturally relevant materials for clinical preparation. In the Dominican Republic, students received Spanish-language and country-specific linguistic resources to support communication and clinical preparation. In Thailand, programming incorporated traditional healing, cultural preferences in health care, mindfulness, global public health, and social determinants of health, with structured discussions intentionally linked to experiences such as visits with traditional health practitioners and Buddhist Monks. Across settings, linguistic and cultural resources were intended to support culturally responsive clinical reasoning rather than to develop proficiency in another language during the short-term experience.

The groups in Bulgaria, Dominican Republic, and Thailand worked with local professionals, guides, and translators, proficient in the native language, during all clinical and non-clinical activities. Students also participated in five to eight planned cultural and community-based experiences, which varied by country and were used as opportunities to apply and revisit concepts introduced through the curriculum. For example, students in Thailand interacted with Buddhist monks and traditional health practitioners, while students in Belize met with Maya women community leaders and interacted with local teachers and schools. Reflective journals, facilitated discussions, and small-group activities were components of the educational program rather than research data sources. They were intentionally not collected or analyzed so that students could examine potentially sensitive assumptions, biases, and reactions in a confidential reflective environment without concern that their statements would be evaluated for research purposes.

Fidelity

In-country staff confirmed that all clinical experiences resulted in nine to 12 hours of clinical contact time. Staff also confirmed that all students engaged in at least five cultural experiences per trip included in their program itineraries. Although the staff confirmed that all in-country cultural humility programming took place, they were unable to confirm the time allotted for the programming and any cultural experiences taken outside of the established itinerary.

Survey Administration

All data were collected and managed by Qualtrics. Qualtrics is a secure, web-based software platform that supports data capture for research studies. This was a closed survey, available only to students who participated in an international IpSLE. The third-party travel company staff, who were not part of the research team, assigned each student a three-digit number and emailed the students the survey link. This assigned number ensured that all responses were anonymous. Emails were sent two weeks prior to departure. Students voluntarily clicked on the link to complete the survey prior to their departure. Students were provided time in-country on the last day to complete the post-trip survey. Respondents were able to skip questions or leave questions unanswered.

Response Rate

Qualtrics did not track any personal or identifying information about the participants. Therefore, a true response rate cannot be calculated. It is possible, although unlikely, that participants took the survey more than once. Out of 501 students surveyed, only 299 provided their participant numbers necessary for matching pre- and post-survey responses. Only respondents who provided matching numbers and either fully or partially completed both surveys were included in the analysis, yielding a matched analytical sample of approximately 21.35% (107/501). No statistical corrections were made for missing data.

Statistical Analyses

Preliminary analyses examined whether ISVS and FCHS outcomes varied by country. Two 2 × 4 mixed-measures ANOVAs were conducted with time (pre- and post-trip) as the within-subjects factor and country (Belize, Bulgaria, Dominican Republic, and Thailand) as the between-subjects factor. Main effects of time and country and the time by country interaction were examined for each outcome. Because the ISVS analysis produced a significant time by country interaction, a follow-up one-way ANOVA was conducted to determine whether the magnitude of pre- to post-trip change differed among countries. An individual ISVS change score was calculated for each participant by subtracting the pre-trip mean from the post-trip mean, with positive scores representing increased ISVS ratings. Country was entered as the between-subjects factor. Homogeneity of variance was evaluated using Levene's test, and Tukey-adjusted pairwise comparisons were used to identify differences in mean change between countries following the significant omnibus test. For the primary analyses, two 2 × 2 mixed-measures ANOVAs were conducted separately for the ISVS and FCHS. Student level (graduate or undergraduate) served as the between-subjects factor and time (pre- and post-trip) as the within-subjects factor. These analyses examined the main effects of time and student level and the interaction between time and student level. Although some caution against the use of parametric methods with

Likert-scale data, Glass et al. [39] demonstrated that the F statistic is generally robust to violations of interval assumptions, particularly with aggregated scale scores. Secondary factor-level analyses were conducted for the FCHS using the previously established two-factor structure [34]. Mean scores were calculated separately for Outcomes of Cultural Humility and Context for a Different Perspective at the pre- and post-trip assessments. Paired-samples t tests examined pre- to post-trip changes within each factor, with Tukey adjustment applied to control the familywise error rate across the two comparisons. Cohen's dz was reported as the effect size for paired comparisons. Item-level means and standard deviations for the ISVS and FCHS were examined descriptively to characterize patterns underlying the scale-level findings, but individual items were not tested inferentially.

Results

Preliminary analyses examined whether outcomes varied by country. For the ISVS, there was no significant main effect of country, $F(3, 92) = 0.96$, $p = .42$, $\eta p^2 = .03$; however, the Time × Country interaction was significant, $F(3, 92) = 2.97$, $p = .036$, $\eta p^2 = .09$, indicating that the magnitude of pre- to post-trip change varied across countries. Follow-up analysis of individual pre- to post-trip ISVS change scores confirmed that mean change differed significantly by country, $F(3, 92) = 2.96$, $p = .036$. Mean increases were 1.89 for Thailand, 1.22 for the Dominican Republic, 1.10 for Belize, and 0.91 for Bulgaria. Tukey-adjusted pairwise comparisons indicated that the increase in Thailand was significantly greater than the increase in Belize (mean difference = 0.79, $p = .024$). No other pairwise differences in change were statistically significant (all $p \geq .247$). For the FCHS, neither the main effect of country ($F(3, 93) = 0.50$, $p = .682$, $\eta p^2 = .02$), nor the Time × Country interaction ($F(3, 93) = 0.41$, $p = .748$, $\eta p^2 = .01$) was significant, indicating a relatively consistent pattern of cultural humility change across countries. Given the small and unequal country-specific samples, particularly for the Dominican Republic and Bulgaria, these comparison effects for the ISVS and FCHS should be interpreted cautiously.

Interprofessional Socialization and Valuing Scale Pre and Post-Survey Analysis

For the ISVS data set, several participants provided incomplete data were not included in the analysis. A 2×2 mixed measures ANOVA revealed a significant main effect of time ($F(1, 94) = 77.96$, $p < .001$, $\eta p^2 = .45$), with higher post-trip scores ($M = 5.80$, $SD = 1.01$) compared to pre-trip scores ($M = 4.56$, $SD = 1.04$). Descriptively, the largest item-level increases occurred for students' enhanced perception of themselves as interprofessional team members (+1.68), awareness of the roles of other professionals (+1.54), understanding of client involvement in decision-making (+1.50), development of more realistic expectations of other professionals (+1.48), and awareness of their own role on a team (+1.44). Item-level differences were not tested inferentially and are presented to characterize the pattern underlying the overall ISVS change. Finally, there were no significant effects for student level ($F (1, 94) = 2.50$, $p = .12$, $\eta p^2 = .03$) or student by interaction effects ($F (1, 94) = .72$, $p = .40$, $\eta p^2 = .01$). See Table 3 for all pre- and post-trip ISVS descriptive statistics.

Table 3: ISVS Pre- and Post-trip Survey Results.

Interprofessional Socialization and Valuing Scale Items	Pre or Post	Mean	SD
Aware of my preconceived ideas when entering discussions	Pre	4.41	1.32
	Post	5.30	1.17
Appreciation for common language across disciplines	Pre	4.45	1.31
	Post	5.81	1.15
Gained an enhanced awareness of my own role on a team	Pre	4.37	1.27
	Post	5.81	1.14
Able to negotiate more openly with others within a team	Pre	4.26	1.42
	Post	5.58	1.27
Able to share and exchange ideas in a team discussion	Pre	4.96	1.32
	Post	5.86	1.11
Enhanced perception of myself as interprofessional	Pre	3.91	1.44
	Post	5.59	1.29
Comfortable being the leader in a team situation	Pre	4.32	1.54
	Post	5.60	1.26
Comfortable in speaking out within the team	Pre	4.52	1.45
	Post	5.69	1.17
Comfortable in describing my professional role to another	Pre	4.55	1.40
	Post	5.69	1.18

Appreciation for sharing research evidence	Pre	4.58	1.27
	Post	5.85	1.19
Gained an enhanced awareness of roles of other professionals	Pre	4.28	1.42
	Post	5.82	1.22
Comfortable engaging in shared decision-making with clients	Pre	4.56	1.42
	Post	5.90	1.16
Understanding of client involvement in decision-making	Pre	4.45	1.45
	Post	5.95	1.22
Comfortable accepting responsibility delegated to me	Pre	5.10	1.41
	Post	5.61	1.30
Comfortable clarifying misconceptions with other members	Pre	4.53	1.38
	Post	5.73	1.24
Appreciation of the importance of a team approach	Pre	5.00	1.33
	Post	6.13	1.01
Feel able to act as a fully collaborative member of the team	Pre	4.91	1.37
	Post	6.10	1.02
Comfortable initiating discussions about sharing responsibility	Pre	4.43	1.36
	Post	5.81	1.23
Comfortable in shared decision-making with other professionals	Pre	4.81	1.32
	Post	5.99	1.13
Gained more realistic expectations of other professionals	Pre	4.40	1.26
	Post	5.88	1.21
Appreciation for the benefits of interprofessional teamwork	Pre	4.88	1.25
	Post	6.20	1.00

Foronda's Cultural Humility Scale Pre- and Post-Survey Analysis

Several participants did not provide complete data for the FCHS and were subsequently eliminated from the analysis. There was a significant main effect for time ($F(1, 95) = 6.56$, $p = .01$, $\eta p^2 = .06$), with post-trip scores ($M = 4.35$, $SD = .51$) exceeding pre-trip scores ($M = 4.14$, $SD = .44$). Factor-level analyses based on the previously established two-factor structure of the FCHS [34] indicated significant pre- to post-trip increases for both factors following Holm adjustment. Outcomes of Cultural Humility increased from $M = 4.34$ ($SD = .45$) to $M = 4.49$ ($SD = .50$), $t(96) = 3.15$, Holm-adjusted $p = .002$, $dz = .32$. Context for a Different Perspective increased from $M = 3.81$ ($SD = .57$) to $M = 4.11$ ($SD = .63$), $t(96) = 4.62$, Holm-adjusted $p < .001$, $dz = .47$. At the item level, the largest descriptive increases within Outcomes of Cultural Humility occurred for considering situational context (+0.35), seeking to empower others (+0.25), focusing on both the other person and oneself (+0.24), and attempting to shed one's ego (+0.23). Within Context for a Different Perspective, the largest increases involved considering the environment (+0.43), historical precedent (+0.40), and power imbalances (+0.33) as contributors to differing perspectives. Item-level changes were not tested inferentially. A main effect for student level was present ($F(1, 95) = 8.88$, $p = .004$, $\eta p^2 = .09$). Post-hoc analyses indicated that graduate students scored 0.29 points higher than undergraduate students ($p = .004$). No significant interaction effect was found ($F(1, 95) = 1.89$, $p = .17$, $\eta p^2 = .02$). See Table 4 for all pre- and post-trip descriptive statistics.

Table 4: FCHS Pre- and Post-trip Survey Results.

FCHS: Factors and Scale Items	Pre or post	Mean	SD
Factor 1: Outcomes of Cultural Humility			
Open to considering different perspectives	Pre	4.42	0.66
	Post	4.55	0.64
Strive for a supportive interaction	Pre	4.55	0.61
	Post	4.58	0.64
See yourself as a lifelong learner	Pre	4.75	0.48
	Post	4.75	0.58
Seek to provide optimal care	Pre	4.75	0.46
	Post	4.77	0.51
Work toward mutual benefit	Pre	4.21	0.79
	Post	4.40	0.73
Seek to develop a partnership	Pre	4.21	0.76
	Post	4.36	0.72
Seek to empower others	Pre	4.34	0.80
	Post	4.59	0.66
Attempt to be flexible	Pre	4.40	0.66
	Post	4.55	0.68
Seek to establish mutual respect	Pre	4.49	0.67
	Post	4.50	0.72
Attempt to shed your ego	Pre	3.83	1.01
	Post	4.06	0.98
Focus on the other person and yourself	Pre	4.18	0.68
	Post	4.42	0.72
Consider situational context as a factor for difference	Pre	3.97	0.77
	Post	4.32	0.81
Factor 2: Context for a Different Perspective			
Consider historical precedent as a factor for difference	Pre	3.64	0.92
	Post	4.04	0.91
Consider the environment as a factor for difference	Pre	3.78	0.79
	Post	4.21	0.83
Consider the political climate as a factor for difference	Pre	3.77	0.99
	Post	3.95	1.01
Consider the power imbalances as factors for difference	Pre	3.77	0.99
	Post	4.10	0.97
Consider diversity as a factor for difference	Pre	4.05	0.80
	Post	4.23	0.8
Self-reflect and critique yourself	Pre	4.02	0.83
	Post	4.20	0.90
Aware of your own biases	Pre	3.70	0.70
	Post	3.91	0.63

Discussion

The present study identified three primary findings. First, students reported substantially higher post-trip ratings of interprofessional socialization and valuing, suggesting a meaningful shift in how they perceived their roles, responsibilities, and participation within collaborative teams. Second, cultural humility ratings also increased following the experience, although the magnitude of change was smaller than that observed for interprofessional practice. Third, student level was associated with cultural humility ratings, with graduate students reporting higher overall FCHS scores than undergraduate students, whereas student level was not associated with ISVS ratings. Importantly, the nonsignificant time-by-student-level interactions for both measures indicate that undergraduate and graduate students did not differ significantly in their pattern of change over time.

Interprofessional Practice Outcomes

Students reported substantially higher interprofessional socialization and valuing following the international experience. Descriptively, the largest item-level increases involved students' perceptions of themselves as interprofessional team members, awareness of the roles of other professionals, understanding of client involvement in decision-making, development of more realistic expectations of other professionals, and awareness of their own role on a team. These patterns suggest that the overall increase in ISVS ratings was not limited to students reporting greater appreciation for teamwork. Rather, the largest changes occurred in areas related to professional identity, role clarification, expectations of other disciplines, and participation in collaborative decision-making. These areas closely align with the IPEC competencies of roles and responsibilities, interprofessional communication, and teams and teamwork [7]. Although ISVS ratings increased across all countries, the magnitude of change differed by setting. Follow-up comparisons indicated that the increase observed in Thailand was significantly greater than that observed in Belize, while other country comparisons were not significant. The source of this difference cannot be determined from the present design because country was associated with differences in disciplinary composition, supervision, team structure, and access to local professionals. For example, one possible contributor to the larger ISVS increase observed in Thailand may have been the extent of collaboration with local SLPs and PTs during clinical activities.

Although local allied health professionals were also available in Bulgaria, the nature and intensity of these interactions varied across settings, and the present design cannot determine whether this characteristic accounted for the observed country difference. Across settings, the clinical experience provided repeated opportunities for students to apply interprofessional skills. Students and supervisors from multiple disciplines reviewed client information, prepared assessment and intervention activities, discussed clinical observations, planned subsequent sessions, and participated in post-session debriefing under licensed supervision. Depending on the host country, collaboration also included caregivers, educators, and local allied health professionals who contributed information about client priorities, service delivery, and the local context. These activities required students to clarify their own professional contributions while considering the expertise and perspectives of others. The pattern of higher post-trip ratings in role awareness and expectations of other professionals may therefore reflect the value of moving beyond exposure to other disciplines and stakeholders toward participation in shared clinical reasoning and decision-making. Student level was not significantly associated with ISVS ratings, and there was no significant interaction between student level and time. Thus, the data did not provide evidence that undergraduate and graduate students differed in their pattern of change following the experience.

This finding is relevant because authentic IPP experiences are often concentrated later in professional training. The present results suggest that structured opportunities to engage in collaborative planning, role negotiation, and shared decision-making may also be appropriate earlier in allied health education. However, the absence of a comparison group prevents attribution of the observed changes specifically to the international experience or its individual program components (e.g., supervision skill and in-country clinical experiences). In addition, outcomes were assessed immediately following the experience and relied on student self-report; therefore, the study cannot determine whether changes persisted over time or translated into observable clinical behavior.

Cultural Humility Outcomes

The cultural humility findings indicate that students reported higher post-trip ratings, although the overall magnitude of change was modest. Factor-level analyses provide a more nuanced interpretation, as significant changes occurred in both dimensions of the FCHS but were descriptively larger for Context for a Different Perspective. This pattern is consistent with cultural humility as an ongoing process of self-reflection and self-evaluation rather than a discrete competency that can be achieved through a brief educational experience [8,24]. Previous international service-learning research has similarly reported changes in students' cultural awareness and responsiveness following experiential learning opportunities [1-5]. More specifically, across both dimensions of the FCHS, the pattern of change was not uniform. The larger descriptive change occurred for Context for a Different Perspective factor, which captures students' consideration of contextual influences on how individuals understand and experience the world [34]. The strongest item-level changes within this factor involved greater consideration of the physical environment, historical precedent, and power imbalances as contributors to differing perspectives. These findings are particularly relevant to international clinical education because students were required to practice in

settings with different healthcare and educational systems, resources, languages, cultural practices, and professional roles. The structured cultural humility programming also explicitly addressed assumptions, power, social determinants of health, communication, and culturally influenced approaches to care.

Together, these experiences may have prompted students to consider cultural differences within a broader contextual framework rather than viewing them primarily as individual characteristics. Changes within Outcomes of Cultural Humility factor reflected a somewhat different pattern. The largest item-level increases involved considering situational context, empowering others, focusing on both oneself and the other person, shedding one's ego, and working toward mutual benefit. These behaviors represent relational and reflective aspects of cultural humility that are particularly relevant to collaborative clinical practice. Students were expected to interact directly with clients, caregivers, educators, and local professionals, requiring them to negotiate priorities, respond to perspectives that differed from their own, and adapt recommendations to the local context. These interactions may be especially important because cultural humility emphasizes an ongoing process of self-reflection, recognition of power differences, and development of mutually respectful relationships rather than mastery of a fixed body of cultural knowledge [8,24,31]. The smaller change observed for Outcomes of Cultural Humility factor should also be considered in relation to students' high baseline ratings. Students entered the experience already reporting strong endorsement of behaviors such as providing optimal care, lifelong learning, and establishing respect. These relatively high baseline ratings may have limited the opportunity for measurable change on several items.

In contrast, ratings related to contextual influences on differing perspectives began lower and demonstrated greater room for movement. These contextual influences may become particularly salient when students apply cultural humility concepts within unfamiliar clinical and community settings. Graduate students reported higher overall cultural humility than undergraduate students, but the absence of a significant time-by-student-level interaction indicates that their pre- to post-trip pattern of change was similar. Thus, the findings do not indicate that graduate students benefited more from the experience. The higher graduate ratings may reflect greater prior academic or clinical exposure, although the present study cannot determine the source of this difference. Previous international service-learning research has similarly demonstrated changes in students' cultural awareness and responsiveness following experiential learning opportunities [1-5], suggesting that these experiences may be valuable across different stages of professional preparation. Cultural humility is not a discrete competency that can be achieved during a single educational experience. Rather, it is conceptualized as an ongoing process requiring continued self-evaluation and engagement with perspectives different from one's own [8,24]. This distinction is particularly important when interpreting changes following a two-week program.

Prior research suggests that experiential and intentionally structured educational opportunities can support development of cultural humility and related clinical behaviors [1-5,40], but such findings do not establish enduring change. The present results therefore indicate short-term changes in students' self-perceptions following the IpSLE. Longitudinal research is needed to determine whether those changes persist and influence subsequent clinical practice.

Clinical and Educational Implications

These findings support continued consideration and evaluation of structured experiential learning opportunities that integrate interprofessional practice and cultural humility within allied health curricula. Reported exposure to IPE or IPP also varies across disciplines, with approximately 77% of OT programs, 78% of PT programs, and 65% of SLP respondents reporting relevant training [15-17]. Programs may therefore consider expanding opportunities for supervised collaborative practice while future research determines which instructional components and settings are most strongly associated with sustained outcomes. Supervisor preparation should also be considered when designing these experiences. Service-learning literature has noted that educational models often emphasize student experiences while giving comparatively less attention to the role of instructors in facilitating reflection and meaning-making [41]. Because supervisors guide clinical interpretation and cultural humility discussions, programs should provide explicit preparation for facilitating these experiences rather than assuming that clinical expertise alone is sufficient. The present findings also suggest that structured IPP and cultural humility experiences may be relevant at both undergraduate and graduate levels. Programs should determine curricular placement based on learning objectives, student readiness, available supervision, and program resources. It must be recognized that a two-week trip will not shift years of lived experiences. It may start a student's journey to reflect on their actions and awareness to do more for culturally and linguistically diverse populations. Previous research found that students who completed cultural competence and humility intervention were evaluated more positively by their supervisors and exhibited greater skills in relating to patients [40]. Perhaps IpSLEs will provide students with the experience and confidence needed to work in these areas as professionals [22].

Limitations

The study did not include a comparison or control group. Accordingly, higher post-trip ratings cannot be attributed specifically to participation in the international IpSLE. In a one-group pretest-posttest design, alternative explanations for observed change, including repeated measurement, expectancy effects, concurrent experiences, and other unmeasured influences, cannot be adequately

separated from program participation [42]. The findings should therefore be interpreted as pre- to post-trip changes associated with participation rather than evidence of a causal program effect. In addition, outcomes were measured exclusively through self-report. Although reflective journaling and facilitated discussions were integral to the program, these materials were intentionally not collected or analyzed, limiting the ability to determine which experiences students perceived as contributing to changes in their ratings. Sampling and subgroup composition also limit interpretation. While cultural humility and IPP were the primary focus of the study, country, discipline, and student level were not evenly distributed across the sample. The study was not designed to compare outcomes across individual allied health disciplines, as cultural humility and IPE/IPP represent competencies relevant across these professions. Nevertheless, the uneven distribution complicates interpretation of subgroup effects. Belize participants were exclusively SLP students, most OT and PT participants were concentrated in Thailand, and nearly all graduate participants were SLP students. Consequently, the significant Time × Country interaction for the ISVS cannot be interpreted independently of disciplinary composition, student level, team structure, supervision, or other program characteristics. The international experiences were not fully standardized across countries, as licensed supervisors, clinical activities, team composition, and access to local professionals varied by setting. These differences may have influenced students' perceptions of IPP independently of the structured program components. Small and unequal country-specific samples further limited interpretation and prevented determination of whether observed variation reflected cultural context, supervision, team composition, or other program characteristics.

Future Directions

Students were sent to four different countries with specific cultural activities, different cross-cultural communication norms, and different supervisors that may have impacted the results in unforeseen ways. It was unclear what level of expertise supervisors had with respect to IPP and cultural humility. While accrediting bodies have requirements for continuing education in these areas, which were all met, the level of competency was unknown. Future research should investigate the effects of different pre-departure training models on student and supervisor outcomes. While this study cannot determine which cultural activities, reflective exercises, clinical encounters, or IPP experiences contributed to changes in the outcome variables, future research should be designed to examine these mechanisms directly. Prospective studies could incorporate semi-structured interviews, focus groups, or research specific reflective measures administered at predetermined points before, during, and after the international experience. These methods could explore which experiences students perceived as most influential, how their understanding of cultural humility and interprofessional collaboration evolved, and whether interactions prompted changes in assumptions, professional roles, communication strategies, or clinical decision making. Importantly, research specific qualitative data should be collected separately from confidential educational journaling so that students retain a protected space for candid self-reflection. Integrating qualitative findings with quantitative pre- and post-measures would provide a more complete explanation of how and why changes occur and could help identify which program components are most important for future curriculum development. Finally, additional research is needed to investigate whether there are long-term effects secondary to short-term international clinical experiences for allied health students, local partners and stakeholders. It should focus on international stakeholders and partnerships to address whether the objectives of the host country or community are prioritized and being met [43].

Conclusion

This study identified higher post trip perceptions of interprofessional socialization and cultural humility following a structured international IpSLE. Changes in cultural humility were evident across both FCHS dimensions, with the larger descriptive change occurring in students' consideration of contextual influences on differing perspectives. These findings support continued investigation of structured experiential approaches that integrate interprofessional practice with cultural humility education. Future research should determine whether these changes persist, translate into clinical behavior, and produce benefits aligned with the priorities of host communities.

Conflict of Interest

Dr. Brock serves as Academic Director and co-owner of Therapy Abroad, the organization that coordinated the international clinical experiences examined in this study. Dr. Barlow and Dr. Liu received travel and accommodations from Therapy Abroad in exchange for supervising students during international clinical experiences. These relationships represent potential financial conflicts of interest.

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