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Pre-Departure Training is Essential for Preparing Healthcare Teams for Service-Learning to Resource-Limited Countries

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Twenty-seven percent of the United States population consists of immigrants and their children (Zong et al, 2019). Educational institutions strive to prepare future healthcare providers to connect with culturally diverse populations in a respectful and culturally competent, patient-centered manner. The American Physical Therapy Association (APTA), the Commission on Accreditation in Physical Therapy Education and Accreditation Council for Occupational Therapy Education concur and support the development and tracking of cultural competency throughout occupational and physical therapy curriculums (American Physical Therapy Association, 2014; Commission on Accreditation in Physical Therapy Education, 2015; Accreditation Council for Occupational Therapy Education, 2011). One tool the APTA recommends for measuring an individual's ability to adapt to other cultures is the Cross-Cultural Adaptability Inventory (CCAI™) (Kelly & Meyers, 1995). In addition to a variety of business and academic settings, this tool has been used to assess adaptability of physical therapy students serving in global health experiences (Kraemer & Beckstead, 2003; Hayward & Charrette, 2012; Glickman et al.,

Abstract

A convenience sample of 21 physical and occupational therapy students and clinicians who participated in four 1-hour PDT sessions were included in this mixed-methods study. Training consisted of informative, reflective, and simulation experiences to enhance self-awareness, teambuilding, cultural knowledge, and in support of trip preparations. The Cross-Cultural Adaptability Inventory (CCAI™) was administered pre-training and post-experience.

Qualitative data showed emerging themes around collaboration, mentorship, empowerment, opportunity, preparedness, self-awareness, and confidence. Quantitative analysis of CCAI™ data revealed significant median differences between a) all participant's CCAI™ scores for perceptual acuity pre = 49.29 and post =51.38 ($p = .018$); as well as b) students CCAI™ scores of perceptual acuity pre=49.80, post =51.46 ($p=.040$); and c) clinicians CCAI™ personal autonomy scores pre=31.00 and post= 33.16 ($p =.042$).

2015; Audette, 2017). Specifically, the CCAI™ has been used with occupational therapy students to track intercultural competency in a peer-teaching activity (Matsuda & Miller, 2007). Despite this widespread use of the CCAI™ in educational and business settings, there has been no published research using the CCAI™ for physical and occupational therapists participating together in an international service-learning (ISL) experience.

Cultural competency is defined as “the process in which the healthcare professional continually strives to achieve the ability and the availability to effectively work within the cultural context of the client- family, individual, or community” (Campinha-Bacote, 2002, p.181). To promote cultural competency in physical therapy curricula, Lattanzi and Pechak (2012) stress the importance of implementing educational strategies with an emphasis on reflective practice, global health courses, domestic and ISL opportunities, and international clinical education experiences. Tervalon and Murray-Garcia (1998) distinguish between cultural competency and cultural humility by suggesting that cultural competency is not an endpoint to be measured, but an ongoing reflective engagement ensuring that a mutually respectful partnership with communities being served is maintained. This is a process that requires humility, especially on the part of the sending institution and should be continually assessed by listening to and accommodating the host community.

Research shows that one of the most effective methods to teach ethical and cultural competency to healthcare providers is through service-learning experiences (Moran et al., 2015; Pechak et al., 2013; Ekelman et al., 2003; Johnson & Howell, 2017; Buff et al., 2015; Mu et al., 2016; Ryan-Krause, 2016; Bimstein et al., 2008; Brown et al., 2012; Clements et al., 2011; Hoang & Nguyen, 2011; Wagner et al, 2015). International service-learning experiences have been used across a variety of healthcare educational programs, to help prepare students to work with individuals from various cultures. The Normative Model of Physical Therapist Professional Education as defined by the APTA supports ISL experiences as a practice to develop cultural competency (American Physical Therapy Association, 2004). In view of vast cultural differences and ethical dilemmas often encountered while serving in under-resourced countries, universities have a moral obligation to all stakeholders to ensure that students are adequately prepared for the experience (Crump, 2008; Crump & Sugarman, 2010; Reisch, 2011; Umoren et al, 2012). Additionally, sending institutions should track meaningful outcomes, to ensure that the host community mutually benefits.

Several studies, primarily in the medical field, have documented pre-departure training (PDT) as a method to establish appropriate ethical standards and apply best practice in global health experiences (Crump & Sugarman, 2010; Anderson & Bocking, 2008; Elit et al., 2011; Arthur et al., 2011; Dowell & Merrylees, 2009; Edwards et al., 2004). Logar and colleagues (2015) recommend that PDT engages students with scenarios through simulation exercises to address common ethical challenges faced by global health trainees. These ethical challenges may arise from cultural differences or professional issues such as students acting beyond their scope of practice and without appropriate supervision. Students may be faced with decisions regarding limited resources, or personal issues such as coping with moral distress and trauma. Simulation exercises prepare trainees to be more aware and less fearful of situations that might otherwise produce culture shock, limit learning potential and render the student ineffective on the service trip.

Bessette and Camden (2017) recommend PDT content for physical therapy students participating in global health experiences include ethics, introspection, cultural-specific knowledge of the host community, as well as personal health and safety while abroad. In addition, these researchers charge universities to “evaluate the effectiveness of PDT in the development of student’s global health competencies and in host communities” (Bessette & Camden, 2017, p. 348). Jogerst and colleagues (2015) developed a list of interprofessional global health core competencies designed to be integrated at various levels of healthcare curriculum. Furthermore, they recommend global health curriculum should focus on interprofessional collaboration. As universities begin to integrate ISL and inter-professional education into health sciences curriculum, it is essential to establish best practice for PDT through measurement of meaningful outcomes and sustainability. Kalbarczyk and colleagues (2019) performed a systematic review of pre-departure resources for global health electives and concluded that few universities conduct and publish evaluations of their trainings. To date, there is limited research on best-practice implementation of PDT for interprofessional service-learning experiences in the rehabilitation field. This research addresses the gap found in the literature by examining how PDT for a one-week service-learning project to Guatemala in April 2018 impacts cultural adaptability and overall preparedness for an interprofessional team of physical and occupational therapy students and clinicians.

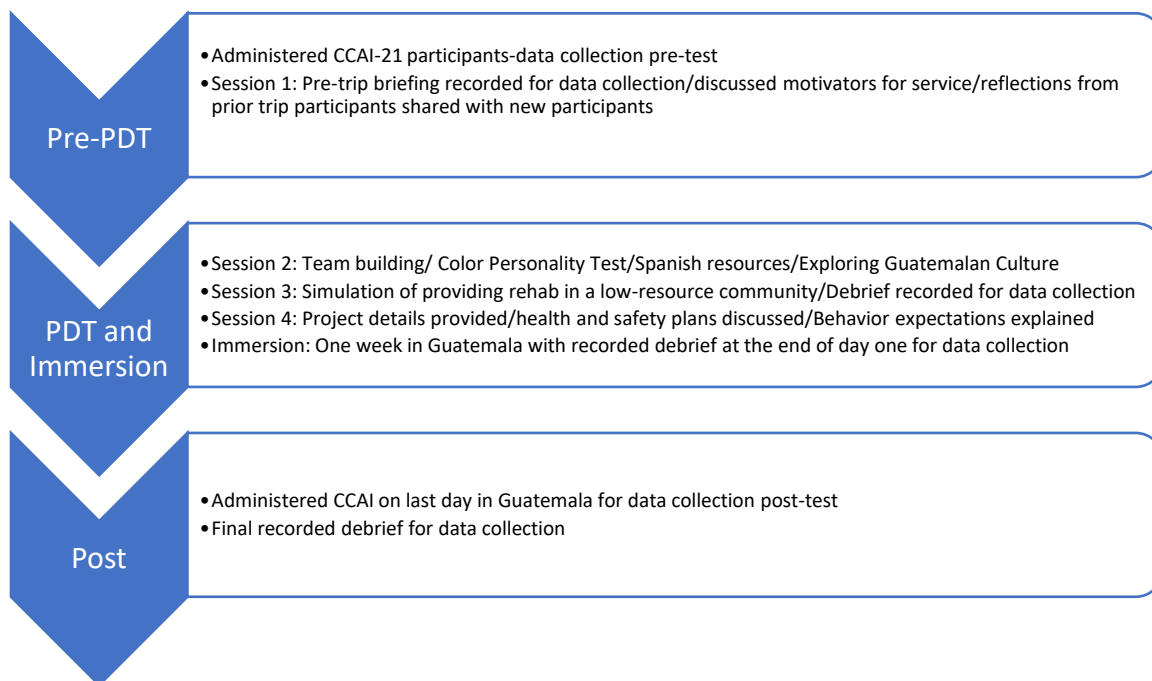
The first aim of this study was to evaluate a PDT protocol to determine if it adequately prepared team members’ understanding of the host site organization and community. The second aim was to evaluate if cross-cultural adaptability scores changed as a result of the PDT and one-week ISL experience. The third aim was to document feedback from the host community about how the participants met their needs and identify ideas for a sustainable partnership for future trips.

The host community associated with this project was Potter’s House Association International (PHAI) based in Guatemala City, Guatemala with a recent expansion into the rural areas surrounding Chiquimula. These service trips have consisted of providing rehabilitation clinics to community members with a lack of access to healthcare, home building for local families, teaching physical education to children in the after-school program, and training to support community members, teachers, and medical assistants. The Guatemala City location of PHAI provides medical services to individuals living and working around the garbage dump. This location is home to one of central America’s largest landfills, where approximately 13,000 people live and work scavenging the garbage as a means of survival. Potter’s House has been working with these underserved people in Guatemala City for over 30 years and focuses on developing five program areas through their community centers: family development, education, health/nutrition, microenterprise, and community development (Potter’s House Association International, 2019). In 2017, PHAI expanded services to Chiquimula, a rural community approximately 170 kilometers east of Guatemala City. The new location in Chiquimula had not yet developed their medical services and requested that this team collaborate with them on how to optimize community benefit, including patient treatment and local provider education. This level of collaboration has been known to support ongoing program development, and the researchers wanted to track feedback for developing a mutually beneficial relationship.

Method

A combination of qualitative and quantitative data was selected to best capture the content and focus of this research project and to allow the opportunity to evaluate inductive and deductive inquiry. This research used a mixed-methods study with a convergent parallel design to compare and integrate both quantitative and qualitative data collected within a close timeframe for interpretation and results (Creswell, 2014). A convenience sample of 21 physical and occupational therapy students and clinicians who completed four one-hour PDT sessions before traveling for volunteer service in Guatemala were included. The participants included six licensed clinicians (five physical therapists and one occupational therapist) and 15 students (nine physical therapy students and six in occupational therapy students). Training consisted of informative instruction with reflective and simulated components designed to enhance self-awareness, teambuilding, cultural knowledge, and to support trip preparations (see Figure 1).

Figure 1: Pre-Departure Trainings and Trip Model



Four debriefings were recorded using open-ended questions with a thematic approach. The first briefing occurred before the trainings began. The second debriefing occurred after the third PDT module, the simulation experience. The final two debriefings occurred on the first and final day of the service-learning experience in Guatemala. Thematic areas discussed were cultural preparedness, adaptability, ethics, inter-professional collaboration, problem-solving, teamwork, and impact on their professional development as a rehabilitation provider. Participants in discussions had the opportunity to share lessons learned, ask questions, and express feelings about

working in the Guatemalan garbage dump communities. Digital recordings of all debriefs were transcribed and coded using member checking to strengthen the validity and reliability of the emerging themes (Corbin & Strauss, 2007). Data for the entire group, students and clinicians was collected by administering the CCAI™ pre-training and immediately post-experience. The CCAI™ is a series of 50 statements designed to identify an individual or group's strengths and weaknesses in four fundamental areas valuable in cross-cultural experiences: emotional resilience (the ability to adjust to and react well to new experiences), flexibility/openness (the ability to enjoy different ways of thinking and behaving), perceptual acuity (the ability to pay attention and accurately perceive the surrounding environment), and personal autonomy (the ability to evolve a personal system of values and beliefs yet respecting others and their value systems). The CCAI™'s reported internal reliability is 0.9 (Kelly & Meyers, 1995). Additionally, the authors of the CCAI™ report high face, content and construct validity (Kelly & Meyers, 1995). Data from the CCAI™ was analyzed using Wilcoxon Sign Ranked Tests using IBM SPSS 25, established p-value <.05. A convergent parallel design was used so that both qualitative and quantitative data were compared and integrated for interpretation and results (Creswell, 2014).

A convenience sample of six host-site facilitators working directly with the participants, who were proficient in English, were interviewed to gather perspective on the team's preparedness and responsiveness to the needs of the community. This qualitative portion of the project was deemed essential to the overall evaluation of participant's preparedness. It was also viewed as an opportunity to learn more about the community and local healthcare needs in order to provide ongoing support in the future. *Study Variables:* For the purpose of this study, the dependent variable was participant preparedness and adaptability to a new culture and environment they experienced in their service learning. The independent variable, to influence change on the dependent variable, was the PDT.

Qualitative Data Analysis: Each debrief session was recorded and subsequently downloaded, password protected and stored for later transcription and qualitative review. The researchers did not intend to identify participants by name and requested that participants not self-identify or identify other team members' names on the recording. Every effort was made to reduce the possibility of identifiers being collected on the digital recordings. There was no comprehensive data set created that could link demographic information to the digital recordings. Internal transcription of the recordings occurred, and if by chance any names were used, the researchers removed any names that appeared in the tapes and no names were transcribed in the data set. The transcript was typed verbatim and differentiated those who were speaking using the nomenclature of "speaker 1, speaker 2, etc." Participant data was also reported in this manner when disseminated. Using grounded theory to discover themes within the data, each of the researchers reviewed transcripts and coded data independently. Several levels of review took place. *A priori* coding using the thematic areas identified previously was performed; however, the researchers were looking for emerging themes from the overall experience of pre-departure training. Previous data was coded by two of these researchers with a focus on how the simulation only experience affected participant's soft skills (Trotter & Dunnivan-Mitchell, 2019), but this study was expanded to focus on

interprofessional collaboration and the overall focus of the entire pre-departure training curriculum. Member checking was used to confirm the meaning of the dialogue that emerged from the transcripts. The researchers met at three separate intervals following the experience. These meetings served to confirm the coding (i.e. coding per the methodology) and uncover themes. Data results were reported using demographic information as well as qualitative reflections that supported the emergent themes.

Triangulation: After qualitative and quantitative data analyses occurred, the results were reviewed to determine how they correlated with each other and to determine where the data converged and diverged. This method of triangulation revealed how the data sets related to each other and provided the opportunity to gather a sense of how the results support the overall purpose of the study (Creswell, 2010).

Results

Seven themes emerged from the qualitative data analysis among the participants: collaboration, mentorship, empowerment, opportunity, preparedness, self-awareness, and confidence. See Table 1 for quotes supporting the Emergent Themes and Supporting Quotes.

Table 1: Emergent Themes and Supporting Quotes

Themes	Quotes
Collaboration	<p>From a PT student (PDT session 1): "I'm really excited. OTs are so creative. I mean if you've seen them work before, the things they can make out of a piece of paper and a rubber band... it's awesome! And so, I'm excited to learn from the OTs"</p> <p>From an OT student (PDT session 4): "I think as a team we did really well bouncing ideas back and forth and then coming to a cohesive decision on a patient."</p>
Mentorship	<p>From a PT student (PDT session 4): "You saw some of the older students starting to take charge and starting to lead, and some of the younger students starting to come up and say 'how do you do that?'"</p>
Empowerment	<p>From a PT student when asked about their motivation for attending a service-learning project (PDT session 1): "I think I just share an interest in just really empowering people and giving them tools they need... to have a better quality of life. It goes along with the saying of making fishers of men...like you teach men how to fish so they can catch enough."</p>
Opportunity	<p>(PDT session #3): I thought this was a great opportunity to serve others."</p>
Preparedness	<p>The theme of being prepared, with the language barrier came across in all debriefing sessions (PDT session 4): "I was trying really hard to learn Spanish. The more you know, the more you can connect with these patients. It helps you connect with the patient on a deeper level."</p>
Self-Awareness	<p>From a PT student (PDT session #3): "I know that I'm a lot more open about a lot of things and I'm a person that doesn't like to open themselves up and I'm more quiet and I feel very vulnerable even just talking now. But it just made me a little bit of a better person overall and that's why I come back because I feel like I've just learned more about myself, but I'm also helping others."</p>
Confidence	<p>From an OT student (PDT session #4): "I feel more secure going into internships."</p>

Significant median differences were found between a) all participant's CCAI™ scores for perceptual acuity pre = 49.29, and post =51.38 ($p = .018$); as well as b)students CCAI™ scores of perceptual acuity pre=49.80, post =51.46 ($p=.040$); and c) clinicians CCAI™ personal autonomy scores pre=31.00 and post= 33.16_($p =.042$). According to the CCAI™, perceptual acuity is defined as the extent of paying attention to and accurately perceiving various aspects of the environment (Kelly & Meyers, 1995). Personal autonomy is described as the extent of the evolution of a personal system of values and beliefs while respecting others and their value systems (Kelly & Meyers, 1995). See Table 2 for CCAI™ scores.

Table 2: Pre and Post CCAI™ scores

	Participants	Mean-Pre CCAI™	Mean-Post CCAI™	Significant Difference	<i>P</i> (significance $p < .05$)
Perceptual acuity- all participants:	N=21	49.29	51.38	+2.09	.018
Perceptual acuity- students:	N=15	49.8	51.46	+1.66	.040
Personal autonomy- clinicians:	N=6	31	33.16	+2.16	.042

Qualitative data found to support the significant scores from the pre- to post-test differences on the CCAI™ are recorded in Table 3: Triangulation of Qualitative Data Supporting CCAI™ Scores.

Table 3: Triangulation of qualitative data supporting CCAI™ scores

<p>Perceptual Acuity</p>	<p>From a PT student (PDT session 3): “There was a moment when I was at the house build, it was just me. I was painting the railings in one of the rooms and the translator, the mom, and the child came in while I was painting and wanted to talk with me, so I stopped what I was doing and had a really cool conversation with them, which kind of felt like in the simulation-we had a moment where the mom started crying and I totally froze and didn’t know what to do. So, from that I kind of learned that it’s OK to stop what you’re doing and to kind of be with that person because they are humans. You don’t have to just be OK; I have to get my job done. I can’t talk to you. So, it was kind of cool to set down the paintbrush and just have this conversation and get to know them better and make that relationship.”</p> <p>From an OT student reflecting on her pediatric fieldwork rotation and their experience in Guatemala (PDT session 3): “You have to be so flexible and accommodating and adapt your treatment plan when you’re working with kids. And it really kind of brought me back to the environment that we’re in in Guatemala because you’re constantly having to be flexible and adapt and meet them where they are.”</p> <p>From a clinician: (PDT session 3): I definitely have the problem of honing in and being sensitive to different individuals that may not be as open as I, and I know that’s something that I struggle with....just understanding there’s so many different personalities out there and if you’re going to be a leader....lead by example but be sensitive to others.</p>
<p>Personal Autonomy</p>	<p>From a clinician (PDT session 3): “I have loved learning from my students, and it helps me grow as a person.”</p> <p>From a clinician (PDT session 3): “I think working on openness has been something I’ve been working on.”</p>

Discussion

Participants demonstrated improvements in perceptual acuity and personal autonomy as it relates to cross-cultural adaptability following PDT and a one-week service-learning experience to Guatemala. All participants demonstrated a significant difference in perceptual acuity, the fundamental area most closely associated with empathy (Meyers et al, 2008). One’s ability to read non-verbal cues to interpret behavior within a novel cultural situation was mirrored in the recorded discussions. While the quantitative data demonstrated only the clinician’s personal autonomy scores showed a

significant difference, the researchers noted a shift in student's personal autonomy as reflected in the debriefings. This was not captured with the CCAI™. For example, one returning student considered why she was participating in a second trip to Guatemala: *"I grew a lot in that trip, not only just like as a clinician or future clinician but as a person in general. So, in emotional and cultural competence, like everything. It's such a good growing experience that why wouldn't you want to go back."* A first-time student vulnerably commented on her struggles in PT school: *"This last trimester was really hard for me. I just felt really inadequate and I was questioning. I said God, why did you put me here if I'm not doing how I thought I would do in schools, and just like you were saying about learning to work on your own and be more autonomous and just study hard because I know I'm here for a reason. I know I'm here and I have a purpose here and I know that God didn't make a mistake when He put me here."* Another returning student reflected on their personal growth: *"I always try not to judge a book by its cover, but a certain case I just had... I mean, you never know someone's life or where they came from...I'm going out on my fieldwork next, it's important to just step back and make sure you don't judge ... I mean you never know when someone had just an awful experience coming to the clinic."* Further investigation with a tool more sensitive to measurement of valuing and respecting diversity while maintaining personal identity may have more effectively captured this information qualitatively.

The researchers felt that there was not enough data from the six members of the PHAI staff to reach saturation for an effective analysis. This is a limitation of this study and could be due to language barriers within both parties. However, some trends were noted in response to staff interviews pertaining to team preparation: *"I felt that you make the treasures (community members who scavenge the garbage) feel really comfortable with whatever you're doing with them."* When asked about how the team can improve one PHAI staff member emphasized the importance of ensuring understanding in the client's native language: *"The fact that you're bringing people to speak Spanish, that helps a lot because then is really making a connection...Remember their level, most of them (the treasures), they didn't go to school. It's difficult to understand technique or words that are proper for medicine plus being able to see everything in English, it's difficult for them."* The staff member recommended bringing handouts and visual presentations in Spanish, not English. One staff member commented that this team *"has the right attitude to help others"* and further commented that *"you really get to know your patients"*. One staff member noted that the team portrayed empathy: *"they feel the pain that the patient has, they were really sensitive about it."* Finally, a staff member who has worked with PHAI and this service trip for several years commented about how he felt this team responded to the needs of the community with the following: *"Well, when you work in a context of extreme poverty, there are a lot of needs. So as a team, and after coming for several years now, you have not only provided health services of high quality, but also seeing the need of leaving behind something that can make an impact to the families beyond medical services. So, the fact that you provide a house for a family. Its life changing for that family. So, you are making a difference by being here. And I know that poverty, it's a complex issue and I don't want to oversimplify with your presence here for a week or so, but I know that the work that you do, even though it might not be extensive in the sense of length of time.. It's addressing needs that we are*

aware of and have been prioritized by our ministry. And it has an impact in the family you have worked with.”

Conclusion

As a result of engagement in this project, participants demonstrated improved ability to perceive the needs of this novel community and respond to those needs appropriately. The CCAI™ effectively captured improvement in personal autonomy and perceptual acuity in our participants, but it did not necessarily capture the reported outcomes of confidence gain and interprofessional collaboration that emerged from the qualitative data. Ideas for future studies include investigation and use of additional tools to track other outcomes such as confidence and interprofessional collaboration with participants. Additionally, continued needs assessment with our Guatemalan partners will be prioritized to ensure a sustainable mutually beneficial relationship continues for many years.

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