Development and evaluation of an interprofessional community health course in Zambia

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**ABSTRACT**

Persistent global health inequities and workforce shortage require innovative strategies to prepare professionals for teamwork in a global context. Over two years, students (n = 33) from education, nursing, occupational therapy, public health, and physical therapy participated in a course in Zambia that emphasized interprofessional collaborative practice (IPP), cultural fluency, and understanding ecological approaches to health. Faculty measured the learning outcomes of the course using the Interprofessional Education Collaborative (IPEC) Competency Self-Assessment Tool (pre and posttest), and a focus group to gain a deeper understanding of the student experience and course effectiveness. The Beliefs, Events and Values Inventory (BEVI) was used post trip to determine feasibility of distribution and response of the tool via e-mail. These preliminary results suggested that students developed skills and knowledge related to IPP, cultural fluency, and ecological approaches to health. Specifically, students acknowledged growth in their ability to communicate more effectively with other health professions, and ability to evaluate personal assumptions and biases toward health, healthcare, and cultural practices. The method of developing this course could be a model for other institutions wanting to grow IPP experiences for their students.

**Introduction**

St. Catherine University’s Henrietta Scholl School of Health (HSSH) has been providing students with interprofessional education experiences (IPE) with the intent of leading to interprofessional collaborative practice (IPP). Within individual academic departments, students have also had opportunities for short-term international learning experiences. However, IPP and international learning did not typically intersect. Faculty identified this as an opportunity for students in the HSSH as well as the broader university. A course was developed to prepare students to become high-quality providers capable of practicing in emerging health-related environments focused on IPP, cultural fluency, and ecological approaches to health across the lifespan. The course was held in Zambia and tools were piloted to evaluate the course including cultural and interprofessional self-assessment tools and post-experience focus groups. Course development and the assessment outcomes are described in this article.

**Background**

A dramatic shift is needed in the education of the future global workforce to better prepare them for the complex, ever changing and interdependent nature of global health and disease. In 2000, the US Surgeon General called for better communication, coordination and commitment to eliminate global health disparities (Satcher, 2000). Two decades after Dr. Satcher’s statement demanding multi-sectoral collaboration, teamwork and addressing systems to improve health equity, there has been little improvement in mitigating health disparities (Liu et al., 2017). Evidence of this lack of progress includes a 36-year gap in life expectancy between countries in the global north and global south, a categorization of richer versus poorer countries that roughly follows the equator (World Health Organization, 2011). Similarly, mortality rates for children under five years in Sub-Saharan Africa are 15 times those in high-income countries (World Health Organization, 2011). In addition to glaring disparities, Liu et al. (2017) estimated an expected shortage of 15 million health-care workers worldwide by 2030, further prompting an urgent need to prepare health profession students to work in 1) interprofessional teams, 2) communicate effectively within and across cultures and 3) appreciate the social and systemic influences to individual health in order to build an equitable future.

The first skill in preparing students to address global health inequities is IPP. WHO defines interprofessional education (IPE) as students from two or more professions learning from and with one another in order to collaborate as a team to work toward improved health outcomes (World Health Organization, 2011). The Interprofessional Education Collaborative (Interprofessional Education Collaborative, 2016) calls for education to move beyond the silos of individual professional education to provide students with opportunities to learn with and from each other. The goal of IPEC is twofold; prepare health professionals ready to work in a team-based care model and in doing so improve population health (Interprofessional Education Collaborative, 2016). There are four skill areas within IPP that include 1) values and ethics; 2)
roles and responsibilities; 3) communication and 4) teamwork. Benefits of interprofessional education activities for both student and patient outcomes using a case study format through global experiences has been demonstrated in the literature (Sordahl et al., 2018). The American Association of Colleges and Universities has identified global experiences and community-based learning as high impact practices in higher education (Kuh, 2008). Short-term global experiences that include an interprofessional component in the field, have resulted in positive team experiences and an appreciation for the different ways to approach and practice healthcare (Ezeonwu, 2020; Manspeaker et al., 2019).

The second skill is cultural fluency. Cultural fluency is a term that is used to describe one’s ability to work within ambiguous situations where there may be a lack of clarity; to be flexible and adapt behavior according to context; be open and curious about different ways of doing and being; and be empathetic to understand how other people think and feel (Inoue, 2007). Prior to and during global experiences, students should participate in instruction on global health (Cooper & Guthrie, 2007); attention toward cultural norms, values, and beliefs (Bonello et al., 2018), in-country reflections about mutual humanity, cultural expectations, bearing witness to oppression, humility and acknowledging the unknown (Hoskins, 1999; Johnson & Howell, 2017).

The ecological model of health, or consideration of the social and structural contextual factors that influence health, is the third skill necessary to reduce persistent global health disparities. This model addresses multiple levels of influence on health behaviors including individual, interpersonal, organizational, community, environmental, and public policy factors. The Healthy People 2020 Framework emphasizes the importance of an ecological approach to health and focuses on health enhancing social and physical environments (USDHHS, n.d.). The framework focuses on understanding disease prevention and health promotion necessary at the interpersonal, organizational, community, and political levels (Guimarães Ferreira et al., 2019).

The literature on international interprofessional experiences has generally been limited to a narrow range of clinically oriented health programs (Johnson & Howell, 2017; Kako & Klingbell, 2019). This focus misses the opportunity to engage with other disciplines/areas of study that address the upstream causes of health inequity. However, in the past few years, more universities have been creating global IPE programs (Ezeonwu, 2020; Kako & Klingbell, 2019). Ezeonwu (2020) found in her interprofessional collaborative global health promotion course, that both students and faculty gained skills in IPP, cultural fluency, and the importance of context-specific healthcare. This type of course requires innovation and creativity on the part of the faculty and university, as well as an understanding of IPP pedagogy, which can be difficult to logistically implement across multiple health-care programs.

Health profession educational programming should include learning the ecological factors that influence health, experiential interprofessional collaborative practice opportunities (Bridges et al., 2011; Herath et al., 2017), as well as opportunities to grow in cultural fluency in a global context (Kools et al., 2014). While literature has supported and emphasized benefits to this type of learning experience for health-care students, many barriers exist to implementing and sustaining interprofessional global health courses. The purpose of this manuscript is to describe the process and preliminary outcomes of a course designed to prepare global health professionals and add to the beginning body of knowledge evaluating global IPE health-care courses. Faculty from multiple professions developed and delivered a three-week intensive global interprofessional experience to students across disciplines. The course was designed to intentionally address IPP, cultural fluency and recognition of the ecological factors that influence health and equity. The long-term goal of the course is to inspire students to commit to working toward health equity. This paper will describe course development, results of the piloted assessment tools and lessons learned.

The course

The course took place near compounds in two different settings in Zambia: a rural community on the outskirts of Ndola and Lusaka, the capital city of Zambia. In Ndola, the partner was the Dominican Sisters of the Sacred Heart who run multiple schools for the most vulnerable and a prestigious boarding school for girls, a hospital (100 beds, catchment area = 15,000 people), orphanage, and homes for the aged near two rural compounds. Compounds in Zambia often lack basic infrastructure such as streets and electricity, and share community water sources and latrines. The hospital provided limited surgery, maternity care, outpatient services, general medicine, dentistry, plus maternal, and child health clinics both on site and through village outreach services. Student lodging was located at the boarding school. All sites are within walking distance. In the capital of Lusaka, the two partner organizations were Catholic Medical Mission Board (CMMB) and a grass-roots project located in the Ng’ombe compound. While in the capital, the group traveled together to sites in hired vans. Lodging for the university students was at a local hotel or hostel.

The course was marketed to students through flyers, announcements, and informational talks. To increase student participation, some departments used the course as a substitute for a required course aligned with similar learning outcomes so student participants would be working toward degree completion. Students completed an online application through the Office of Global Studies which were reviewed by faculty members teaching the course. Questions included why the student was interested the course; self-reflection regarding uncertainty, flexibility, discomfort; how the experience will add to professional goals; and ability to be without the internet for at least two weeks. Students from across disciplines and degree levels were intentionally accepted to ensure an interprofessional experience.

Pre-departure Activities

Before departure, students were required to do preparatory reading to learn about public health, cultural fluency, ecological approaches to health, and Zambian culture and health, to facilitate a mind-set of collaboration, ethical photography, care
of local resources, humility and an awareness of power, colonialism, and privilege. The following are examples of course readings that students and faculty continued to revisit and reflect upon throughout the course. Readings included chapters from Farmer and Saussy (2010) Partner to the Poor: A Paul Farmer Reader; Farmer and Saussy (2010) Pathologies of Power: Health, Human Rights, and the New War on the Poor; Lancy (2015) The Anthropology of Childhood; Farmer et al. (2013) Reimagining Global Health: An introduction, several blogs and media-based articles, and the TED talk, ‘Danger of a Single Story by Chimamanda Ngozi Adichie (Adichie, 2009). Faculty organized students into three interprofessional student groups representing different degrees and programs of study before departure. The three groups were organized into thematic questions, which included 1) What does it take for a child to be successful in school?, 2) What is needed for a person with disabilities to thrive?, and 3) What is needed for women and children to have strong futures? Before departure, each group of students conducted a review of the literature and government websites to find information about their topic and prepared an oral presentation with their team to present once in Zambia. The information gathered included both factors relevant to their question from U.S. and Zambia data. Presentations were assessed by faculty using a grading rubric as acceptable/unacceptable on the domains of comprehensive exploration of the underlying determinants for the question being answered; presence of data that compares and contrasts the U.S. and Zambia; team member assessment of other member’s contributions (scale of 1 to 5).

While in Zambia, students engaged in interprofessional experiential learning throughout the course. The learning activities served as a way to immerse students into the community in order to gain a more holistic understanding of health. All activities were described and presented as school, hospital, and community with additional sub categories as available including observing surgery and MCH outreach clinics. Faculty allocated students by their choices balanced with maintaining IPP and activities available. Each day, student groups either spent time at the community hospital, assisting in classroom activities, conducting community health assessments, engaging in co-creating and delivering health education messages, providing immunizations, well-child checks, antenatal care, school health clinics, water testing, providing occupational and physical therapy services in the hospital or the orphanage in Ndola and working with children with disabilities and their families to support participation in the community. The student opportunities were determined by the partner needs and schedule. In Ndola, a general schedule was outlined with the organization point person and confirmed the evening before based on factors, such as no available electricity (no surgical procedures), lack of transportation to community sites, weather, funerals, or illness. Faculty assigned students to locations, arranged supervision and necessary preparation, and clarified questions in conjunction with the partner. Students focused on their professional program and also rotated throughout each setting to build their own professional skills and work collaboratively across professions. For example, nursing students spent time at the hospital and clinics and also collaborated with public health students in community health assessment and water testing. Public health students joined hospital rounds and observed clinical care with their nursing classmates. Students were supervised by faculty and not allowed to engage in any health-care practices (e.g., immunizations) if they had not already received didactic training and experiences in their program of study.

Students kept journals and participated in daily reflection with the large group. Journal prompts and faculty facilitated discussions were based on transformative learning theory which encourages students to look at their assumptions and how their engagement with the world influences their perspectives (Mezirow, 2003). Examples of journal prompts included: 1) In your own words, define cultural humility; 2) Before this course, describe your readiness for international/intercultural experience; 3) What, if any, ‘ah ha’ moments have occurred for you as it related to cultural fluency; 4) Describe a way in which this course experience will improve your future professional practice. Group reflections discussed course readings and concepts, and provided a venue to share and reflect on the day’s experience, and how the student’s assumptions and perspectives were challenged by their interactions with the community.

There were two group presentations, one at the beginning of the experience and one at the end. For the first presentation, students presented their pre-departure assignment upon arrival in Zambia. For the final group presentation (same groups), students were asked to reflect back on the same question considering the social, community/environmental, family, and interpersonal determinants of health they learned about through their experiential learning opportunities in Zambia.

Methods
Setting and participants
Faculty from multiple programs within St. Catherine University were recruited based on interest, experience, and program director recommendations. Disciplines included faculty from public health, occupational therapy, education, physical therapy, social work, economics, and nursing. Together, they designed student outcomes across degree levels (associate, baccalaureate, master’s, and doctorate). Student outcomes focused on developing collaborative skills, comprehension of professional role delineation, growth in cultural fluency, use of ecological model of health to assess strengths and barriers in a community setting, and evaluation of the relationship between health and social justice.

Two locations in Zambia were selected as sites for the course. Partner organizations were identified with the following criteria: safety; fit with university mission and purpose of the course; ease and cost of transportation to the destinations once in country, room and board for 20+ students; strength of faculty-partner relationship; and availability for students to get hands-on learning experiences. The lead faculty had a pre-existing partnership with partner organizations. The co-lead faculty had experience supervising students, leading international courses, IPP experience, and knowledge of ecological approaches to health. Student participant characteristics by profession are presented in Table 1.
**Table 1.** Student participants by profession.

| Professional Program          | 2018 | 2019 |
|-------------------------------|------|------|
| Nursing-Master’s entry level | 7    | 7    |
| Nursing undergraduate         | 2    | 2    |
| Occupational Therapy Masters  | 1    | 3    |
| Physical Therapy Doctorate    | 0    | 1    |
| Public Health-undergraduate   | 2    | 3    |
| Public Health Masters         | 2    | 1    |
| Education-undergraduate       | 1    | 1    |
| **Total**                     | 15   | 18   |

**Assessment**

Ethical approval for this study was sought and received from St. Catherine University Institutional Review Board #1304.

Interprofessional collaborative practice was assessed with the 2019 student group using a modified version of the IPEC Competency Self-Assessment Tool. The tool was an early iteration of the recent IPEC Competency Self-Assessment Tool (Dow et al., 2014) with 21 questions asking participants to respond on a 5-point Likert scale of strongly disagree to strongly agree. Questions included responses to “I am able to . . .” “work in cooperation with those who receive care and those who provide support or care”; “recognize my limitations in skills, knowledge and abilities”; and “communicate information with families, and team members in a form that is understandable.” See Table 2 for full questions. The recent tool now has initial validity evidence to support its use in IPE experiences (Lockman, Dow, Randell, 2021).

The Beliefs, Events and Values Inventory (BEVI) was piloted in 2019 for feasibility as a tool to assess cultural fluency (Wandschneider et al., 2015). The BEVI is a comprehensive, mixed-method assessment measure which has been in development since the early 1990s and seeks to identify who learns what and why, under what circumstances, by asking a series of questions about beliefs, values and life experiences. The BEVI includes 17 scales (BEVI, 2018). It is based on Equilintegration Theory (EI) which examines how interactions between our core needs and formative variables are internalized over the developmental lifespan; resulting in beliefs and values about self, others, and the world (BEVI, 2018). It also includes three qualitative questions that ask about impact of the experience, aspects of self or identity that became clear as a result of the experience, and how one is different as a result of this experience. See Table 3 for qualitative results of the BEVI.

**Focus groups**

Two post-course focus groups, were conducted with the 2018 student cohort (1.5 years post-experience) and the 2019 student cohort (0.5 years post-experience). Students were recruited for the focus groups via e-mail in September 2019. All students participating in the course were invited to attend in person or by telecommunication. The focus groups were facilitated by two trained graduate students. Following the process of informed consent, the focus groups were audio recorded and facilitators took hand written notes. Students were asked a series of questions aimed at capturing their experience around interprofessional collaborative practice, cultural fluency, and ecological approaches to health. See Table 4 for focus group questions.

**Table 2.** Modified interprofessional competencies assessment tool, used 2019 in Zambia with health profession students.

| 1 | Work in cooperation with those who receive care and those who provide support or care. | 4.5 | 0.5 | 4.7 | 0.4 |
| 2 | Develop a trusting relationship with families and other team members. | 4.5 | 0.5 | 4.6 | 0.5 |
| 3 | Communicate my roles and responsibilities clearly to families, and other professionals. | 3.9 | 0.8 | 4.5 | 0.5 |
| 4 | Recognize my limitations in skills, knowledge, and abilities. | 4.2 | 0.7 | 4.4 | 0.5 |
| 5 | Engage diverse healthcare professionals with complementary professional expertise to develop strategies to meet specific family and child needs. | 3.3 | 0.7 | 4.5 | 0.5 |
| 6 | Explain the roles and responsibilities of other professionals and how the team works together to provide care and services. | 3.5 | 0.7 | 4.5 | 0.5 |
| 7 | Use the full scope of knowledge, skills, and abilities of available professionals and other staff to provide care that is safe, timely, efficient, effective, and equitable. | 3.5 | 0.6 | 4.4 | 0.8 |
| 8 | Communicate information with families, and team members in a form that is understandable. | 4.3 | 0.6 | 4.7 | 0.6 |
| 9 | Avoid discipline-specific terminology when possible. | 3.9 | 0.6 | 4.4 | 0.6 |
| 10 | Express my knowledge and opinions to team members involved in family-child care with clarity and respect. | 4.2 | 0.5 | 4.7 | 0.4 |
| 11 | Listen actively, and encourage ideas and opinions of other team members. | 4.3 | 0.8 | 4.9 | 0.3 |
| 12 | Give timely, sensitive feedback to others about their performance on the team. | 3.7 | 0.7 | 4.1 | 0.7 |
| 13 | Respond respectfully to feedback from others on my team. | 4.1 | 0.5 | 4.6 | 0.5 |
| 14 | Use appropriate, respectful language in a difficult situation such as interprofessional conflict. | 4.3 | 0.6 | 4.6 | 0.5 |
| 15 | Describe the roles and practices of effective interprofessional teams. | 3.5 | 0.7 | 4.7 | 0.4 |
| 16 | Engage other professionals in shared problem solving appropriate to the specific care situation. | 4.0 | 0.5 | 4.6 | 0.6 |
| 17 | Apply leadership practices that support collaborative practice and team effectiveness. | 3.9 | 0.8 | 4.5 | 0.6 |
| 18 | Reflect on my team’s performance for our improvement. | 4.1 | 0.5 | 4.6 | 0.5 |
| 19 | Use strategies that will improve the effectiveness of interdisciplinary teamwork and team-based care. | 3.7 | 0.6 | 4.5 | 0.6 |
| 20 | Perform effectively on teams and in different team roles in a variety of settings. | 4.1 | 0.9 | 4.7 | 0.4 |

aThree students completed posttest only and were excluded

**Analysis**

The IPEC scores were entered into Microsoft Excel (Excel version 2016). Mean values were calculated for each item and summed items. As the survey used was an early iteration, scales were not created. The 2019 post-experience surveys used paired t-test and p-value less than 0.05 to indicate significance. The BEVI instrument is proprietary and therefore analysis was conducted by the BEVI team (BEVI, 2018). Qualitative responses were de-identified by the BEVI team and provided in Microsoft Excel (Excel version 2016). Focus groups were analyzed by two graduate students and validated by independent review by faculty. Discrepancies were discussed and consensus achieved.
Results

In 2018, the additional assessment methods of the IPEC and BEVI were not used as the course was in the pilot stage to assess course content and sustainability. In 2019 (n = 15), the IPEC was given pre and post trip as a way to assess student IPE experiences. The sum score change from 79.3 (std dev = 6.36) to 91.3 (std dev = 6.05) indicated a significant difference from pre-to post trip (p < .0001). This suggests an increase in overall interprofessional competencies gained by the health-care students during the course. The BEVI was only given post-trip to the 2019 cohort group to determine feasibility of distribution and response. Distribution through e-mail was successful and resulted in a 94% response rate. Because pre-experience data was not collected, the complete BEVI results are not explored here as there is no means to determine change due to the course; however, the qualitative results are described for evaluation. The full BEVI results will be made available upon request. Overall, qualitative comments in response to the three open-ended questions support growth in the course student learning outcomes. See Table 2 for BEVI open-ended questions and supporting student comments.

Focus groups

The eleven focus group participants included students from nursing (n = 2), public health (n = 4), education (n = 1), physical therapy (PT) (n = 1) and occupational therapy (OT) (n = 3). Themes identified in the focus groups reflected the content of the questions and included: collaborative team skills, cultural fluency, professional skills, social/structural factors, social justice practice, and understanding of health and health care.

Collaborative team skills

Students identified that working with peers from other academic disciplines brought diverse ideas to the table. Through the course, they learned to value that expertise and it allowed them to step back and let someone else take charge. One participant stated, “We are all experts in our own ways and studying different things. Different lived experiences allows one to connect and bring different perspectives and allows one to see eye to eye.” Participants also developed an appreciation of how the health professions are interconnected. Students identified the need to work together to provide the best outcome for the patient and community. One OT student said, “OT students worked with a PT student and we had to have patience. We had to figure out how to communicate, plan, and work together under time constraints given the situation.” Students emphasized avoiding use of discipline-specific language to enhance team communication.

Cultural fluency

Student participants expressed that while being in Zambia and immersed in a new culture, they had to put their expectations aside, build connections, and be open to new learning. They

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Table 3. BEVI qualitative results.

| Open ended Question | Student comments |
|---------------------|------------------|
| Describe which aspect of the experience has had the greatest impact upon you and why? | I was greatly impacted by working alongside people from Zambia who put so much of their passion and hearts into the work they were doing. It provided a stark contrast to some of my classmates from the US who often became focused on their own needs and struggled to cope with discomforts. Observing children with disabilities in a low to middle income country and the struggles that they and their parents experience has been an eye-opening experience, and has influenced me to find ways to do more to help. Taking part in readings and discussions, and bearing witness throughout the trip. The discussions added depth to things we did or saw and puts things into context. I think this trip allowed me to be more grateful to live where I live. As a homosexual male, I can live freely in the United States, but this is not the case for many Zambians who must hide their sexual identity. This makes me understand the privilege that certain people hold based on their identity and that more needs to be done in order to utilize that privilege for good. My identity as a White person became especially clear and relevant during my time in Zambia. |
| Is there some aspect of your own "self" or "identity" that has become especially clear or relevant to you or others as a result of this experience? | I have learned the importance of cultural humility and what it means to bear witness. I also understand just how much joy it can bring people of other cultures when an outsider attempts to conform to their language and social customs. This experience has completely changed my outlook on daily life. It put into perspective all of the privileges that I never realized I had before and also allowed me to see another culture in its most natural form. Learning more about low and middle-income countries and all of the disparities they experience has really changed my mind-set on how I want to live in the future. I learned that everybody’s story is different and that each story matters and everyone needs to be heard. I am different in the fact that I can see people’s issues in a different light. I can look at things through a lens of compassion or with scrutiny. |
| What are you learning or how are you different as a result of this experience? | |

Table 4. Focus group questions for 2018–2019 student cohort.

| Question | 
|----------| 
| (1) What collaborative team skills did you learn by participating in this IPE course abroad? Provide specific examples. |
| (2) How did being in Zambia shape your understanding of cultural fluency? |
| (3) What from this experience will you bring to your professional life? |
| (4) Describe your understanding of how social and structural factors impact the future of women, children, and persons with disabilities. |
| (5) How did your knowledge and practice of social justice develop from this course? If it did not, explain why. How will you use this information in the future? |
| (6) How did your understanding of health and health-care grow/expand through this experience? How will it, or has it impacted your professional or personal life? |
learned to adapt to the culture and become aware of acceptable and appropriate cultural behaviors. One student stated, “to learn about other cultures and practice cultural humility, I need to be aware of my own cultural practices and beliefs.”

Adaption, finding new ways of doing, and leaving yourself at the door were important concepts that were identified in this theme. One participant stated that it was necessary to “let go of control and just be present because we might have the theoretical knowledge of something, but local community members have the experience, and they live with it.” Students identified ways that the community was able to address its own needs rather than depend on outsiders for help. Students stated they returned home with a new sense of fluency when relating to people from various cultures.

**Professional skills**

Students identified growth in professional skill during this course, including: flexibility, creative problem solving with available resources, collaboration, and thinking on their feet. One participant stated, “a big part of working as a public health professional is being flexible in the way you work and being able to work with different people.” Many participants agreed that they learned to not assume what people want for treatment and the need to meet a person where they are at. A student added “it was a good test to be open to what they [patients or community members] want to tell you and what their home environment is like.” They also emphasized the need to utilize locally available tools and resources.

**Social and structural factors**

Students identified barriers and strengths within social and structural factors and how these factors impacted the experience of disability and health. Key barriers included accessibility, cultural norms regarding disability, lack of economic support for persons with health conditions and disabilities and their families, and lack of follow through with policies that support the rights of persons with disabilities. Student participants discussed how systems are different from the U.S. with many institutions not set up for those with different abilities. One student noted “there is a lot of stigma against people with disabilities. To hear the stories and hear people cry of how they have been treated to have a child with a disability ... it gave me a larger view of the problem.” The students recognized the impact on overall quality of life and health.

Students observed many strengths as well, particularly noting how the mothers in the community have come together to provide support to one another and work to decrease the stigma associated with disability. In addition, students noted that some institutions and schools offered creative opportunities for children with disabilities such as theater, comedies, song, and dance to bring awareness that those with disabilities are people with different needs. Multiple students stated how they admired people trying to give all children (despite differences) the same opportunities.

**Social justice**

The participants’ expressed a strong desire to continue practicing social justice in order to change oppressive systems, but wondered how to do this as individuals. They discussed the importance of working alongside and with communities, so as to not dictate the solution, but to co-create solutions. Social justice skills identified by the students included accepting that not everyone wants to receive help in the same way, putting aside “White savior” thinking, learning to work together as a team and with the community, and to continue to practice cultural fluency. One student stated “this course made me aware that if I wanted to work in other countries-I need to love the people and the culture. It discouraged me from going to a random country to do more harm.” Students all agreed that a new respect was gained for community workers and that the bigger picture needs to be assessed in order to create change within a community.

**Understanding of health and health care**

Student participants broadened their understanding of health in this course. Students indicated that asking the right questions, such as “how far do you have to go for water” were extremely important in the delivery of quality healthcare. They also learned that questions a health professional might normally ask in the US may not be appropriate in another cultural context. The students described the vast differences in resources and health-care delivery between the U.S. and Zambia and struggled with the idea that “something is better than nothing” when often-times, it simply is not enough.

**Discussion**

The purpose of this global IPE course was to improve IPP competencies, cultural fluency and an understanding of ecological approaches to health in a global setting for future professionals. Results suggest positive changes with regard to student interprofessional learning, cultural fluency, and acknowledgment of systems and structures that influence health equity. This was seen in the significant findings of the IPEC Competency Self-Assessment Tool and follow-up focus groups. While the BEVI was used, the results do not provide conclusive evidence as assessment occurred only at one time point. The open-ended questions on the BEVI did provide some insight and indications of improvement in cultural fluency.

**Student learning**

The focus group results aligned with IPEC competencies (Interprofessional Education Collaborative, 2016). Within the theme of collaborative team skills, students highlighted how the experience improved their knowledge and appreciation for the role and expertise of other disciplines and professions. These are key components of IPEC Competencies 1 and 2, which identify mutual respect in collaborative practice and the need to understand roles and responsibilities (Interprofessional Education Collaborative, 2016). As
found that they identified interprofessional Competency increase further (Burden et al., 2017-2020). The positive quantitative results on the IPEC Competency Self-Assessment Tool corroborate the focus group findings in demonstrating significant growth in the key areas identified by the Collaborative (Interprofessional Education Collaborative, 2016): values/ethics for interprofessional practice, roles and responsibilities, interprofessional communication, and teams and teamwork.

Specific course activities also allowed for focus on IPEC core competencies including the nightly discussions and reflections that were facilitated by faculty regarding role delineation and team collaboration within each group’s daily experiences. Bridges et al. (2011), noted in their recommendations for best practice in IPE education that understanding the role and expertise of other disciplines is a key component of interprofessional health-care outcomes. They found that intentionally crafting IPE experiences within a course was key to understanding one’s own profession and how each role is a critical part of the health-care team (Bridges et al., 2011). Cooper et al. (2009) described similar outcomes from their IPE course which related to building respect for and trust with other health professionals which increased perceptions of shared value around goals and teamwork among each team member. This approach supports IPEC Competencies 1 and 2 (Interprofessional Education Collaborative, 2016). Student growth in this course specifically occurred around knowledge of other health professions, how different professions intersect and diverge from each other, and how using this knowledge can allow for increased health outcomes for individuals and communities. Diversity of perspectives was intentionally increased by including both undergraduate and graduate students.

Course outcomes demonstrated that students increased their awareness and practice of cultural fluency, were able to identify specific social and structural influences on health and equity, and expressed commitment to a social justice framework, even if they were not confident in how this could be practiced. In both the focus groups and BEVI open-ended questions, students specifically identified the need to let go of control, actively listen, bear witness, and be co-constructors of solutions for health and wellness. Kako and Klingbell (2019) found in their study of 21 graduate and undergraduate health-care students on a short-term study abroad course to Kenya, that cultural humility and ability to bear witness to “the pain of oppression” (p. 279) was facilitated through intentional experiences with community members and health-care workers. This further aligns with Jones and Pinto-Zipp (2017) findings that addressed cultural fluency and recognized that social and structural determinants of health and equity need to be intentional targets within a course, versus just addressing interprofessional collaborative practice. Using selected readings from Paul Farmer et al. (2013) on bearing witness, human rights, and structural violence, faculty facilitated debrief sessions after work in the communities to enable students to process and reflect on specific social justice and health inequity issues they had witnessed. These intentional conversations, paired with critical reflection, contributed to the short-term student learning outcomes and the long-term goal of educating students to be future professionals dedicated to health equity within an ecological framework.

Finally, data from the three assessment methods indicated that students were beginning to apply an ecological lens to health and wellness. Within the focus groups, students identified that strengths versus barriers within a community can ultimately influence positive health outcomes. This contributes to the current literature stating that focus on a health promotion model versus a deficit-based model is key to strengthening community health and wellness (Guimarães Ferreira et al., 2019). Ezeonwu (2020) described an interprofessional pedagogical approach to delivering primary health care to low resourced global communities in which graduate and undergraduate students worked with and learned from rural villages in Guatemala. She found that students gained skills in cross-cultural communication and ability to identify community strengths instead of deficits. While students in the Zambia course tended to focus on barriers at first, intentional facilitation from faculty and readings around social and structural factors challenged them to think about interventions from a health promotion and participation lens. This is consistent with Guimarães Ferreira et al. (2019) and colleagues’ recommendation for nursing and other health-care students to promote ecological thinking as a way to promote health and wellness.

**Overcoming barriers**

This course addressed some of the barriers identified in previous literature such as scope of practice, attitudinal, faculty preparation, and focus on IPE (Herath et al., 2017; Sunguya et al., 2014). First, the in-country partners played a key part in the design of the course. Ezeonwu (2020) and Kako and Klingbell (2019) also emphasized the importance of in-country partners. In order for students to have meaningful experiences, it was important that faculty members had a clear understanding of what was going on in the community, what activities students could participate in, and what the community partners’ expectations were, so student experiences could be intentionally created. This level of understanding required communication grounded in a strong and trusting relationship with the community partners (Ezeonwu, 2020). The experiences could not be one-sided, but rather needed to support and benefit the in-country partner and community through shared learning.

Secondly, IPE does not just occur because students from multiple professional programs enroll in a course. Facilitating IPEC core competencies requires faculty to create intentional interactions, conversations, and reflections in order for students to leave the course with an understanding of other professional roles, scopes of practice, and how to interact with other professions to improve health outcomes for
individuals and communities. This concept is strongly supported in the literature. Herath et al. (2017), found that academic institutions that provided global IPE experiences that included collaborative teaching and learning facilitated student understanding of the necessity of interprofessional collaboration needed to “face the world’s most urgent health challenges” (p. 4). This concept requires faculty who know and understand other professions and are able to facilitate teamwork and communication which is very different from typical skills required to teach in one’s own department. Finding faculty to consistently facilitate a three-week global course can also be challenging. University commitment is necessary to devote funds for faculty development in high impact teaching practices, such as a global IPP course.

Lastly, with regard to attitudes, it was challenging to facilitate a learning experience that encouraged students’ ability to see community assets as important as the needs and deficits. This is directly linked to IPEC Competency 2 regarding values and ethics (Interprofessional Education Collaborative, 2016). Historically, health-care education has focused on teaching future professionals to identify problems and come up with solutions for those problems (Frenk et al., 2010). This framework is problematic for immersive learning in communities that have different types of resources than students are accustomed to seeing in the U.S. The Zambia course included the ability to describe community strengths and barriers in the student learning outcomes, but this was challenging within a two week time frame. While it was deliberately addressed through nightly reflections and journaling, it will require ongoing reinforcement in other courses in order for students to shift into an asset-based paradigm as health-care professionals.

Limitations

There are a number of limitations within this course assessment process. First, the number of data points and sample size was small, limiting generalizability. The BEVI was feasible, but quantitative results had limited use with only one time point. Focus group attendance was low, particularly for those who were on clinical rotations or graduated. Those who attended may represent selection bias, meaning those more committed to the content were more likely to attend and reflected more positive responses. In order for the course and its activities to be beneficial to both the students and the communities, there were limitations to how many students could enroll. Therefore, class enrollment and measurable impact is limited as well as possibly impacted by self-selection bias.

Conclusion

This mixed methods study triangulated qualitative and quantitative data from three different sources (IPEC, BEVI, and focus groups) and showed that students gained skills and knowledge in the three desired areas: interprofessional education, cultural fluency, and an ecological approach to healthcare. Educating students who are prepared to work as team members, view health through an ecological model, and work effectively across cultures is an important step toward eliminating the health disparities that exist in our communities. University commitment is necessary to remove barriers including economic barriers, rigid programs of study and faculty support to prepare students to eliminate inequities in global health in the future.

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