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Service learning in Guatemala: using qualitative content analysis to explore an interdisciplinary learning experience among students in health care professional programs

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Introduction: Interprofessional collaboration among health care professionals yields improved patient outcomes, yet many students in health care programs have limited exposure to interprofessional collaboration in the classroom and in clinical and service-learning experiences. This practice gap implies that students enter their professions without valuing interprofessional collaboration and the impact it has on promoting positive patient outcomes.

Aim: The aim of this study was to describe the interprofessional experiences of students in health care professional programs as they collaborated to provide health care to Guatemalan citizens over a 7-day period.

Methods: In light of the identified practice gap and a commitment by college administration to fund interprofessional initiatives, faculty educators from nursing, occupational therapy, and physical therapy conducted a qualitative study to explore a service-learning initiative focused on promoting interprofessional collaboration. Students collaborated in triads (one student from each of the three disciplines) to provide supervised health care to underserved Guatemalan men, women, children, and infants across a variety of community and health care settings. Eighteen students participated in a qualitative research project by describing their experience of interprofessional collaboration in a service-learning environment. Twice before arriving in Guatemala, and on three occasions during the trip, participants reflected on their experiences and provided narrative responses to open-ended questions. Qualitative content analysis methodology was used to describe their experiences of interprofessional collaboration.

Results: An interprofessional service-learning experience positively affected students' learning, their growth in interprofessional collaboration, and their understanding and appreciation of health care professions besides their own. The experience also generated feelings of gratitude for the opportunity to be a member of an interprofessional team and to serve those in need by giving of themselves.

Conclusion: The findings support service learning as a platform to encourage interprofessional collaboration among students in health care professional programs. The research will inform future service-learning experiences in which interdisciplinary collaboration is an outcome of interest.

Keywords: content analysis, interdisciplinary collaboration, service-learning, qualitative research

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Introduction

Health care demands and complicated patient conditions require the expertise of multiple professions to yield positive outcomes; therefore, collaboration and teamwork among members of various disciplines are essential in today's health care environments.

An interprofessional approach is an initiative that promotes collaboration with the goal of providing “safe, quality, and accessible patient-centered care.”¹ In 2009, a panel of experts formed The Interprofessional Education Collaborative (IPEC)¹ to identify core competencies common to six professions (nursing, dentistry, public health, osteopathy, medicine, and pharmacology). The group was charged with the task of identifying the similarities and differences between the professions and to develop a statement of competencies that would be used to enhance collaboration between disciplines, with the ultimate goal of providing accessible and quality health care.¹ The IPEC built upon the Institute of Medicine’s previously established core competencies and determined that four domains best described the similarities between the disciplines.¹ Competency Domain 1 speaks to interprofessional values and ethics; Competency Domain 2 refers to roles and responsibilities; Competency Domain 3 addresses interprofessional communication; and Competency Domain 4 refers to teams and teamwork.¹ Each domain is linked to learning objectives and activities.

Health care professional education programs are urged to adopt the competency domains to prepare and encourage students to appreciate the concept of interprofessionalism, with the ultimate goal of demonstrating this competency when they enter the work force.² The relationship between interprofessional collaboration and enhanced awareness of each other’s roles in promoting improved patient outcomes has been described in the educational literature for more than 30 years,^{3–10} and most recently was reiterated by the IPEC¹ and the World Health Organization¹¹ as an essential step in preparing a collaboration-ready workforce that is able to respond to the health care needs of the population. In reviewing educational outcomes for nursing, occupational therapy (OT), and physical therapy (PT) professional programs, objectives that were consistent with interprofessional collaboration and communication were also identified. In 2008, guidelines outlined in the American Association of Colleges of Nursing’s *Baccalaureate Essentials* documents the importance of communication and collaboration,¹² and in 2012, a wider focus on interprofessional educational efforts to promote communication and collaboration as a means for improving patient health outcomes was reiterated in a white paper document published by the American Association of Colleges of Nursing.¹³ This sentiment was echoed in the American Occupational Therapy Association’s *Centennial Vision* statement, which called for professional education for occupational therapists to include collaboration and a sense of collectivism in order to improve the

quality of health care services.¹⁴ Finally, the Commission on Accreditation in Physical Therapy Education includes a curriculum expectation for inclusion of learning activities to address the development of professional behavior and collaboration in interactions with other health care providers.¹⁵ Collaboration is also enhanced by highlighting the similarities among disciplines; and when clear communication is promoted, patient errors are prevented or minimized. In addition, there are increased productivity and job satisfaction.¹⁶ In an article by Petri,¹⁷ the author explains that interprofessional education must precede interprofessional collaboration efforts. A growing number of health care professional education programs are engaging students in domestic and international service-learning activities as a way to promote interprofessional relationships. Evidence suggests that interprofessional service-learning projects enhance students’ communication skills and increase their appreciation of other professions.¹⁸

The respective health care professional associations have documented the knowledge, skills, and attitudes necessary to meet the IPEC competencies, and all support the value of an interprofessional approach as the most advantageous format to achieve successful patient outcomes. However, the implementation of a truly interprofessional approach is a work in progress. This identified a gap in practicing collaboratively: a strong commitment by the administration and faculty of the health care professional programs at our university supported an initiative to conduct a study of students’ perceptions of interprofessional collaboration and teamwork during a service-learning experience.

Methods

Aim

The aim of this study was to describe the experiences of students in health care professional programs from nursing, occupational, and physical therapy disciplines as they collaborated to provide health care to marginalized Guatemalan citizens over a 7-day period.

Research question

What is the experience of interprofessional collaboration as a nursing, occupational, or physical therapy health care student taking part in a weeklong service-learning experience?

Procedure

This service-learning experience was partially funded by a college research grant, and the four faculty members who participated in this project were awarded three credits of release

time during the year of the experience. The faculty represented three health care professional programs within the college of health professions: one faculty member was from nursing, two were from occupational therapy, and one was from physical therapy. The year prior to the student experience, the four faculty members traveled to Guatemala to perform a needs assessment in an effort to determine the appropriateness of an interprofessional service-learning project and the potential health care needs of the community. This trip (as well as the subsequent trip) was coordinated with a local Guatemalan missionary church representative and included visits to publicly funded extended care facilities, malnutrition centers, and a temporary maternity clinic. The results of the needs assessment provided the platform for developing student-learning objectives, with the focus on promoting awareness of each discipline and working in small interprofessional teams.

All matriculating students in the three professional programs were given the opportunity to apply to participate in the service-learning experience. Students were informed of the trip objectives and expectations, and were required to write an essay justifying their participation. By design, six students from each program were selected and placed in six interprofessional triad groups; each triad included a faculty member as part of the team. An additional nurse faculty member and a nursing student who had previously traveled to Guatemala were recruited so that all groups would have supervisory support from each program. Two pre-trip group meetings were held to (1) inform students of the trip objectives and expectations, including the university's affiliation with the host church in Guatemala; share Guatemalan culture; (2) discuss trip safety; (3) engage in team-building exercises to promote group cohesion and trust; and (4) share, compare, and contrast specific professions' similarities and differences.

During the trip, faculty and students met each evening for a debriefing session. Two faculty members facilitated the discussions to give the students the opportunity to share experiences, thoughts, and emotions, and to discuss the plan for the next day. The data from the debriefing sessions will be analyzed for a future research project.

As part of the reflection process, the students were expected to journal every day about the day's events. Sample questions or themes the students reflected on were:

- What challenged you today?
- What surprised you today?
- Describe one indelible memory you experienced today.
- What happened today that changed your perspective, and why?

- What challenged you today (good or bad) when working in your triad?
- Describe an emotional event (happy or sad, grateful, etc) that occurred today.

The resulting data from the student journals were analyzed for this study.

A post-trip meeting was held 1 month after our return, to give the students and faculty the opportunity to share their thoughts and experiences and to promote closure on the experience. The information gathered post-trip also served to check that the preliminary narrative results reflected the students' perspectives related to the experience of interdisciplinary collaboration.

Participants

Following approval by the university's institutional review board, a convenience sample of 18 students in health care professional programs chosen to participate in the service-learning experience was invited to participate in this study. All students elected to participate, and 18 informed consents were obtained during an initial pre-trip meeting. Students were aware that they could withdraw from the study at any time without affecting their role in the service-learning experience. All students agreed to participate in the research process. Six students were junior-level undergraduate nursing students, six were occupational therapy students, and six were physical therapy students. All were concurrently enrolled full time in the university and in their respective graduate programs. Seventeen students were female, and one student was male. Approximately 50% had traveled internationally and/or participated in service-learning initiatives.

Design

A qualitative research design was used to explore the experience of interprofessional collaboration among students in health care professional programs taking part in a service-learning initiative. An inductive approach supported the acquisition of knowledge, because information about the concept is limited.^{19,20} Content analysis methodology was used to guide the development of knowledge about the meaning of interprofessional collaboration among students in health care professional programs. Content analysis is "a systematic and objective means of describing and quantifying phenomena"²¹ in which the words of text are classified into smaller units that relate to a central meaning. Participants provided written narratives during the service-learning experience to respond to the research question. Students were encouraged to submit their narrative journal entries at the end of the day, after the

group had met for dinner. Confidentiality was maintained by removing identifying characteristics of the participants' entries when the narrative data were imported into ATLAS.ti Qualitative Data Analysis (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany)²² a qualitative software program for analysis.

Ensuring trustworthiness and rigor in the analysis

Criteria other than reliability and validity are useful in evaluating qualitative research; these criteria include credibility, confirmability, and transferability of the findings, as described in Lincoln and Guba's classic text, *Naturalistic Inquiry*.²³ By adhering carefully to the phases and supporting steps outlined in conducting content analysis as a method to support qualitative inquiry about the research topic, and by seeking agreement among co-researchers for the study and data analysis, credibility, or truth value, was achieved.

Confirmability, or trustworthiness, of data was assured through the use of an audit trail.²³ A complete listing of the written narrative data, supported by open coding notes and categorization of data, was provided for review to a faculty peer who confirmed his or her agreement and support of the result findings. Transferability, or fittingness, refers to the probability that the research findings have meaning to others in similar situations; however, the determination of whether the findings fit is the responsibility of the users of the findings.²³ Transferability was achieved through the use of quotations to support the research findings. Thoughtful attention to each criterion helped to enhance the quality of these qualitative research findings.

Data analysis

The narrative text was imported into ATLAS.ti²² to aid in data management and analysis. The researchers adhered to the three phases used in content methodology: preparing the data, organizing the data, and reporting the data.²¹ In each of the three phases described below, it is important to note that the steps describe a linear process; however, "the process involves a back and forth movement between the whole parts and the text."²⁴

Preparing the data

The researchers read the narratives several times to gain a sense of meaning of the data as a whole. The unit of analysis for this research study was the narratives in their entirety.

Organizing the data

Using an inductive approach to guide the analysis, the researcher used open coding to identify headings that fully

described all aspects of the units of analysis described in the narrative. According to Graneheim and Lundman,²⁴ authors have used various alternative terms for units of analysis, including meaning units, idea units, content units, coding units, keywords and phrases, and themes. Regardless of the term used, the understanding is that the units are "words, sentences, or paragraphs containing aspects related to each other through their content and context."²⁴ ATLAS.ti²² allowed the researcher to highlight the words or sentences that fit together or belonged under the researcher-identified headings.

In a sequential step, the units of analysis were listed with their respective headings and reviewed to confirm that the data belonged to a particular group. Identified headings and respective content units were broadened to reduce the number of categories.^{21,25-27} Table 1 illustrates how the categories were broadened to reflect the concept of interest.

Reporting the data

The researchers categorized (modeled) the data to reflect a greater understanding of the topic. Initially, the first researcher derived eight categories or headings. Another member of the research team reviewed the categories, and after careful discussion and collaboration, the two researchers decided that of the original eight categories, three could be combined into one and that four should not be included in the analysis because the units did not reflect interprofessional collaboration.

Results

Four categories were included in the final analysis to promote knowledge development related to the experience of providing interprofessional care as described by students in health care professional programs. The four derived categories are described below, along with examples to further illuminate the qualitative data, thus informing the experience of providing interprofessional health care during a weeklong service-learning initiative.

Category I: awareness of professional roles

In pre- and intra-trip narrative data, students described commonalities among the roles of nurse, occupational therapist, and physical therapist, and wrote about lack of awareness of each discipline. This category was derived from 22 units of text. An understanding of role differences was noted when an OT student described her actions and the actions of the registered nurse (RN) students in her triad:

Table 1 An example of content units and initial and final heading content units

Content units	Initial headings	Final heading
The nursing student assessed a boy with low tone, and asked me to help as the OT student, because OT is more knowledgeable in this role. After I did my care, the nurse listened to the boy's lungs and then allowed me to use her stethoscope to listen as well.	Awareness of role differences	Awareness of professional roles
It was challenging to learn a new set of skills for the lower extremities. With the help of a PT student, I was able to assist the child with hypertonicity to fully extend his legs.	Awareness of role differences	Awareness of professional roles
I wish that physical therapy students could take BPs and listen to heart and lungs, which is within our scope of practice and also that of nursing.	Role overlaps	Awareness of professional roles
A lot of times an artificial line is drawn between the scope of OT and PT practice, but there is overlap. There is also overlap between PT and nursing, in that both groups work with patients with medical problems.	Practice overlaps	Awareness of professional roles
I observed that PT and OT both knew the same assessments to use, for example, when checking reflexes and developmental assessments.	Practice overlaps	Awareness of professional roles

Abbreviations: BP, blood pressure; OT, occupational therapy; PT, physical therapy.

The RN students identified low tone in a little boy who had pulmonary complications, and the RNs asked me to come over. I showed them several strategies to promote sensory stimulation, and the interventions worked very well. Then I asked the RNs to show me how they assessed his lungs. They explained the boy's condition and then let me listen with their stethoscope. It was neat to co-treat and to learn from each other. We then worked together to position him appropriately in his bed to avoid exacerbating a red spot noted on the back of his neck.

An appreciation for shared values related to professionalism, ethical principles, and patient advocacy was also discussed. A student stated, "It is interesting to note how the wording between the three disciplines is different [referring to standardized program outcomes], yet they all say essentially the same things." Students' views about role differences and similarities, as well as their concerns about their lack of awareness of the other professional roles, were clearly described. In addition, several of the text units in which students described working together but practicing within their respective roles were also coded under the category of collaboration.

Category 2: collaboration leads to trust among peers and goal achievement

Under the category of collaboration, the value derived from working together was described, as were perceptions of the potential for the lack of collaboration among triad members. In the pre-trip narrative texts, one student wrote, "It will be interesting to see how we communicate and share our different roles; I am worried about departmentalizing ourselves to the extent that little collaboration will take place and

communication between groups will be poor." Another was unsure how the triads would work, but voiced excitement about working alongside her student peers.

During intra-trip texts, students described experiences in which they felt willing to let the other disciplines step in, and experiences in which a similar viewpoint about patient care helped the triad function effectively. A few others talked about being surprised at how well the group members worked together, and described this as "something that came naturally, because we were already aware of what each discipline does in practice." One student wrote that trustworthiness would promote collaboration: "By listening and being open to each other and trusting that our intentions are to help each other, we will build rapport and collaborate to put the client first to meet goals that are overlapping and beneficial." Students also described confidence in their interventions to improve muscle tone, minimize skin breakdown, and promote food intake, and appreciated that their collaborative efforts benefitted the patients. For example: "It was just so neat to co-treat and learn from each other." The value of collaboration was echoed by another student, who wrote:

Everyone was focused on the patient and very keen on sharing ideas about how to best approach each scenario. It was amazing. I think that having been on this type of service trip with an interdisciplinary team will make us all better clinicians, as we will have a better appreciation and respect for what the other disciplines do.

A sense of pride in their work as students shared their discipline-specific intervention skills was also noted in the narrative texts. In total, 19 units of text were categorized as describing collaboration.

Category 3: role competence results from providing care

The category of role competence was derived from 18 units of text. In six pre-trip narrative units, students described feeling nervous that they might be less competent than peers from one or both of the other disciplines or that collaborating with other students in health care professional programs might be challenging because health care delivery might overlap and student peers might not know the full scope of each other's practices. The majority of textual data was derived from intra-trip texts citing specific examples of clinical practice in which students felt competent. In several statements, pride and surprise at their ability to implement interventions appropriately and independently were noted. As students reflected on the events, they described feelings of role competence. For example: "For the first time today, I feel like a therapist and a caretaker. I implemented interventions independently, appropriately, and safely." Or: "I am very proud to apply all that I have learned in class to make a difference, and to trust that I had this knowledge. I realize that I know a lot more than I thought I did."

For many students, the clinic experiences were busier than their stateside clinical experiences, and students were able to practice with a greater sense of independence in their role. As students described their feelings about the care they provided, role competence as a category was supported.

Category 4: gifts received from providing service

The final derived category, gifts received from serving, had several text units that overlapped with previously described categories in which students referenced the value of collaborating as well as taking pride in their ability to provide safe, independent interventions. As an example, a student described pride from collaborating with a peer, but also averred, "It is amazing that this type of service trip will make me a better clinician in the future and I/we will all have a better appreciation for what other disciplines do." During 2 days of the trip, students collaborated in their triads, measuring and assembling wheelchairs and fitting them to children of varying ages and conditions to take home. Students described working together and providing discipline-specific interventions during the process of measuring, and then confirming that the wheelchair fit the patient. They also described feelings of gratitude and benevolence when family members thanked God and the students for helping to change the life of their family member.

Students described competence in their role as a health care professional student and in the personal growth that took place as a result of their attending the service-learning initiative. This growth is best exemplified in the following quote:

I have grown in countless ways. Intellectually, I have learned about child development, positioning, wheelchair fitting, and the importance of proper communication. I have grown emotionally by having met the people I met this week and for the places I have visited and the people that I have provided care for and with. I have grown spiritually and am reminded of how blessed I am for the gift of the life that I live. I am inspired by the love and generosity from the church and their volunteers, and their motivation and dedication. This is an experience that will remain with me always.

Many described the internal benefits derived from giving of oneself, and a student who shared this sentiment best exemplified it in the words "I am forever changed because of this trip. Working toward a common goal and collaborating has been an enriching experience, and this week has been, by far, the most rewarding week of my life."

Discussion

The service-learning initiative to provide supervised care to marginalized Guatemalan men, women, children, and infants was developed to promote interprofessional collaboration and awareness among nursing, occupational therapy, and physical-therapy students in health care professional programs attending a private Catholic university in the New England area. Qualitative content analysis revealed four major themes: awareness of professional roles, collaboration leads to trust among peers and goal achievement, role competence results from providing care, and the gifts received from serving. The experience had a positive effect on students' learning, their growth in interprofessional collaboration, their understanding and appreciation of health care professions besides their own, and their feelings of gratitude and appreciation for the opportunity to be a member of an interprofessional team and to serve those in need by giving of themselves.

Discussions are underway to formally develop college-wide curricular outcomes to enhance stateside clinical learning experiences and grant a service-learning diploma to graduating students. Future clinical experiences will be evaluated to explore quantitative measures of professional growth and commitment to collaboration among students in health care professional programs.

A small sample of students in health care professional programs who expressed an interest in traveling internationally

to provide interprofessional care limited the generalizability of the research findings. While the immersion experience was only one week long, the need to conduct focused qualitative research to generate knowledge about interprofessional collaboration among emerging health care professionals counterbalances the limitations of this study. The findings serve to heighten interest for educators seeking to develop experiential learning initiatives in which the topic of interest is interprofessional collaboration as a means to prepare students to meet new practice standards, in order to provide collaborative, patient-centered health care across a variety of disciplines in a variety of settings. Future initiatives may support extended immersion experiences or repeated experiences with greater numbers of students in health care professional programs.

Conclusion

In response to the call to prepare health care professionals who value collaboration as a means to achieving optimal patient-care outcomes, combined with college administrative support to develop an initiative to promote collaboration, an innovative service-learning initiative was developed and implemented in which students in health care professional programs from nursing, occupational therapy, and physical therapy programs collaborated in intentionally designed triads to meet the diverse health care needs of impoverished Guatemalan citizens. A service-learning philosophy provided the framework for the initiative. The results of a qualitative study of the students' reports of their experiences can be used to inform future service-learning initiatives in which interprofessional collaboration is the focus of the research. Collaborative opportunities to promote interdisciplinary collaboration and professional development of veteran practitioners are also warranted.

Disclosure

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