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# Interprofessional Service Learning in the Dominican Republic to Promote IPEC Competencies

Megan C. Lieb

Christina Liebrecht

According to the Institute of Medicine, “all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team”. Patient care is multifaceted, transcending any one discipline. The key to improved patient outcomes is collaborative practice. Service learning is one educational opportunity which allows students to work in partnership with learners from other health related disciplines to deliver care in underserved communities, and develop much needed competency in interprofessional collaboration. A mixed methods study was conducted to determine if participation in an interprofessional service learning experience will positively affect student achievement of interprofessional competencies. The IPEC Competency Self-Assessment survey was used in a one-group pretest-posttest design with a sample of students who participated in an international, interprofessional service learning experience in the Dominican Republic. Significant differences were identified in both the interaction domain and values domain, supporting the use of service learning to develop interprofessional competencies.

According to the Institute of Medicine (IOM, 2003), “all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team”. Patient care is multifaceted, transcending any one discipline or health care profession. Interprofessional Collaborative Practice (IPEC) recognizes the key to improved patient outcomes is collaborative practice. There is a need to prepare health profession students who are equipped with interprofessional skills to enter the complex health care environment.

Interprofessional education (IPE) is defined as intervention which allows members from more than one healthcare or social discipline to learn together (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). The explicit goal is to improve interprofessional collaboration (IPC) or the health and wellbeing of the patient, or both. Service learning is one educational opportunity which allows nursing students to work in partnership with learners from other health related disciplines to deliver care in underserved, vulnerable communities, and develop much needed competency in IPC (IPEC, 2011, p. 29). In service learning experiences, students are able to utilize the decision-making process to foster collaborative care and facilitate student learning, practice, and enhancement of their skills as members of interprofessional teams (Dacey, Murphy, Castro Anderson, & McCloskey, 2010). Care provided in service learning experiences maximizes a focus on patient-centered care, occurring within the patient’s community. An interprofessional approach allows for sharing of knowledge, experience, and ideas among students from varied disciplines to provide patient-centered care.

While a large body of literature supports the idea that IPC improves patient outcomes, there is a lack of research on how to prepare students to be active members of an interprofessional team. The purpose of this mixed methods pilot study is to determine if participation in an interprofessional service learning experience will positively affect student

achievement of interprofessional competencies. Because service learning has been recognized as an effective learning strategy which allows students to learn from each other and collaborate to improve health outcomes of a population, it is beneficial to gather both quantitative and qualitative data on the effects of IPC on healthcare students who engage in a service learning experience.

### **Review of Literature**

The initial, focused literature search rendered 30 articles. Of the 30 articles, seven articles were retained. Targeted key word searches and review of relevant citations yielded 27 additional articles. A total of 57 articles were appraised using inclusion and exclusion criteria. A large number of articles offered frameworks or models for incorporating interprofessional educational experiences into curriculum. Additionally, several articles were not original research or offered concept analysis. A review of relevant citations revealed one systematic review which appraised fifteen studies, seven of which were randomized control trials (RCTs) and measured the effectiveness of IPE. No systematic reviews examining interprofessional collaboration and service learning were identified. A total of 11 articles were used for the literature review.

### **Definition of Collaboration**

The IPEC *Report of an Expert Panel* uses the World Health Organization operational definition for interprofessional collaborative practice which is defined as “when multiple health workers from different professional backgrounds work together with patients, families, carers [sic], and communities to deliver the highest quality of care” (World Health Organization, 2010). Kinnaman and Bleich (2004) identify the hallmarks of collaboration as knowledge contribution, equal distribution of power, and a shared focus on achievement of best outcomes regardless of

discipline. The authors note the uncertainty of the relationship between actions and outcomes create an effective environment for the development of collaboration.

### **Themes from the Literature**

#### **Teamwork**

Overall, components of teamwork emerged throughout each of the studies. Students narratively reported increased trust and respect for one another (Arenson et al., 2015; Bentley, Engelhardt, & Watzak, 2014; Buff et al., 2015; Marcus, Taylor, Hormann, Walker, Carroll, 2011; Reeves et al., 2013). In another study, physical therapy (PT), occupational therapy, and nursing students recognized the need to respect one another to meet the ultimate goal of proper care and healing for the patient. An increased recognition and appreciation of one another's roles, scope of practice, and demands of fellow student's disciplines was also illustrated through written reflections (Arenson et al., 2015; Marcus et al., 2011). Quantitative data gathered from Attitudes Toward Health Care Teams survey indicated improved attitudes towards collaborative care (Arenson et al., 2015). Students who participated in an IPE workshop demonstrated improved attitudes, skills, and confidence when working together as a team (Erickson, Blackhall, Brashers, & Varhegyi, 2015). Enhanced team behaviors, role appreciation, and effective communication is reflected in higher quality, patient-centered care delivery. Shared experiences support the recognition of the importance of the role each student plays in achievement of positive outcomes (Rainey & Gifford, 2016).

#### **Communication**

Communication processes were improved through collaboration of multiple health care students. At times, student felt communication was "forced" (Bentley et al., 2014). Others

reported the interprofessional experience facilitated the development of skills to communicate with others (Bentley et al., 2014; Bridges et al, 2010; Dacey, Murphy, Anderson, McCloskey, 2010). Communication and delegation of roles were identified as key features of teamwork (Bridges et al., 2014). Through quantitative RIPLS scores, Kolomer, Quinn, and Steele (2010) found social work and nursing students placed value in learning interdisciplinary communication. Studies which occurred over weeks identified a need for students to document and communicate documentation findings to one another (Matthews et al., 2012). A team notebook was utilized to allowed students to see how and what other disciplines documented. Reeves et al. (2013) identified improvements in patient-centered communication, which overlaps with another theme identified: patient-centered care. Educational requirements regarding communication and empowerment are recommended for health care providers to improve patient outcomes (NGC, 2016).

### **Confidence**

Students recognized increased confidence in their interactions with other health care professional students (Bentley et al., 2014). Through interactions with other professions, students felt more comfortable in their ability to approach one another and reported increased confidence in their discipline's value and contribution to care (Bentley et al., 2014). Dacey et al. (2010) found an increased confidence to function in their professional role on an interprofessional team. Together with reported increases in confidence through interprofessional interactions, students also reported more confidence in time management and clinical skills (Matthews et al., 2012). Seif et al. (2014) identified a link between increased perceived clinical reasoning skills and IPC.

The authors emphasized the survey assessed self-perceived perceptions which may correlate with increased confidence.

### **Patient Outcomes**

Regardless of the setting, many studies found positive patient outcomes. A group of nine health care students (nursing, public health, and medical students) met a clinical component of a interprofessional service learning course through field audits. Through the study, community members were spurred to continue addressing issues, such as monitoring school lunches and making recommendations for more appropriate options (Marcus et al., 2011). The need for interprofessional collaboration to improve healthcare delivery and improve wellness for patients was recognized through analysis of reflective journals (Matthews et al., 2012). A general theme of improved patient care delivery was recognized by Reeves et al. (2013) in a systematic review.

### **Patient-Centered Care**

One unexpected outcome was the students' shifts in perspective. Students delivered more patient-centered care as their focus transferred from the patient's illness to the patient's experience (Arenson et al., 2015). Students enjoyed the opportunity to problem solve through collaboration (Bentley et al, 2014). Furthermore, students placed increased value on patient-centered care and IPC improving than on their own roles (Buff et al., 2015). A noteworthy statistic was a significant negative correlation between professional identity (referred to as the "silo effect") and patient-centered care (Dacey et al., 2010). This finding demonstrates students who value their own profession more highly than others were less likely to be patient-centered. Following the IPC experience, there was no longer significant correlation identified between the professional identify and patient-centered care. Besides learning teamwork and enhanced respect

for one another's roles, students showed increased respect for community members and increased focus on patient perspectives of significant social and health issues (Marcus et al., 2013). Reeves et al. (2013) recognized improved patient outcome through systematic review of studies focusing on improving diabetes care and improved clinical outcomes. Person- and Family-Centered Care Guideline makes a recommendation that feedback be solicited from the patient to determine if care is patient-centered and to evaluate the patient's satisfaction with care (NPG, 2016).

### **Summary**

The findings from the review of literature support the core competencies identified by IPEC (2011): values and ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork. The use of service learning has the potential to help students achieve interprofessional competencies to improve health and wellbeing of patients.

### **Sample**

The pilot study for this project occurred within a small, private university in Northwest Ohio. Participants included sophomore, junior, and senior level nursing students enrolled in a Bachelor of Science in Nursing (BSN) program and third, fourth, and fifth year pharmacy students enrolled in a Doctor of Pharmacy (PharmD) program, total n=13. Of the participants, 83% were female and 17% were male with all participants identifying their ethnicity as Caucasian. All subjects had participated in at least one prior interprofessional education experience within their education program.

### **Method of Evaluation**

A variety of tools have been used to examine and measure benefits of interprofessional education, but tools to measure outcomes are lacking. The Interprofessional Education Collaborative (IPEC) Competency Self-Assessment survey created by Dow, DiazGranados, Mazmanian, and Retchin (2014) is comprised of a 42-item questionnaire to assess program outcomes related to collaborative practice. Validity of this tool was established using the IPEC competencies. The tool was developed in an effort to assess program outcomes and how effectively a program is training health science majors on the collaborative competencies.

SPSS software was used to examine for outliers and item normality. Bartlett's test of sphericity was used and was significant. The Kaiser-Meyer-Olkin measure was .98 which tested sampling adequacy was above the recommended value of .6. Cronbach's alpha was used to assess for reliability. The four domains of each IPEC competency (teams and teamwork, values and ethics, roles and responsibilities, interprofessional communication) were also assessed via exploratory factor analysis and means and medians were calculated. Each domain had high internal consistency with alphas ranging from .96-.98 and the variance between domains accounted for 79% of variance in data.

A second study was published by Lockeman et al. in 2016 which refined the IPEC Competency Self-Assessment survey. After testing the initial tool through three additional studies, the survey was shortened to 16 items to allow for easier usability while maintaining psychometric strengths of the original tool. The shortened 16 item tool was used for this study.

### **Procedure**

The study methodology was a one-group pretest-posttest design with a sample of students who participated in an interprofessional service learning experience. Data was collected via an

online survey tool prior to the experience and immediately following the trip debriefing session. All students participated in the planning and implementation of an international medical mission experience in the Dominican Republic. Prior to the experience, participants voluntarily completed the IPEC Competency self-assessment tool. Participants then spent one week as part of a health care team providing primary care to Dominican people at four mobile clinics in different rural barrios throughout the Dominican Republic. During each barrio clinic, students helped to set up each station including a triage area, physician examination area, pharmacy, and donation and education area. All students participated in each component of the barrio clinics by providing direct patient care, assisting with assessment, observing physician examination, filling prescriptions under the direction of a licensed healthcare professional, and interacting with patients and families. At the end of the week, all members participated in a debriefing session. During the debriefing session, student thoughts and feelings about the medical mission experience were explored, roles and responsibilities of each member of the healthcare team were discussed, communication and interaction techniques were analyzed, and new insights into the interprofessional service learning experience were shared. Following the debriefing session, students voluntarily completed a post-trip IPEC Competency self-assessment survey including two open-ended qualitative questions.

### **Data Analysis**

The SPSS (Statistical Package of Social Sciences) 23 program was used to evaluate the data derived from the IPEC self-assessment tool. Descriptive statistics including means were calculated for each item on the survey for the group. Analysis involved paired *t* tests that

compared participants' outcomes before and after the IPE mission experience. Paired *t* testing was selected due to the use of a dependent, within-subjects participant group.

## Results

### Quantitative

**Interaction domain.** Analysis of the IPEC survey results identified significant increases in student self-assessment of several IPEC competencies following the service learning experience. Within the survey, the odd-numbered questions comprise the interprofessional interaction domain, while the even-numbered questions comprise the interprofessional values domain (Dow, DiazGranados, Mazmanian, & Retchin, 2014). Following participation in the interprofessional service learning experience in the Dominican Republic, students identified significantly improved communication tools and techniques ( $p=0.003$ ), ability to engage in problem-solving behavior ( $p=0.004$ ), informed care decisions ( $p=0.002$ ), leadership practice application ( $p=0.001$ ), constructive disagreement management ( $p=0.000$ ), use of effective teamwork and team-based care strategies ( $p=0.001$ ), use of evidence to inform care practices ( $p=0.004$ ), and understanding of expertise of healthcare professionals ( $p=0.033$ ).

**Values domain.** Following the experience, students self-identified improved ability to embrace diversity ( $p=0.002$ ), increased respect for cultures and values of other health professions ( $p=0.013$ ), and development of trusting relationships ( $p=0.006$ ). Refer to Table 1 for the complete list of IPEC survey results.

### Qualitative

**Debriefing focused reflection.** Students were asked to reflect on the experience collaborating with other healthcare students, physicians, and healthcare providers. The reflection

discussion was transcribed for later analysis. Utilizing the three steps of analysis as identified by Ary et al (2014), findings from the focused debriefing reflection were organized, coded and reduced, and results were interpreted by the researchers. The central aspects were identified and analyzed to illuminate common themes. Common themes were then compared to the IPEC competencies to determine differences, similarities, and key patterns. A common theme of respect emerged. Students shared they were very impressed with the amount of knowledge their peers from differing disciplines demonstrated. One student commented “I was blown away by what the nursing students knew about medications”. Another student commented on observation of a nursing instructor collaborating with a pharmacy student. The pharmacy student shared knowledge with the nursing instructor, who trusted the student’s knowledge and moved forward without questioning. The opportunity to observe role-modeling of interprofessional behaviors was beneficial. This theme aligns closely with Kinnaman and Bleich’s (2004) inclusion of knowledge contribution, equal distribution of power, and shared focus on improved outcomes as key characteristics of collaboration.

A second theme which emerged was communication. Students emphasized the importance of verbalizing appreciation for each other and other disciplines as essential to building strong teams. Many students verbalized recognition of the fact that every person has something to contribute to care, regardless of background. Throughout the week, students acknowledged improved communication among the team members as they began to better understand their own role and the roles of others. This improvement in communication may have also been enhanced through immersion with other team members throughout the experience.

Additionally, although language barriers existed, students felt they were able to connect on a deeper level with patients because of the community-based setting.

Students made several comments regarding their interaction with physicians in a service learning environment. Students felt physicians were more willing to teach and seemed to value nursing opinion more in the community setting than in a typical hospital setting. Overall, students agreed the experience was valuable and changed the way they will care for their patients in future practice.

**Survey open-ended questions.** Two open-ended questions were incorporated into the post-trip IPEC self-assessment survey as follows: 1) In what ways are interprofessional teams essential to quality patient care delivery? and 2) How has this service learning experience changed your perceptions about interprofessional care delivery? For question, one, students identified interprofessional teams are essential to deliver care that is patient-centered, effective and efficient, and supportive of improved patient outcomes. Two additional response themes were improved valuing of the special skill sets, knowledge, and perspectives of other healthcare team members and improved communication. One student stated, “The mixture of nursing, physicians, and pharmacy was vital to effective and efficient patient care allowing us to serve as many patients as possible”. Another student noted “well rounded care is essential for the overall health of a patient on a continuous basis”. For question two, students identified this experience changed their perceptions about interprofessional teams through increased understanding and respect of one another’s roles, importance of a whole team approach and collaboration, and improved and effective communication. An unexpected finding was an increased ease in asking for assistance from other healthcare team members with different skill sets. One student stated

that this experience “opened my eyes about how many skills one profession has...I feel more comfortable asking others with different skills for help to further improve patient care”. Another student noted “I learned that different disciplines bring various experiences and knowledge to assist in patient care. Communication was improved by interacting with other disciplines. I gained more respect for other disciplines”.

### **Discussion**

Significant differences were identified in both the interprofessional interaction domain and the interprofessional values domain. Participation in an interprofessional healthcare team experience in a real clinical setting promotes the development of critical IPEC competencies. Teamwork, decision making, communication, and interaction can be experienced and strengthened through participation in an interprofessional service learning experience. This hands-on participation supports the development of teamwork and collaboration as well as increased knowledge and value of specific healthcare team roles and responsibilities.

Some categories that did show improvement but did not meet significant levels included ability to maintain confidentiality, demonstrate high standards of conduct, ability to act with integrity and honesty, and ability to maintain competence in one’s own profession. Student responses on the pre-trip IPEC survey were already rated at a high level. The slight increase on the post-trip survey was not a significant finding on these categories. This may be attributed to the professional and ethical training which is part of each discipline’s education curriculum.

The four competency domains identified by IPEC are values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork (IPEC, 2011). Qualitative analysis of open-ended questions and the debriefing focused reflection

consistently identified the positive impact of an international interprofessional service learning experience on the development of these competencies. Communication and interaction strategies, respect for other healthcare disciplines, appreciation for other skill sets and knowledge, and recognition of the importance of interprofessional team-based care are essential to support the provision of patient-centered, effective, efficient care and improved patient outcomes. IPEC supports the use of an interprofessional, clinical setting for practical learning, practice change, and patient-centered outcomes as a student learning experience. The incorporation of a service learning experience into healthcare education curriculum as a valuable pedagogical strategy to increase development of interprofessional competencies should be considered.

### **Implications for Practice**

This experience demonstrates the positive impact of a service learning, interprofessional healthcare team experience on the development of IPEC competencies. Because students are delivering care within the patient's own community, a focus on collaborative, patient-centered care is developed and reinforced. This approach allows students to share discipline specific knowledge and skill sets, unique experiences, and a myriad of ideas and perspectives.

Participation in a service learning, interprofessional healthcare team experience promotes the breakdown of barriers between disciplines. Participants develop a greater understanding of and value for the unique knowledge and skill sets provided by each team member. This breakdown of barriers translates into improved communication and collaboration as well as the ability to utilize each other as valuable and needed resources.

Interprofessional collaboration is accepted by the IOM as an essential component to improve accessibility, quality, and value of the healthcare experience. Improved communication and teamwork can lead to safer, more efficient patient care and overall improved outcomes. Students who experience interprofessional activities in a classroom setting only may face challenges translating interprofessional experience into the practice environment. Participation in a practice-based setting, service learning experience as part of an actual healthcare team can be the key to developing collaborative, respectful healthcare team members.

An international mission trip to a third world country supports the development of collaboration by providing an environment of uncertainty, altered organizational boundaries, and hierarchies with minimal constraints, fewer limitations, and finite resources. Within this unstructured environment, it is permissive for healthcare team members to function in less defined, overlapping roles. As Kinnaman and Bleich (2004) observe, this facilitates a deeper focus on shared vision and a more collaborative process.

### **Limitations**

Generalizability of the results is a concern. Sample size was small and homogenous, made up of students who volunteered for the mission trip experience. The results represent one cohort's experience with IPC and lack assessment of longitudinal impacts and evaluation. Additionally, results were self-reported by students. Further research addressing the impact of service learning experiences on the development of interprofessional competencies in the practice setting is needed.

### **Conclusion**

. The IOM supports the education of healthcare professionals to deliver patient-centered care as members of an interdisciplinary team. One effective strategy to develop interprofessional competencies in healthcare students is the incorporation of an international, interprofessional service learning experience into healthcare education programs. This strategy supports the interprofessional essential competencies of values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork in healthcare professionals. In the service learning environment, students are able to actively learn from each other, value each other's roles, problem solve, and strengthen relationships while collaborating to provide patient-centered care and high quality patient outcomes. The significant findings from this pilot study support the positive impact of student participation in a service learning experience on the development of interprofessional healthcare team competencies.

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**Table 1.** Dependent groups t tests

IPEC competency survey question	Pre-trip mean (n=13)	Post-trip mean (n=12)	<i>t</i>	<i>df</i>	<i>p</i>
1. I am able to choose communication tools and techniques that facilitate effective team interactions.	3.92	4.75	-3.34	20	0.003
2. I am able to place the interests of patients at the center of interprofessional health care delivery.	4.38	4.75	-1.91	23	0.069
3. I am able to engage other health professionals in shared problem-solving appropriate to the specific care situation.	4.00	4.83	-3.3	17	0.004
4. I am able to respect the privacy of patients while maintaining confidentiality in the delivery of team-based care.	4.62	4.83	-0.82	17	0.420
5. I am able to inform care decisions by integrating the knowledge and experience of other professions appropriate to the clinical situation.	4.00	4.83	-3.69	19	0.002
6. I am able to embrace the diversity that characterizes the health care team.	4.00	5.00	-3.95	12	0.002
7. I am able to apply leadership practices that support effective collaborative practice.	3.69	4.58	-3.88	23	0.001
8. I am able to respect the cultures and values of other health professions.	4.46	4.92	-2.74	19	0.013
9. I am able to engage other health professionals to constructively manage disagreements about patient care.	3.54	4.67	-6.85	17	0.000
10. I am able to develop a trusting relationship with other team members.	4.15	4.83	-3.07	19	0.006
11. I am able to use strategies that improve the effectiveness of interprofessional teamwork and team-based care.	3.85	4.75	-3.91	21	0.001
12. I am able to demonstrate high standards of ethical conduct in my contributions to team-based care.	4.62	4.92	-1.52	17	0.148
13. I am able to use available evidence to inform effective teamwork and team-based practices.	3.92	4.67	-3.27	22	0.004
14. I am able to act with honesty and integrity in relationships with other team members.	4.77	5.00	-1.9	12	0.082
15. I am able to understand the responsibilities and expertise of other health professions.	4.38	4.92	-2.33	16	0.033

16. I am able to maintain competence in my own profession appropriate to my level of training.	4.62	4.75	-0.7	23	0.490
Level of significance ( $\alpha$ ) < 0.05; $t$ =Statistical test; $df$ =Degrees of freedom; IPEC=Interprofessional Education Collaborative; $p$ =Significance					