

Research

Creating Awareness for the Social Determinants of Health: Dental hygiene and nursing student interprofessional service-learning experiences

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Abstract

Purpose: The purpose of this study was to evaluate whether a service-learning interprofessional education (IPE) experience with dental hygiene students and undergraduate nursing students could reinforce learning related to Interprofessional Education Collaborative (IPEC) sub-competencies.

Methods: Dental hygiene students were provided an IPE experience document to guide group discussion and written reflection prior to a school-based service-learning activity with nursing students. Dental hygiene students were responsible for conducting oral exams and providing oral hygiene instruction while nursing students were responsible for taking blood pressure, calculating body mass index, and classifying risk for obesity. The dental hygiene students completed individual written reflection assignments following the activity and the narrative responses were independently analyzed for themes related to the IPEC sub-competencies and for learning beyond the targeted sub-competencies.

Results: Student reflection assignments confirmed that the learning outcomes were met. Themes from the written reflections indicated that students recognized social barriers related to health and the need for multiple professions to promote health. Responses also suggested the potential formation of negative bias.

Conclusion: Service-learning activities enhance IPE and learning outcomes on the topic of social determinants of health. Group discussion and individual reflection are essential components to consider when designing a service-learning IPE experience.

Keywords: interprofessional education, social determinants of health, dental hygienists, reflection

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Introduction

Community-based settings are ideal interprofessional learning environments for health professional students to share their knowledge in addition to providing opportunities to reflect on impacts extending beyond a single patient encounter. In community settings, students can appreciate how the environment and other professions, external and internal to the healthcare industry, can impact health. In a recent National Academy of Sciences report, educators and accreditors proposed a new vision for health education.¹ This vision emphasizes the need to broaden learning to include the overall health and well-being of individuals and populations as opposed to healthcare delivery from a single perspective.¹ Health professionals working together through an

interprofessional approach have an opportunity to positively impact health outcomes.²

An interprofessional approach requires collaboration between individuals from different disciplines with the goals of improving quality of care and health outcomes. Formal interprofessional education (IPE) is a precursor to collaborative practice and is commonly used in health professional education programs to prepare students to work in teams. IPE is defined as “when students from two or more professions learn about, from and with each other.”³ The dental hygiene (DH) profession supports IPE through the Commission on Dental Accreditation (CODA) Standard 2-15 which states “graduates must be competent in communicating and

collaborating with other members of the health care team to support comprehensive patient care.”^{4,5}

Developing and implementing IPE experiences can present a number of challenges for DH programs and their faculty.⁶ Commonly cited barriers to incorporating IPE include coordinating schedules among various programs, adding an additional class or activity into an already full curriculum, finding the time needed to develop meaningful experiences, and inexperienced faculty.^{6,7} However, a recently conducted national survey of dental hygiene programs found that the majority of program directors indicated IPE was of personal importance as well as being important to the profession at large.⁶ The majority of directors indicated that IPE was currently being integrated primarily into clinic-based activities, with a few programs indicating that IPE was being integrated through community-based or service-learning activities.⁶

Dating as far back as 1998, service-learning in health professions education has been recommended as an effective method of preparing students to work in a new healthcare delivery system.⁸ Service-learning has been defined as “structured learning experiences with a balance of service and learning, combining community service with explicit learning objectives, and emphasizing opportunities for critical reflection about the service work and its relationship to the participants’ professional education.”⁸

Service-learning activities provide students with valuable interprofessional learning opportunities.⁹⁻¹² Creating IPE opportunities within service-learning projects provides a dual benefit of professional growth and collaboration. Previous research studies in interprofessional service-learning projects have reported positive outcomes, such as learning about other professions and respective roles, valuing communication within a team, and the positive impact multiple professions can have on teamwork.^{9,13} Additionally, students and the community engage in a mutually beneficial relationship where both parties learn from each other in a collaborative manner.¹⁴ Yoder established a framework for service-learning in dental education in 2006.¹⁵ Research specific to DH students learning outcomes from participating in service-learning activities includes acquiring clinical competencies, and increased awareness of cultures and respective health practices.^{12,16} While community engagement can contribute to the development of collaborative and skilled dental hygienists, it is also important to assess for student learning.¹⁷

The Interprofessional Education Collaborative (IPEC) panel has established four competency domains and thirty-nine respective sub-competencies for collaborative practice.¹⁸ The four competencies include 1) Values and Ethics (VE),

2) Roles and Responsibilities (RR), 3) Teams and Teamwork (TT), and 4) Interprofessional Communication (CC).¹⁸ The Louisiana State University Health Sciences Center-New Orleans (LSUHSC-NO) School of Dentistry uses the sub-competencies to guide student IPE learning. Previous literature describing service-learning IPE experiences has used quantitative assessment tools to measure student perceptions of IPE as well as student perceptions of their abilities to collaborate interprofessionally.^{9,13} While open-ended questions have been used to describe student learning in general, there is a gap in the literature regarding specific IPE learning outcomes based upon IPEC sub-competencies. Additionally, there is a void in assessing the effectiveness of IPE learning using the Kirkpatrick Model, specifically level 2b (acquisition of knowledge and skills),¹⁹ through the use of a post reflection assignment.²⁰

A dental hygiene (DH) faculty member at LSUHSC-NO School of Dentistry was interested in integrating IPE experiences into the DH curriculum. For the past 8 years, DH and nursing students from LSUHSC-NO have participated in a multidisciplinary K-12 school-based screening program in conjunction with a local non-profit organization. Initially, the health screenings involved undergraduate nursing students exclusively. However, participants and school administrators quickly realized the need to provide dental screenings and oral hygiene education. The non-profit organization then established a connection with the DH program and oral health screenings were incorporated as a separate activity into the clinical rotation schedule. This community-based, service-learning activity presented an ideal opportunity for an IPE experience. In 2017, DH and nursing faculty members, with the guidance of the Center for Interprofessional Education and Collaborative Practice (CIPECP) director at the LSUHSC-NO strategically incorporated IPE into the existing service-learning activity and included a reflection activity.

Defining targeted IPE learning outcomes can assist faculty in program evaluation. Shrader, et al. recommended using the IPEC competency domains as a framework when developing IPE experiences.²¹ However, research using IPEC competencies to guide and assess interprofessional service-learning is limited.^{12,22-24} The purpose of the study was to evaluate if a service-learning IPE experience with dental hygiene students and nursing students could reinforce learning related to the following IPEC sub-competencies:

- Communicate roles and responsibilities clearly to the patient, family, and other health professionals (RR1).
- Explain the roles and responsibilities of other providers and how the team works together to provide care, promote health, and prevent disease (RR4).

- Describe how professionals in health and other fields can collaborate and integrate clinical care and public health interventions to optimize population health (RR10).

Methods

This qualitative study was approved by the LSUHSC-NO Institutional Review Board (IRB #9942). Senior DH students (n=31) from the LSUHSC-NO School of Dentistry had the opportunity to participate in a school-based health screening held in one of four participating New Orleans city schools with predominantly underserved student populations. Participants were divided into groups of six or seven and were assigned one of five dates for a four-hour health screening session at one of the schools. The DH students were provided with an IPE experience document that included the definition of IPE, student learning objectives, and a timeline of events a few days prior to the service-learning activity. The document also included stimulus questions that would serve as a guide for group discussion and a written individual reflection assignment. The reflection assignment, completed within one week following the service-learning experience, was guided by the minimal model of reflective practice, “What? So what? and Now what?” developed by Rolfe, et al. shown in Table I.²⁵

DH students were responsible for conducting oral examinations on children ranging from 7-14 years of age, including observation and documentation of untreated decay, treated decay, existing dental sealants, signs of oral trauma, and level of dental care needed, if appropriate. DH students also provided oral hygiene instruction to the children being screened. Nursing students were responsible for assessing blood pressure, calculating body mass index, and classifying risk for obesity.

Prior to the service learning activity, the DH and nursing students gathered as a group to share information about their professional roles related to health screens and the goals of each of their assessments. During the screening process, the DH and nursing students had the opportunity to observe and learn from each

other, as time permitted. Immediately following the screening session, all students gathered again as a group for a debriefing session facilitated by a DH and nursing faculty member to discuss their experiences and findings while focusing on the IPE questions described in Table I.

Table I. Reflection questions following the service-learning activity

Question	IPEC sub-competency focus ¹⁸
Q1. Discuss with the group, findings from the screenings conducted today. Were any of your findings unique in anyway?	RR1
Q2. How do you interpret the role of the opposite health professional student in promoting health and preventing disease as related to school-based health screenings?	RR4
Q3. How can dental hygienists and nurses work together to promote health (other than conducting screenings)?	RR4
Q4. What other health and/or non-health professionals (such as teachers or after-school staff) would you recommend join a school-based screening program and why?	RR4
Q5. What are some of the ways you think your community might benefit from health promotion in our schools?	RR10

The DH students were required to submit a written reflection assignment answering the questions from Table I, within one week following the service-learning activity. One DH faculty member de-identified the reflection assignments, and while another DH faculty member and the CIPECP director independently evaluated the reflections for themes representing the targeted IPEC sub-competencies. A single document including all the reflections was created and the reflections and coded statements were reviewed independently by the DH faculty member and the CIPECP director. Once the categorization of statements was agreed upon between the two evaluators, a second DH faculty member who was present during the screenings confirmed the themes. The DH students did not confirm the themes as the review process occurred post-graduation. Statements which were not categorized by IPEC sub-competencies RR1, RR4 or RR10 were organized into themes.

Results

Thirty-one senior DH students (n=31) participated in one of the five screening sessions at four local public schools, and completed a guided written reflection assignment. DH students appreciated the dedicated time used to share information about professional roles. Reflections regarding the role of a nursing student within school-based health screening (RR4) indicated that DH students learned that both professions are educated in their respective disciplines regarding preventive care, how to take blood pressure, how to assess for signs of physical abuse, and caries detection.

Within the service-learning experience, DH students educated nursing students on detecting intraoral signs of abuse (RR1). In addition, DH students commented on feeling appreciated, valued and respected by their nursing student cohorts, as integral members of the healthcare team.

DH students commented on the nursing student findings of elevated blood pressure and high levels of obesity in the young student population. DH students learned from nursing students how a child's body mass index is plotted on a chart in order to determine risk for obesity (RR4).

DH student reflections indicated a recognition of the need for multiple professions in order to promote overall health. Recommendations identified within the DH student reflections of the additional professionals needed for a screening team included the following: all health professionals (n=1), mental health services (n=1), nutritionist (n=7), parents (n=2), pharmacy (n=1), principal (n=1), school counselor (n=2), school staff (n=3), social worker (n=1), and teacher (n=5). Students highlighted the importance of including a nutritionist to provide proper nutrition education for the children as well as individuals who interact with the children on a daily basis (parents/caregivers and teachers) (RR10).

Through the written reflection assignments, DH students described potential cultural, social and financial barriers related to health. Participants indicated that the children being screened lacked knowledge and access to primary care including routine dental care. Reflections also indicated that parents/caregivers may be deemphasizing the importance of receiving dental care, and that children fear a visit to the dentist.

Several comments reflected the potential formation of negative bias. DH students commented on the difficulty children may have eating healthy foods based on what is served in the school cafeteria; children not being educated about health outside of what is presented in school; children not being active at home due to lack of parenting skills; and children being at risk for obesity related diseases because of lack of finances and/or unstable homes. One DH student commented, "There is a greater disparity among these communities and these children have a lack of knowledge and access to not only primary care, but also dental care. Possible challenges include lack of importance in dental care from parents or fear of going to dental visits."

Regarding BMI and the increased risk for chronic diseases, another DH student commented, "It was saddening to know that these children were on the path to having diabetes, high blood pressure, and other risk factors that are evident in disease. The nursing students and my classmates discussed the

possible causes of this phenomenon could be related to troubles at home with the parents/guardians, especially financially. These young students may not be as fortunate as other school children to have the means to eating healthy foods. They also may not be as active at home due to lack of parenting skills." DH students indicated the perceived need for parents to be educated in primary care/prevention, and be held accountable to follow-up on health screening recommendations.

Two DH students provided specific examples of parents not scheduling a dental examination for their children. The students had made the assumption that the parents/caregivers were not educated about the importance of childhood dental care. However, the children indicated that their parents were not interested in scheduling the examination or seeking dental care since the baby or primary teeth will be lost and replaced by permanent teeth. In one of the cases the child had clinical evidence of decay accompanied by pain.

Discussion

This interprofessional service learning experience supports and contributes to the IPE literature by demonstrating student learning through their written reflections. Many IPE activities measure student learning outcomes quantitatively. However, student learning from an interprofessional activity varies due to the spontaneous nature of the experience.²⁶ The reflection aspect of a service-learning experience is essential⁹ as it can provide faculty with a better understanding of learning extending beyond specific quantitative questions.

While research and project evaluation of service-learning experiences is growing, it remains limited in part due to a lack of analysis of outcomes with respect to improving the health and well-being of the community and its members. Additionally, most of the published work in service-learning is descriptive with an emphasis placed on the learning outcomes of a single profession.¹ In regards to IPEC competencies, similar to other service-based learning activities focused on underserved populations, DH students demonstrated learning in the IPEC RR, TT and CC domains.^{9-11,27} Specifically, DH students demonstrated learning of all three targeted RR sub-competencies (RR1, RR4, and RR10). In addition, student comments regarding environmental and social factors affecting health, highlights learning in the VE domain. However, DH student negative assumptions regarding perceived support systems at home and at school need to be addressed to avoid possible bias, frustration or cynicism towards the underserved population.

Ryan, et al. reported improved student learning of the impact of socioeconomic status on health through a quantitative survey.¹¹ However, the extent of student learning was not

qualified. O'Brien et al. reported on medical student learning from service-learning projects through written reflections.²⁸ Following the service-learning project, medical students indicated they had a better understanding of the health challenges underserved communities face after participation in a community-based setting.²⁸ Student learning in community settings can also be coupled with lecture and discussions as it was in this study. Dedicated reflection time, through a written reflection assignment and/or oral discussion is important for both interprofessional and overall learning.^{27,29} The written reflection assignment provided a deeper understanding of student learning beyond the quantitative measurements typically used to evaluate IPE experiences.

Service-learning has been described as “a structured learning experience which combines community service with preparation and reflection.”³⁰ According to the National Academy of Sciences report, true service learning entails an ongoing synergistic effect between learning and service that involves active participation in thoughtfully organized experiences designed to meet the actual needs of the community.¹ It also includes structured time for reflection and integration of the service into basic science and clinical courses.¹ Faculty should utilize current research and education models beyond traditional lecturing to develop or modify service-learning IPE experiences to improve student learning outcomes. Future suggestions to improve the learning experience include enhancing the orientation for the IPE service-learning experiences to include discussions on the social determinants of health (SDH) and a description of the actual community being served as a means to avoid bias related to SDH.^{31,32} Faculty should also include the topic of SDH in the debriefing session and encourage student discussion regarding interprofessional opportunities to diminish cultural/social/economic barriers to health.

The DH students in this study were not specifically asked to provide feedback regarding improvements to the service-learning experience. Wallace, et al. reported on a student request for an orientation prior to a service-learning experience involving older adults living in care facilities. The orientation would include visual imagery of the care facility environment and behaviors of older adults with cognitive deficits, as well as examples of how to communicate with older adults.³³ Detailed orientation sessions prior to service-learning experiences have the potential to increase student knowledge of the environment, provide students with an expectation of the type of service being provided and assist in emotionally preparing students for interactions with the community.

Limitations of this study include that it was conducted within a single institution during one academic year and

was a single opportunity for DH students to engage in school screenings with nursing students. Also, the reflections regarding the IPE learning outcomes only came from the DH students. Recommendations for future research includes evaluation of the IPE service-learning activity from nursing students, as well as assessment of reflection assignments with the inclusion of an orientation prior to the service-learning experience. Additional research could also include longitudinal IPE service-learning experiences and evaluate student perceptions over time.

Conclusion

This project supports the Health Professions Schools in Service to the Nation Program recommendations while building upon the literature in student IPE learning through service-learning activities. Based upon the results, faculty should incorporate the topic of SDH into the orientation, debriefing and reflection components of a well-designed service-learning IPE experience. Given the spontaneous nature of IPE learning, faculty should consider integrating reflections as an opportunity to gain insight to student learning. In this study, narrative reflections supported learning of targeted IPEC sub-competencies, as well as highlighting a need for additional student education.

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