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# From Opportunity to Necessity: Development of an Asynchronous Online Interprofessional Learning Experience

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## Introduction

Contemporary health education is available in numerous formats; from completely in-person, to 100% online, to variations that combine in-person and online. The changing landscape of health education requires innovation in meeting the interprofessional education (IPE) accreditation standards for specific health related disciplines including public health and clinically focused disciplines such as nursing and respiratory care, which focuses more on the health of individuals. While many programs have specialties within their college, having students in multiple disciplines within a college does not always meet interprofessional accreditation standards. The question becomes, how do students learn together when they are not in the same place at the same time and multiple professions are not enrolled in the same course due to learning outcome requirements that are specific to each discipline?

Requirements for IPE pre-date the advent of the internet and proliferation of online education. The Coggeshall report in 1965 introduced the concept of interprofessional education for medical students (Coggeshall, 1965). Over the last half of the twentieth century, attempts to introduce and sustain IPE into health discipline curricula had varying results. During the last decade of the twentieth century the Kellogg Foundation awarded grants to universities to develop interprofessional education opportunities (Florence & Byington, 2016). While these grants were an opportunity for IPE, they were not available to all health care discipline students. Furthermore, as grant money decreased, IPE programs closed. The impetus for the current push for IPE stems from the need for the efficient and effective delivery of health services, team-based care, and interprofessional practice; including the incorporation of public health professionals to promote and advance population health.

Since the 1990's, our University has offered team-based learning involving at least three health disciplines (medicine, nursing and public health). Over time and with the dawn of the Interprofessional Education Collaborative (IPEC) recommendations and subsequent discipline specific accreditation standards, IPE at our institution has evolved and includes all five of the health science colleges, which encompasses over eight different health related disciplines. Some of our programs of study are 100% online, while others have online education with in-person residency requirements. One motivation for developing the online IPE program was to meet the accreditation standards for the online education programs in Public Health and Graduate Nursing. The online IPE program is currently in its second year and collectively has included over 200 students and 18 faculty facilitators. The IPE distance learning program is inventive in multiple ways, from delivery to content. This article describes the process of an interprofessional faculty team developing a 100% asynchronous online IPE curriculum by incorporating available evidence. Learning activities, lessons learned, and recommendations for future research are outlined in detail.

## Background

In 2016, the IPEC updated the core competencies for interprofessional collaborative practice. These competencies are used to help guide and develop meaningful learning experiences within traditional and online curricula. The guidelines are widely supported among various health professions and education communities. Interprofessional competencies have become a key

component of accreditation standards, and therefore finding unique and innovative ways to meet these standards are advantageous to programs of study. The four topical areas within the domain of interprofessional collaboration have been identified as values/ethics, roles/responsibilities, interprofessional communication, and teams/teamwork. Each of the competencies have one overarching statement that captures the goal of that particular skill or behavior. Additionally, sub-competencies are associated with each, which further provides guidance in developing curriculum objectives and areas of focus.

### ***Pedagogy***

Utilizing online teaching is not a new concept; it has been employed for continuing medical education (CME) for many years (Allen et al., 2003). Conner (2003) presented one of the first models of online or virtual learning in regards to interprofessional collaboration based out of the UK. She stated an advantage of asynchronous online learning and communication was the thinking and reflection time it afforded students (Conner, 2003). Three big takeaways from her project were the need to have a clear purpose, adequate preparation, and sufficient facilitator or moderator involvement. This pedagogical rationale can be seen within the present IPE experience. In 2005, D'eon provided a blueprint for interprofessional learning, which included using increasingly complex and relevant content, working in collaborative groups, and incorporating experiential learning into the encounter. Though this blueprint did not explicitly mention virtual learning, these practices could in fact be implemented into an online learning management system (LMS) for both undergraduate and graduate health professional students.

D'eon (2005) further described how collaborative learning (CL), problem-based learning (PBL) and experiential learning (EL) could all serve as effective choices for teaching interprofessional collaboration. Both CL and PBL could incorporate the main features of positive interdependence, face-to-face promotive interaction, individual accountability, interpersonal and small-group skills, and group processing (D'eon, 2005). In each strategy, the learners would still share a common goal, work together to solve a problem, and reflect on the experience and learning that took place. If collaborative learning is the framework, EL is the process or approach. EL is a cycle of four stages: planning, acting, observing, and reflecting; a sequence that can take place within IP teams (D'eon, 2005). Through active learning strategies that are student centered, such as the ones described above, the transfer of knowledge and skill acquisition can be conveyed to a practice setting.

Carbonaro and colleagues (2008) piloted a blended or hybrid model (70% synchronous/asynchronous virtual classroom, 30% face-to-face interactions) in a large interprofessional health science course that was traditionally offered face-to-face (F2F). Complex case scenarios were discussed using the Group Investigation Model, where an emphasis was placed on how decisions are made as opposed to discovering the right answer to a case or problem. Students in the blended course perceived they had achieved the objectives of the experience, highlighting that the new mode of delivery did not hinder the self-reported improvement in learning with and from students from other disciplines (Carbonaro et al., 2008). Luke et al. (2009) described a program consisting of e-learning and *in situ* learning. These educators also encouraged PBL, reflective practice, and translation into practice. It is important for any IPE program to include learning and

the opportunity to practice those new skills. Case studies can serve as a vehicle for problem-based or experiential learning (Luke et al., 2009).

Solomon et al. (2010) reported on students' perceptions of IP learning after completing an online asynchronous curriculum. The modules in the curriculum were developed to be relevant to as many students as possible, incorporated PBL, and were facilitated by experienced faculty members with IPE content knowledge and online teaching experience. Discussion forums were used and analyzed for qualitative content and module evaluations yielded quantitative data. The majority of students agreed that "IP learning would help them become a better health professional" (Solomon, et al., 2010, p. e388). The investigators recommended allowing adequate time for students to reflect and debrief on the learning experiences and having the modules be well organized, user-friendly, with clear participation dates (Solomon et al., 2010).

Sanborn (2016) revised an online baccalaureate completion program in nursing to incorporate IPEC competencies in each of the ten courses in the curriculum. Activities were both self-directed and collaborative in order to meet the learning objectives. The author recognized that learning about other professions was much more straightforward and easier to do in an online environment, whereas learning with and from other professionals was more of a challenge. Due to students practicing in their respective field and courses only consisting of nursing students, requiring interaction with and incorporation of other professions into assignment criteria, helped meet those practical learning objectives (Sanborn, 2016).

Another group of educators set out to pilot a large-scale introductory asynchronous online interprofessional learning experience with over 1,000 students (Smith et al., 2019). Eight different health professional programs participated in the experience, which took a great deal of planning. Opportunities for critical thinking and reflection were important to the development of this IPE module. The authors suggested that making IPE available to more students reflects a commitment to diversity, equity and inclusion, which should be a priority for all higher education institutions (Smith et al., 2019). Participants perceived the experience to be useful in achieving the IPE learning objectives and therefore a viable option for delivering these types of courses.

Anderson and colleagues (2019) developed and piloted an online asynchronous IPE module with a group of undergraduate public health students. This was meant to be an introduction to and overview of the concepts of interprofessional collaboration, which could then be built upon through their graduate education or on the job training. This initial exposure was not required and therefore students volunteered to participate and received a certificate of completion for their efforts (Anderson et al., 2019). After completion of the online module, students agreed that forming collaborative relationships, delivering care with an interprofessional team, and incorporating public health were all important to patient health outcomes. This model was helpful to the present program in that public health students were involved and population health was heavily incorporated into the learning objectives.

Liller et al. (2020) also found a virtual/online IPE event to be a feasible educational strategy, especially during the COVID-19 pandemic. These educators developed modules pertaining to health policy and advocacy that were self-paced (asynchronous), then learners gathered for a

culminating synchronous online event. Students from four different health disciplines participated and felt the event was effective, relevant to their professions, and allowed them to contribute occupational and life experiences to solving a problem (Liller et al., 2020).

### ***Faculty Facilitation***

Little is known about the expectations and contributions of IPE facilitators, especially in the online or virtual mode of delivery. Evans et al. (2019) used the Community of Inquiry (CoI) framework, which consists of teaching presence, social presence, and cognitive presence, to identify the contributions of facilitators in an online asynchronous interprofessional education discussion. The authors focused on teaching and social presence and found that facilitators frequently used 16 indicators between the two elements of the CoI in addition to establishing a new indicator: feedback on assessment tasks. Facilitators often encouraged, acknowledged and reinforced student contributions (teaching presence) and encouraged open communication and cohesive responses (social presence). Affective communication was used less often and may impact learner engagement in the discussions (Evans et al., 2019).

### ***Considerations for Success***

Regardless of the pedagogical approach, several components should be considered within an online asynchronous IPE learning environment. Using a competency-based curriculum could assist with the organization and instructional design of the course and/or module (Sanborn, 2016). An orientation or introduction to the learning experience should be made available to both learners and facilitators (Smith, 2019; Anderson et al., 2019). Active learning strategies that are progressive in nature may help learners reach the intended goal of the IP experience (D'eon, 2005). Case studies allow students to analyze complex situations that further enhance decision-making and critical thinking skills, while encouraging reflection (Carbonaro et al., 2008; Luke et al., 2009). Cooperative learning opportunities that are relevant, authentic, safe, and practical may increase the level of participation (D'eon, 2005; Sanborn, 2016; Anderson et al., 2019). Technical support and providing time to debrief, summarize, and conclude the experience are both important to the process (Solomon et al., 2010).

The goal of any IPE program should reflect the desire to improve coordination of care and communication, avoid stereotypes and assumptions among varying health professionals, and eliminate gaps in services in order to enhance patient outcomes. The competencies achieved should translate to present and future professional practice. These goals can be difficult to achieve if learners are not exposed to and work with disciplines outside of their own. Single discipline IPE activities, even with the intent of initial exposure to IPE competencies, lack collaboration focused on teamwork and should not be the only learning opportunity available to students in health professions. As Sanborn (2016) stated, learning with and from other professionals can be a greater hurdle in the online environment; a hurdle we attempted to successfully overcome with the creation and implementation of this IPE distance experience. Using the University of British Columbia (UBC) model of IPE (Charles et al., 2010), the processes of exposure to and immersion of IPE were the main focal points.

## Overview of Activity

An interprofessional team of faculty members from four colleges (Public Health, Medicine, Nursing, and Clinical & Rehabilitative Health Sciences) collaboratively developed an asynchronous online IPE experience which was delivered in four modules across two semesters. The course largely mirrored the on-ground IPE experience already implemented at the institution (Polaha et al., 2019) and extended the curriculum to include a community health focus in addition to a clinical focus.

The four IPEC competencies served as the framework for the curriculum with each module focusing on one of the competencies. Values and Ethics and Teams and Teamwork were the focus for the two fall semester modules, and Interprofessional Communication and Roles and Responsibilities framed the two spring semester modules. Each module was delivered completely asynchronously over a two-week time period. Three types of learning experiences were utilized to introduce each competency: interactive, didactic, and case-based experiences. Prior to the distance learning experience, facilitators participated in a faculty development and training day and students were asked to complete pre-work consisting of introductions of themselves and their discipline and a pre-evaluation of IPE to assess readiness for interprofessional learning.

In the pilot year, 82 unique students (58 in fall and 76 in spring) from the colleges (Public Health, Nursing, and Clinical & Rehabilitative Health Sciences) participated in the IPE experience. Public Health embedded the IPE experience in two Masters of Public Health (MPH) courses with IPE counting as 10% of the total course grade. The College of Nursing embedded IPE into required residency hours for the DNP program (10 hours per module). Clinical and Rehabilitative Health Sciences students (Respiratory Therapy and Dental Hygiene) from undergraduate programs participated voluntarily. All students earned certificates of completion and cords to wear at graduation after completing all four modules.

Students were placed into nine interprofessional learning groups within the learning management platform (LMP) and were assigned a faculty facilitator. Eleven faculty members from the College of Clinical and Rehabilitative Health Sciences, College of Nursing, College of Public Health, and College of Medicine volunteered to facilitate the IPE experience in the pilot year. Two groups were assigned an interprofessional team of facilitators, whereas the other groups had one facilitator. Each module began with an introductory video from IPE leadership at the institution. Didactic materials in the form of slides or videos were used to introduce main concepts of each competency and IPE tools supporting the competency. Tools used in the asynchronous online experience were the same tools used in the on-ground training and were borrowed largely from TeamSTEPPS 2.0 (AHRQ, n.d.).

In each module, students participated in an abstract interactive activity that targeted the competency for that module and was non-clinical in nature. After completing the exercise, students and faculty facilitators debriefed on a discussion board in the LMP. Finally, in every module, students were given a case with either a clinical or community health focus. Before the simulation activity, each group collaborated in their own team “huddle” on a discussion board to develop a plan for how the team would work together within the case. Thereafter, they

interacted with a standardized patient or standardized professional (SP) through a discussion board to apply the competency-based knowledge they had learned. Following the completion of the case-based activity, students and faculty debriefed on the discussion board. Both faculty and students completed an evaluation at the end of each module, and students completed a post-evaluation of IPE to assess the quality of the program.

## Lessons Learned

Over the course of the first two years of the asynchronous online IPE, our interprofessional team learned many lessons that helped to continually improve the experience for the faculty and students that participated. One of our greatest strengths in the process was the development of the project by an interprofessional team that included faculty from all the colleges that were represented by the students participating. This allowed the team to develop activities that included the perspectives of all the learners from the beginning, much like that of Solomon et al. (2010). To ensure we were making progress, the team met regularly before and during each semester and made updates to subsequent modules based on feedback from the faculty and students. This ensured that both felt supported by the development team. We used informal communication and formal evaluations of both faculty and students at the end of each module for continuous process improvement. Other lessons learned are listed below and categorized into faculty (Table 1) and student (Table 2) related lessons.

**Table 1.** *Faculty lessons learned*

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1. Pre-module faculty training and development--Before each module an online synchronous training was provided to faculty; going over the module, expectations of faculty, and answering faculty questions.
2. Faculty guides were developed for different aspects of the modules to assist faculty in facilitating and debriefing with students.
3. Faculty technical assistance was provided during the module from developers to address any concerns about the LMP and/or questions about aspects of the module.
4. Whenever possible, having consistent faculty facilitators throughout all modules to build on communication and connection with students was beneficial.
5. For the SP activities, having one individual performing those duties to provide consistency and timeliness of responses to student discussion boards was helpful.

**Table 2.** *Student lessons learned*

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1. If IPE is embedded in a course, clear communication with the students as to how it is tied to the course requirements as well as directions on how to access the IPE platform was needed.
2. Before each module, providing information session(s) for students to attend to ask questions prior to the experience would be helpful.
3. Providing frequent communication along with updates throughout the module to keep the students on track was beneficial.

4. Students required incentives to stay motivated and engaged; this can be part of a course grade or hours toward a residency or, for students where it is not tied to a course, a certificate of completion along with recognition at graduation.
5. It was important that students contribute based on their personal and discipline specific knowledge not through role playing for a different discipline.

## **Conclusion**

The purpose of this program implementation was clear from the start and had ample monetary and administrative support. The time invested by the developers allowed for adequate preparation and organization of the learning experience using proven pedagogical approaches to IPE (Conner, 2003; D'eon, 2005; Carbonaro et al., 2008; Luke et al., 2009; Solomon et al., 2010; and Smith et al., 2019). Incentivizing both faculty facilitators and students to participate voluntarily was a bit of a challenge. Ensuring technical support throughout the modules was essential. Communicating clear expectations for facilitation and participation was key for active engagement. Flexibility is warranted when involving various health professional students with fluctuating schedules. The long-term impact or effectiveness of the program in relation to application of competencies in practice is unknown (i.e. mastery). A longitudinal study of participants would help identify and examine overall program outcomes. There continues to be relative unknowns within IPE and online learning. For instance, the appropriate number of interprofessional students within groups, faculty facilitator to student ratios, how to recruit participation from students above and beyond their program's curricular demands, and timing and placement of IPE opportunities within the curriculum. These are areas in which additional studies and programs could focus. The COVID-19 pandemic made it necessary to transition learning into a format that would limit and/or eliminate in-person participation, yet sparked an increased interest in learning about and with other health disciplines within our students. The development of this asynchronous online IPE experience demonstrates the appropriateness and feasibility of meeting the collaborative needs of students and programs through distance learning, while also serving as a model for future hybrid iterations of IPE at the institution.

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