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# Evaluation of an Interprofessional Elective Course for Health Professions Students: Teaching Core Competencies for Interprofessional Collaborative Practice

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## Abstract

**OBJECTIVE** To evaluate the efficacy of an elective course for health professions students designed to expose, immerse, and provide opportunities for mastery of the core competencies needed for interprofessional collaborative practice (i.e. teamwork, interprofessional communication, values/ethics, and the roles and responsibilities of other health professions).

**METHODS** Undergraduate and graduate students from five health professions (pharmacy, nursing, medicine, communication sciences and disorders, and social work) at the University of Cincinnati Academic Health Center who were enrolled in an elective course in the fall of 2014 were asked to complete the following three surveys at key time points in the semester: Clinical Cultural Competency Questionnaire (CCCQ) – modified pre-training version, Team Climate Inventory (TCI) – short version, and the Interprofessional Socialization and Valuing Scale (ISVS).

**RESULTS** Of 41 students, 40 consented to participate in the study and 95% of participants (n = 38) completed all surveys, in addition to a final course evaluation. Statistically significant differences in pre- and post-assessments of each survey and positive end-of-the-semester course evaluations indicate students' perceived progression toward mastery of the four core competencies.

**CONCLUSIONS** Positive results of the surveys and course evaluation demonstrate an effective and feasible model of providing didactic IP experiences that will enhance health professions students' essential skills for interprofessional collaborative practice.

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## Introduction

Interprofessional collaborative practice (IPCP) is widely recognized as essential for well-coordinated care that results in improved patient satisfaction and health outcomes (Institute of Medicine [IOM], 2015; Poling, Labarbera, & Kiersma, 2015; WHO, 2010). Given the tradition of profession-specific training and accreditation, national organizations for the training of health professionals have developed four core competency domains with 38 specific competencies to prepare practitioners for IPCP. These domains, namely teamwork, interprofessional (IP) communication, values/ethics, and the roles and responsibilities of other health professions, provide a clear target for educators developing IP curricula (Interprofessional Education Collaborative [IPEC] Expert Panel, 2011).

Interprofessional education (IPE) experiences assist health professions students in developing core competencies by learning from, with, and about each other. IP team members who are knowledgeable about the scope of practice and professional culture of other practitioners, are able to create effective teams, develop mutual respect, and negotiate power differentials as required for collaborative decision making (Baker, Egan-Lee, Martimianakis, & Reeves, 2011; Hamilton, 2011; RWJF, 2015). Ideally, opportunities for IP collaboration should be introduced early in health professions curricula (IOM, 2011; RWJF, 2015) to discourage the development of a 'uniprofessional identity' that can create competitive attitudes (Hamilton, 2011; Khalili, Orchard, Spence Laschinger, & Farah, 2013) and potentially lead to medical errors (IOM, 2011).

The knowledge, skills, and attitudes required for IPCP can also serve health professions students in their ability to connect with patients and families in healing relationships and to promote shared decision-making with patients. Given a population that is increasing in age, diversity, and chronic conditions, the development of cultural competence across the health professions, as outlined in the domain of values/ethics, is of national concern for the reduction of health

disparities (National Partnership for Action [NPA] 2011, IPEC 2011 p. 19). Cultivating an attitude of cultural humility by learning to acknowledge one's own health beliefs and seeking increased understanding of the beliefs of others is essential to progress in cultural competence, reduce health disparities, and provide safe, high-quality care (NPA, 2011, Joint Commission 2010).

Although the case for IPE is robust, a review by Abu-Rish et al. (2012) reports that IPE literature does not commonly provide sufficient descriptions of implementation strategies, participants, and/or outcome measures, an analysis which supports a recent statement by the IOM (2015) that IPE lacks evidence-based methods. Also IPE experiences are not a required component of many health professions programs, including those on the campus of the University of Cincinnati Academic Health Center (UCAHC). In an effort to contribute to the knowledge base and promote effective IPE curricula for health professions students, this article will describe the curriculum and educational outcomes of an elective IP course conducted in the fall of 2014 at the UCAHC.

## Course Design

### *Student Population*

The course was open to both graduate and upper level undergraduate students enrolled in the health professions programs offered by the UCAHC. Students were recruited from the Colleges of Nursing, Pharmacy, Medicine, and Allied Health Sciences (specifically the Social Work and Communication Sciences and Disorders programs). To ensure interprofessional representation, student enrollment was limited to 10 students from each discipline. Table I describes the student characteristics of this cohort. Females represented approximately 92% of the study population. Students in Communication Sciences and Disorders (CSD) accounted entirely for the undergraduate population, about 16 percent.

**Table 1.** *Student Demographics*  
(*n* = 38)

Demographic	Frequency (%)
<i>Gender</i>	
Male	3 (7.9%)
Female	35 (92.1%)
<i>Education Level</i>	
Undergraduate	6 (15.8%)
Graduate	32 (84.2%)
<i>Program</i>	
Communication Sciences and Disorders	6 (15.8%)
Medicine	9 (23.7%)
Pharmacy	10 (26.3%)
Nursing	6 (15.8%)
Social Work	7 (18.4%)
<i>Race/Ethnicity</i>	
White, non-Hispanic	30 (78.9%)
Non-White	5 (13.2%)
Biracial	2 (5.3%)
Unknown	1 (2.6%)
<i>Age</i>	
≤ 24	24 (63.2%)
≥ 25	14 (36.8%)

### *Faculty*

The number of course faculty and their affiliated programs were as follows: Nursing (2), Pharmacy (2), Medicine (1), and Allied Health Sciences (Social Work {1} and Communication Sciences and Disorders {1}). This group of faculty has been working together since 2004 and has developed expertise in IPE via several training opportunities. Based on these experiences, the faculty actively modeled interprofessional collaboration by equally sharing the responsibilities of the course (O'Neill & Wyness, 2005). Examples of faculty activities include recruiting interested students, creating patient cases for discussion, facilitating class activities, and evaluating assignments. One faculty member assumed a core leadership role as course coordinator. To facilitate the teaching of this course, faculty employed the use of the university-wide electronic course management system, Blackboard®, on which all course materials including the syllabus, class schedule, patient-case background material, cultural resources, assignments,

and grades were posted.

### *Student Learning Objectives*

The course aimed to (1) contribute discipline-specific knowledge and skills to patient/client care, (2) analyze case-based problems using ethical principles and an interdisciplinary approach, (3) promote effective collaboration with other health professions students, and (4) assist students in the progression of cultural competence.

### *Course Mechanics*

The elective was structured as a hybrid course to allow for maximum student interactions with minimal impact on students' varying curricular schedules. The course included four four-hour class meetings onsite, one brief patient encounter session, and 10 on-line class activities (i.e. either individual or team exercises). This type of course design has been used by many institutions to facilitate interprofessional experiences (Balogun, Fletcher, & Bradle, 2014; Chernett, Yuen, Thoth-Cohen, & Simmons, 2010; Manthey, 2012; Martinez & Rose-St Prix, 2013). As an elective, this course attracted students who were motivated to gain experience in team work, cultural competence, and interprofessional skills as part of their didactic learning.

The course was designed and built on the University of British Columbia (UBC) model of interprofessional education and the IPE core competencies (Charles, Bainbridge, & Gilbert, 2010). The UBC model is a three-part set of overlapping processes defined as: exposure, immersion, and mastery. This model guides the design of IPE experiences to meet the students where they are in their training at the opportune time to introduce the skills for effective collaboration. Exposure involves providing students with experiences that open their minds to multiple perspectives of the various health professions. Immersion allows students to learn collaboratively, identifying the strengths of their own profession as well as others. The final stage is mastery, which provides IP teams an opportunity to apply and demonstrate their knowledge and skills and to be assessed by others (Charles et al., 2010). While a modified version of the UBC model guided course development, the specific activities were designed to

meet the IPE core competencies as described above (IPEC, 2011). See Appendix A for further information regarding the UBC model (i.e. class topics, IPE competency mapping, activity description, and related assessments).

**Exposure: Classes 1 to 5.** At the start of the semester, learning activities were designed to introduce students to core material and the roles of various health professions. During the first class, which was offered live, students were initially grouped in their own professions to address the following topics: health professions' roles and responsibilities, collaborating with medical interpreters, and cultural competence. To facilitate an effective IPE environment, the course syllabus, objectives, and class schedule were also reviewed (D'Eon, 2004). Toward the end of the class, students were randomly assigned to six interprofessional groups (IPG), balanced by profession, to begin the process of team development. The "marshmallow challenge" team activity was used to promote these initial interactions (Wujec, n.d.). For the duration of the semester, students remained in these assigned groups to promote face-to-face interactions, another key component to effective interprofessional learning (D'Eon, 2004). Each IPG was mentored by one of the course faculty, promoting additional IP interactions. Classes 2 and 3 were offered on-line and focused on activities related to cultural competence. Each student completed a personal health beliefs assignment reflecting on their own beliefs which they shared with their group for class 2 activities. For class 3, each student interviewed an individual of a different culture (e.g. race, religion, socioeconomic status) about his or her health beliefs, wrote a report, and then collaborated with the IPG members to write a paper, comparing and contrasting what they learned from the experience. Classes 4 (live) and 5 (on-line) provided an opportunity for the teams to converse about videotaped case scenarios featuring culturally and medically diverse patients (Fanlight, 2003). In class 4, the students gained background knowledge about the care planning process and required documentation. The groups then discussed two patient cases and created interprofessional care plans for each case. This activity was guided by faculty who intervened when necessary. Class 5 continued to focus on patient care planning with an on-line group activity involving a third unique patient case.

**Immersion: Classes 6, 7, and 8.** As the teams became more highly functioning, the course work shifted to promote more advanced interprofessional learning by challenging and engaging the students. For classes 6 and 7 (on-line), students participated in the Got Ethics (Akerson et al., 2013) activities by reviewing their own discipline's codes of ethics, watching a videotaped patient case, and answering discussion questions. Medical ethics, a shared, complex concern for health professionals, was then the backdrop for group activities for class 8. Due to time constraints, the student groups completed two activities within one class period, spending 2 hours on the remaining Got Ethics exercises (i.e. completing an interprofessional ethics grid and discussing the patient case as a group) and 2 additional hours engaging in a simulated patient activity. The simulation provided an opportunity to assess and plan care for a "patient" in an ambulatory care setting. Simulated patient activities are very popular as IPE experiences and allow students to explore collaborative ways of improving communication (Kenaszchuk, MacMillan, van Soeren, & Reeves, 2011). Student groups were allowed 15 minutes to prepare an interview plan, 30 minutes for the patient interview (with no more than 5 minutes per profession), 30 minutes to create an IP plan of care, and 15 minutes to present the team's plan to the patient. At the end of the experience, a debriefing occurred with the IPGs and faculty. These events strengthened the IPGs by facilitating the acquisition of the skills needed for effective health care teams.

**Mastery: Classes 9 to 14.** The remaining class times (both on-line and live) were dedicated to the IPG preparing for the Health Care Team Challenge (HCTC)<sup>tm</sup>. Developed by Washington State University Health Sciences, this world-wide IPE activity is designed to simulate real-life team-based problem solving (Richardson, Gers, & Potter, 2012). For our event, we chose a real patient with a complex medical and social history. During class 9, students were provided with the patient's medical and social history and current medication list, as well as instructions for the HCTC. Each team chose two students from their IP group to interview the patient face to face in class. However, due to the patient's hospitalization, the interviews were conducted virtually. The teams then collaborated for four weeks to create a presentation demonstrating an IP plan of care. During class 14, teams were given 20 minutes to

present their care plan to an audience of their peers, the patient's family, and a panel of judges (i.e. interprofessional faculty recruited from the UCAHC). Teams were judged on the following criteria using the HCTC evaluation rubric: interprofessional quality related to plan of care; team implementation and communication; health care concerns and achievability as it relates to prioritizing health care concerns of the patient and creating a realistic plan; and presentation including contribution of team members, creativity, and professionalism. Prizes were awarded for first, second, and third place. This culminating event provided IPGs a chance to demonstrate team growth and maturity.

## Methods of Assessment

The course was assessed in multiple ways, using student grades, reflection papers, and validated surveys to evaluate course impact. Course grades were determined as follows: class participation (25% of total grade points), health beliefs reports (20%), Got Ethics exercises (5%), patient case-related assignments (25%), and the Health Care Team Challenge (25%). Student reflection papers were required at the end of each live class session and were reviewed by faculty for content and common themes. Surveys were used to measure changes in cultural competence, IP skills, and teamwork skills. Each survey was chosen based on its use in previously published research, ability to measure IPEC core competency achievement, and applicability to the course content. Students were asked to complete the following surveys: Interprofessional Socialization and Valuing Scale (ISVS) (King, Shaw, Orchard, & Miller, 2010), Team Climate Inventory (TCI) – short version (Kivimaki & Elovainio, 1999), and Clinical Cultural Competency Questionnaire (CCCQ) – modified pre-training version (Like, 2001).

The ISVS was developed to measure the effects of IPE on health professionals' beliefs, behaviors, and attitudes related to IPCP (IPEC Core Competency: Interprofessional Communication). It is a 24-item self-report measure that uses a 6-point Likert scale, where 1 = not at all and 6 = to a very great extent. An option for "not applicable" is also included, with a value of zero. King et al. (2010) report the Cronbach alpha for the entire scale to be 0.90.

The shortened version of the TCI is a 14-item survey

that measures team climate according to the four-factor theory used in the 38-item original version of the TCI (Anderson & West, 1994). These factors include support for innovation, participatory safety, vision, and task orientation (IPEC Core Competency: Team and Teamwork). Each factor is measured on a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree, indicating a more agreeable team climate. The shortened TCI has high reported internal consistency with Cronbach alpha scores of 0.90 or greater (Kivimaki & Elovainio, 1999; Loo & Loewen, 2002).

The CCCQ is a self-report assessment tool created to evaluate physicians' level of cultural competence and knowledge of health disparities pre- and post-training. After receiving permission from the author, the 64-item pre-training version was tailored to health professions students and reduced to 49 items. Modifications were informed according to those made by Okoro et al. (2012). Participants were assessed using the modified pre-training version for both pre and post assessments. Items in each of the five areas of focus were scored on a 5-point Likert scale for which 1 = not at all and 5 = very. A sixth response of "don't know" was included in the focus area of attitude, with a corresponding value of zero. This survey tool was used to measure the IPEC Core Competency Values/Ethics.

The timing of the administration of the surveys is important to note. The ISVS and CCCQ were administered during class 1 and class 14. The TCI survey was not initially administered until class 4 and then repeated at class 14. This schedule allowed time for IPGs to experience the phases of team development (i.e. forming, storming, norming, and performing) as defined by Tuckman (1965). Students were not provided incentives for participation, and this methodology was approved by the University of Cincinnati Institutional Review Board.

## Results

Learning outcomes were evaluated based on pre- and post-survey data from three validated assessment tools and an end-of-course evaluation. Of 41 students, 40 consented to participate in the study, and 95% of participants completed all pre- and post-course assessments and the course evaluation (n = 38). Descriptive statis-

tics were used to evaluate assessment data. Two-tailed, paired samples *t* tests with an alpha of 0.05 were used to investigate changes in attitudes and behaviors related to interprofessional practice and cultural competency over time.

Thirty-eight students completed the ISVS at pre- and post-course time points. The mean difference between ISVS scores before ( $M = 116.29$ ,  $SD = 13.62$ ) and after ( $M = 122.74$ ,  $SD = 14.12$ ) the course was statistically significant ( $t(37) = 2.64$ ,  $p < 0.05$ ,  $d = 0.46$ ), demonstrating improved interprofessional collaborative practice. A Bonferroni-corrected alpha of 0.017 was employed to examine the change in mean scores for each of the three sub-scales (see Table 2). The analysis revealed significant improvement for two of the three subscales, namely value in working with others and comfort in working with others.

Thirty-nine students completed a short version of the TCI at both data points. The results demonstrate a significant overall improvement ( $t(38) = 3.64$ ,  $p = 0.001$ ,  $d = 0.62$ ) across sub-scales (see Table 3). Statistically significant increases in TCI ratings over the course of the semester reflect growth in students' ability to collaboratively generate and implement new ideas (support for innovation), foster a non-threatening work environment (participatory safety), agree upon desired outcomes (vision), and performance standards (task orientation).

A modified version of the CCCQ was completed by 38 students pre-and post-course. The post-course average score ( $M = 174.66$ ,  $SD = 25.42$ ) indicated considerable growth from the pre-course average ( $M = 148.91$ ,  $SD = 24.71$ ) and was statistically significant ( $t(37) = 6.98$ ,  $p < 0.001$ ,  $d = 1.03$ ). Further analysis using a Bonferroni correction revealed significant improvement over time in three of the five areas of focus including: knowledge of relevant subject areas, skills in dealing with socio-cultural issues, and comfort in cross-cultural encounters/situations (see Table 4).

All student learning objectives were rated on the end-of-course evaluation with an average of less than 2 (see Table 5), indicating that students believed the objectives were achieved at an above average level (1= strongly agree, 5= strongly disagree). Twenty-nine of 38 students (76.3%) agreed or strongly agreed

that they contributed discipline-specific knowledge and skills to patient/client care. Thirty-three students (86.8%) agreed or strongly agreed that their ability to analyze case-based problems using ethical principles and an interprofessional approach improved. Thirty-five students (92.1%) agreed or strongly agreed that course content enabled them to collaborate effectively with other health professions students. The content presented was not as successful in helping students progress in the development of cultural competence, with 27 students (71%) agreeing or strongly agreeing with this course objective.

## Discussion

Findings from this study indicate that course methods and topics were effective in furthering students' progression towards competency in the four core IPCP domains, outlined by IPEC (2011). Specifically, scores from the ISVS (IPEC Core Competency Interprofessional Communication) indicate students developed increased value and comfort in collaborating with other health professions. These findings contrast with King et al. (2010) who reports that health professions students did not demonstrate increased comfort in working with others after a series of IPE workshops. King et al. postulate that developing a sense of ease in collaborative work may be the most challenging aspect of IPE to teach.

Also the difference between graduate and undergraduate students is notable. In subgroup analyses (pre-course  $M = 111.67$ ,  $SD = 20.20$ , post course  $M = 106.67$ ,  $SD = 20.83$ ), the post-course mean was 5 points less than the pre-course mean for undergraduate students only, suggesting a loss of perceived value in IPCP experiences during the semester. This result may be related to the timing of this group of students' participation in the course. It has been noted by Charles et al. (2010) that IPCP activities must be timed correctly in order to promote value and readiness for learning in IPCP settings.

While the ISVS subscale Ability to Work with Others did not show significant change, this finding can be viewed in the context of the TCI results (IPEC Core Competency: Team and Teamwork). All subscales in this instrument indicated improvement over the duration of the course. Additionally, students rated collaborative teamwork as the most improved skill on the end-

**Table 2.** Mean Change Across Sub-scales of the Interprofessional Socialization and Valuing Scale (ISVS)

(n = 38)

Sub-scale	Time	Mean (SD)	Mean change	95% CI <sup>a</sup>	t	p	Effect size <sup>b</sup>
Ability to work with others (maximum score = 54)	Pre	45.29 (6.01)	1.92	[-0.29, 4.13]	1.76	0.087	0.33
	Post	47.21 (5.67)					
Value in working with others (maximum score = 54)	Pre	44.21 (5.23)	2.47	[0.59, 4.36]	2.66	0.012*	0.50
	Post	46.68 (4.68)					
Comfort in working with others (maximum score = 36)	Pre	26.79 (4.19)	2.05	[0.58, 3.53]	2.81	0.008*	0.44
	Post	28.84 (5.04)					

\* Significant to Bonferroni corrected alpha = 0.017

<sup>a</sup> Confidence interval<sup>b</sup> Cohen's d**Table 3.** Mean Change Across Sub-scales of the Team Climate Inventory - Short Version (TCI)

(n = 39)

Sub-scale	Time	Mean (SD)	Mean change	95% CI <sup>a</sup>	t	p	Effect size <sup>b</sup>
Support for innovation (maximum score = 15)	Pre	9.46 (2.45)	1.90	[1.82, 1.98]	47.03	0.000***	0.74
	Post	11.36 (2.70)					
Participatory safety (maximum score = 20)	Pre	13.64 (2.80)	2.23	[1.91, 2.55]	14.22	0.000***	0.68
	Post	15.87 (3.78)					
Vision (maximum score = 20)	Pre	13.67 (3.11)	0.69	[0.30, 1.08]	3.61	0.001***	0.19
	Post	14.36 (4.31)					
Task orientation (maximum score = 15)	Pre	9.67 (2.90)	1.05	[0.84, 1.27]	9.87	0.000***	0.33
	Post	10.72 (3.56)					

\*\*\* Significant to Bonferroni corrected alpha = 0.012.

<sup>a</sup> Confidence interval<sup>b</sup> Cohen's d**Table 4.** Mean Change Across Areas of Focus of the Modified Clinical Cultural Competency Questionnaire (CCCQ)

(n = 38)

Area of Focus	Time	Mean (SD)	Mean change	95% CI <sup>a</sup>	t	p	Effect size <sup>b</sup>
Knowledge of relevant subject areas (maximum score = 40)	Pre	19.18 (6.01)	4.05	[2.02, 6.09]	4.02	0.000**	0.62
	Post	23.24 (7.07)					
Skills in dealing with socio-cultural issues (maximum score = 60)	Pre	31.08 (10.37)	11.92	[9.15, 14.70]	8.68	0.000**	1.31
	Post	43.00 (7.85)					
Comfort in cross-cultural encounters/ situations (maximum score = 60)	Pre	31.45 (8.79)	9.55	[6.64, 12.46]	6.63	0.000**	1.10
	Post	41.00 (8.53)					
Attitudes toward factors contributing to health disparities (maximum score = 60)	Pre	46.67 (8.58)	-1.12	[-4.32, 2.08]	-0.71	0.518	1.13
	Post	45.55 (9.11)					
Self-awareness of biases and value of cultural competence (maximum score = 25)	Pre	20.53 (3.21)	1.34	[0.30, 2.38]	2.61	0.013	0.43
	Post	21.87 (3.09)					

\*\*\* Significant to Bonferroni corrected alpha = 0.012.

<sup>a</sup> Confidence interval<sup>b</sup> Cohen's d

**Table 5.** Mean Ratings for Learning Objectives on the End-of-Course Evaluation*(n = 38)*

Learning Objective	Mean <sup>a</sup> (SD)
Contribute discipline-specific knowledge and skills to patient/client care	1.95 (1.16)
Analyze case-based problems using ethical principles and an interprofessional approach	1.76 (0.88)
Collaborate effectively with other health professions students	1.53 (0.83)
Progress in the development of cultural competence	1.92 (0.82)

<sup>a</sup>Mean based on a five-point Likert scale (strongly agree = 1, strongly disagree = 5).

Note. *n* = 38

of-course evaluation. This finding validates the IPG structure in which group activities are planned to move teams from exposure to mastery, thus allowing students to effectively gain teamwork skills as well as comfort working collaboratively. These critical skills are emphasized in several reports geared toward improving health care outcomes such as the IOM Report: Measuring the Impact of Interprofessional Collaborative Practice and Patient Outcomes (2015).

Furthermore, the curricula effectively supported students in their progression toward cultural competence (IPEC Core Competency: Values/Ethics) as demonstrated by the statistically significant improvement in overall CCCQ mean scores and a robust effect size. Although mean scores for the subscales Attitudes and Self-awareness reflect considerably less improvement than the other subscales, similar findings were reported in other samples of health professions students (Evans & Hanes, 2014; Okoro et al., 2012; Okoro, Odedina, & Smith, 2015). Perhaps these aspects of cultural competence require a more extensive clinical background than most students have experienced at this point in their training.

The achievement of course objectives was also verified by the students' course evaluations. Although students did not confirm the course's ability to enhance discipline-specific knowledge as strongly as the other course objectives, the results still indicate most students rated the objective favorably ( $M = 1.95$ ,  $SD = 1.16$ , with strongly agree = 1). Due to the large standard deviation, a subgroup analysis was performed, with results showing that undergraduate students again reported the lowest score ( $M = 3.33$ ,  $SD = 1.21$ ), indicating discontent with their professional roles within this course/team. Due to survey results, the faculty have

determined the course may be best suited to graduate students. The second lowest ranked course objective was related to cultural competence ( $M = 1.92$ ,  $SD = 0.82$ ). While all patient encounters (video, simulated, or live) and on-line work included significant cultural concerns that needed to be addressed in the plan of care, the students failed to recognize their use and development of cultural competence skills. Therefore, the course content will be modified to emphasize cultural issues within each activity.

Limitations to this study include a small sample that may not represent the university population, minimizing the generalizability of the findings. Additionally, the internal consistency of the modified CCCQ was not calculated. However, other studies using modified versions for health care providers report alphas greater than 0.80 for all subscales (Krajic, Straßmayr, Karl-Trummer, Novak-Zezula, & Pelikan, 2005; Mareno, Hart, & VanBrackle, 2013). Also, the TCI uses reverse coding for the last seven questions and, despite the change in values in the subheading, several students reported the same score for every question. This suggests the ratings for the last seven questions may have been marked carelessly and, thus, likely may not be accurate. The subjective nature of the surveys is another limitation. Honest reporting was encouraged by following specific distribution protocols to support anonymity and reduce biased reporting. While the literature supports that IPE should occur early in health professions training (Hamilton, 2011; RWJF, 2015), undergraduate students in the course represented a limitation due to their differing level of academic training and clinical experience. Perhaps, an IPE course tailored to the discipline-specific knowledge and skills of undergraduate students may be most beneficial to those in earlier phases of their academic

programs. Despite these limitations, the current study contributes valuable insights to the literature on IPE curricula for health professions students.

## Conclusion

This course aimed to fill a gap in IPE at UCAHC by creating an IP environment for health professions students to achieve core competencies of IPCP and progress in cultural competence. Evaluation of the course via interprofessionalism, teamwork, and cultural competency assessment measures, and end-of-course surveys demonstrates an effective and feasible model of didactic IP curricula. These results support the long-term goal for universities to mandate IPE experiences as a component of all health professions' curricula. The course described here could be one of several potential IPE experiences on campus. By offering multiple sections, the course could reach more students and additional health professions. Researchers can build upon the current findings by exploring novel ways to expand IPE beyond the classroom with IP clinical experiences alone or in combination with didactic courses. Furthermore, future research should assess the sustainability of students' interprofessional and cultural competency skills when they transition into professional practice.

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## Appendix A

UBC Model	CLASS	CLASS TOPIC	IPE Core Competency	ACTIVITIES	ASSESSMENT
E X P O S U R E	#1: LIVE	Roles/ Responsibilities Cultural Competence Working with Interpreters Team/Team work	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Roles and Responsibilities</li> <li>• Teams and Team work</li> </ul>	Welcome to class and course handbook Roles and responsibilities Working with interpreters Administration of consent and survey instruments Cultural competence activities Create groups/Group activities	Participation in class and group activities
	#2 On-line	Cultural Competence	Values and Ethics	Personal health beliefs assignment	Report -personal health beliefs
	#3 On-line	Cultural Competence	Interprofessional Communication	Health beliefs assignment: Individual and group	Report -health beliefs interviews
	#4 LIVE	Patient Care and Medical Issues, Care Planning	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Overview of Health Care Team Challenge (HCTC) Administration of survey instruments Care plan presentation/Video Individual professions preparation Case studies + interprofessional care plan creation	Care planning lecture and activities  Completion of interprofessional discussion questions for video patient cases
	#5 On-line	Patient Care and Medical Issues, Care Planning	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Posting of group-created care plan	Creation of a care plan for video patient case
I M M E R S I O N	#6 On-line	Patient Care and Ethics	<ul style="list-style-type: none"> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> </ul>	Video + individual professions preparation	Completion of discipline-specific preparation
	#7 On-line	Ethics	<ul style="list-style-type: none"> <li>• Values and Ethics</li> <li>• Roles and Responsibilities</li> </ul>	Got Ethics activities Simulated patient preparation activities	Completion of Got Ethics exercise Completion of discipline-specific preparation for simulation activities
	#8 LIVE	Ethics Simulated Patient	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Simulated patient activity Ethics exercises	Completion of interprofessional group discussion questions

M A S T E R Y	#9 LIVE	Health Care Team Challenge	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Health Care Team Challenge-patient interview.	None
	#10, 11, 12, and 13 On-Line	Health Care Team Challenge	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Health Care Team Challenge-progress reports due	None
	#14 LIVE	Health Care Team Challenge	<ul style="list-style-type: none"> <li>• Interprofessional Communication</li> <li>• Values and Ethics</li> <li>• Teams and Team Work</li> <li>• Roles and Responsibilities</li> </ul>	Health Care Team Challenge presentations Repeat administration of survey instruments	Panel judging of the HCTC competition- determine first, second, and third place

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