Journal of Effective Teaching in Higher Education

The Interprofessional Showcase: Evaluating an event to increase professional understanding and collaboration

Kathleen A. Gould, Ed.D, R.D., L.D.N
Clinical Associate Professor
Department of Health Sciences
Towson University

Andrea Barton, M.S.
Clinical Assistant Professor
Department of Kinesiology
Towson University

Karen Day, M.S.
Clinical Associate Professor
Department of Audiology, Speech-Language Pathology & Deaf Studies
Towson University

Abstract. Traditional didactic instruction is not an effective means to provide the interprofessional education that health and human services professional students need. This paper describes a college event aimed at engaging undergraduate and graduate students from several academic departments in interprofessional collaboration. Participants toured and interacted in academic spaces of other professional disciplines to gain an understanding of these professional roles. Interprofessional collaboration was demonstrated and experienced in these spaces and in the group discussions that followed these activities. A series of micro-vignettes, questions, and road blocks provided problems for participants to solve in interprofessional groups. Pre-post comparison surveys indicated that participants increased in their understanding of their professional roles and the roles of others in health care and community settings. An improved understanding of the benefits and challenges of interprofessional teams was achieved and participants felt more confident in their ability to work in these teams at job or internship sites.

Keywords: Interprofessional education, Health professional education, Interprofessional collaboration, Interdisciplinary.

Traditional didactic education of health care professionals occurs in settings where students learn with others in the same professional discipline. It has been argued that this form of instruction does not develop the skills needed to effectively collaborate with others in future professional roles (WHO, 2010). Additionally, traditional uni-professional instruction provides limited opportunity for critical thinking and collaborative problem solving (Reeves, Tassone, Parker, Wagner, & Simmons, 2012). In a review of interprofessional education efforts over the last 30 years, Reeves et al. (2012) suggested that a lack of student preparation for collaboration and interprofessional communication resulted in negative implications for patient care and service. Traditional uni-professional education is inadequate

preparation for working in a healthcare system that according to the Association of American Medical Colleges (2012) should emphasize higher-quality, lower-cost care models where health care providers practice in interprofessional teams.

The preparation of health care professionals is not the only realm where interprofessional skills are needed for effective practice. Johnson and Graves (2017) indicated that curricula in the sciences need to reflect the collaborative and interdisciplinary environments of working scientists. Self and Baek (2017) advocated for and developed a plan for interdisciplinary instruction for design students. Teacher preparation also needs to incorporate interprofessional training to best serve overall needs of future students (Anderson, 2013; Dobbs-Oates & Morris, 2016; Tarr, Whittle, Wilson, & Hall, 2013; Wilson, McNeill, & Gillon, 2017). Additionally, Arora and Arora (2015) suggested the incorporation of interdisciplinary instruction to business education in the areas of supply chain management and marketing to handle complex problems that occur in these environments. Lastly, Lattuca, Knight, Ro, and Novoselich (2017) emphasized the value of bringing engineering students together with those from other disciplines to develop interdisciplinary competence.

To prepare future practitioners for the new environment in health care, medical schools and other health profession schools increased their focus on interprofessional education (IPE), in which students of different health professions learn together in preparation to practice team-based care (Association of American Medical Colleges, 2016). The American Interprofessional Health Collaborative (AIHC) supports a team centered approach to healthcare and emphasizes the need to educate those entrusted with the health of individuals, communities, and populations to value and respect each other's unique expertise and skills. The ability to work together is fundamental to care that is effective, safe, of high quality, and efficient in terms of cost, resources, and time (AIHC, 2015).

This paper describes the development, implementation, and evaluation of a college wide Interprofessional Showcase Event (IPSCE) that could serve as a model for interprofessional education in a variety of settings beyond health care professional education. The goal of this event was to provide students with exposure to the environments that other professionals work in and allow them to engage in problem solving teamwork required in the workplace. The IPSCE took place in the College of Health Professions (CHP) at a mid-Atlantic public university. It involved participants rotating through interactive clinical/educational spaces on campus and discussion of several micro-vignette problems in interprofessional groups. Evaluation of students' reaction to the event was imperative to provide a better understanding of its effectiveness on attitude change regarding interprofessional practice.

Literature Review

Interprofessional training is vital to developing students who are prepared to meet the needs of a diverse and challenging workplace. According to The World Health Organization Framework for Action on Interprofessional Education and Collaborative

Practice (WHO, 2010), interprofessional education is defined as occurring when two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes. This framework further defined a collaborative practice-ready health worker as someone who has learned how to work on and serve as a competent member of an interprofessional team (WHO, 2010). Developing workers who demonstrate these skills is the goal of interprofessional education.

The emphasis on the need for interprofessional education has not been confined to the training of competent health care professionals. The increasing complexity of workplace environments have necessitated the introduction of IPE into teacher training, business, science, design, and engineering disciplines (Anderson, 2013; Arora & Arora, 2015; Dobbs-Oates & Morris, 2016; Johnson & Graves, 2017; Lattuca et al., 2017; Self & Baek, 2017; Tarr et al., 2013; Wilson, McNeill, & Gillon, 2016, 2017). For example, Tarr et al. (2013) discussed child protection education directed at trainee teachers that included interprofessional instruction involving education, health, police, and social work disciplines. The need for effective collaboration in the school environment between teachers and speech and language therapists (SLTs) was the emphasis for an interprofessional education program that included case-based instruction supplemented with discussion to share respective expertise with literacy instruction (Wilson et al., 2016). These researchers also investigated the outcomes of shared professional practice placements for student teachers and student SLTs on their preparedness to effectively collaborate to support children's learning and well-being (Wilson et al., 2017).

To simulate business interactions that occur in advertising industry service supply chains, Arora and Arora (2015) developed and evaluated an experiential lab game to engage supply chain management (SCM) and marketing students in interdisciplinary problem solving. Game participation increased student understanding of the complex interrelationships between SCM and marketing in real world business environments. Recognizing the importance of interdisciplinary competency in engineering practice, Lattuca et al. (2017) sought to understand the role of student characteristics, college experiences, and faculty beliefs in competency development. Their findings suggested that it was imperative for the engineering curriculum to promote interdisciplinary thinking to develop these competencies. Additionally, co-curricular experiences that brought engineering students together with other majors were important to the development of interdisciplinary competence. To mimic the interrelationships in scientific research, Johnson and Graves (2017) developed and implemented a Chemistry-Genetics Course Collaborative to provide an interdisciplinary learning environment for chemistry and genetics students. Their attempt to create an understanding of the interrelationships between the scientific disciplines and emphasize the collaboration that occurs between practicing scientists was met with challenges due to a disconnect between course content and student expectations. Similarly, Self and Baek (2017) developed and implemented courses that were team taught by industrial design and human factors engineering instructors to provide students with interdisciplinary learning experiences. When compared to single instructor courses in the same topic areas, the team-taught classes provided students with a

greater understanding of the relevance of different disciplines to the course subject. However, Self and Beck (2017) found that single instructor classes received more overall positive evaluations of course quality indicating the need to further refine the team-taught course design.

Determining effective teaching methods to engage students and impart interprofessional skills is a challenge in the academic setting that has been bound by traditional forms of instruction. Abu-Rish et al. (2012) surveyed the literature from 2005 to 2010 and found several models for IPE directed at pre-licensure health professionals. Prevalent among these models were one-time workshop style events utilizing small group discussion, case-based learning, large group lectures, reflective exercise, clinical teaching or direct interaction with patients, simulation or community-based projects. The most popular formats, small group discussion and case-based learning, used in conjunction appeared more conducive to student interaction and team building as compared to didactic instruction (Abu-Rish et al., 2012).

D'Eon (2005) suggested that Case Based Learning (CBL) and Problem Based Learning (PBL) are important methods to fortify the success of IPE because these approaches utilize the skills required for effective teamwork. He argued that the two main components for the transfer of learning are complexity of the learning task and a cooperative-experiential approach to engage in the learning task. Learners benefited from activities that promoted positive interdependence, face-to-face interaction, individual accountability, interpersonal and small-group skills, and group processing. Students should engage in a four-stage model of planning, doing, observing, and reflection for effective experiential learning.

CBL and PBL formats have been utilized in various settings as a method to facilitate IPE (e.g. Charles, Bainbridge, & Gilbert, 2010; Curran, Heath, Kearney, & Button, 2010; MacDonnell, Rege, Misto, Dollase, & George, 2012; Villadsen, Allain, Bell, & Hingley-Jones, 2012; Wilson et al., 2016). Participants in these events included professionals, post-graduate students (Curran et al., 2010), undergraduate health professional students (Charles et al., 2010) as well as student teachers and speech-language therapy students (Wilson et al., 2016).

Charles et al. (2010) described an undergraduate interprofessional workshop designed to expose students to interprofessional practice. This workshop was designed to assist students in acquiring an understanding and appreciation of the role that other health and human service professionals play in clinical situations. Teams of students developed a collaborative plan for delivering patient services on a faculty-designed case while other students observed the team interactions. Participation in the case and observation of the event allowed students to reflect on their understanding of interprofessional practice.

Curran et al. (2010) found that a one-day interprofessional workshop improved the attitudes of post-graduate residents toward healthcare teamwork and provided a satisfactory learning experience for nursing and allied health staff. Physicians, nurses, social workers, occupational therapists, dietitians, and physiotherapists

participating in an interprofessional shared decision-making (IP-SDM) workshop felt that their knowledge of IP-SDM improved (Stacey et al., 2014). Similarly, medical, midwifery, social work, and early years students valued the shared learning in a two-hour workshop designed to facilitate cooperation in providing care for a family-based problem scenario (Villadsen et al., 2012). Students' positive attitudes toward IPE improved because of workshop participation. MacDonnell et al. (2012) reported that medical, nursing, and pharmacy students participating in an IPE workshop showed an enhanced understanding of other professionals. Their results indicated that students were able to effectively work together as a team without prior familiarity with each other or significant IPE experience. Workshop participation helped establish trust and effective communication between the interprofessional participants (MacDonnell et al., 2012). Gould, Day, and Barton (2017) evaluated an Interprofessional Case Study Workshop with 289 participants from 13 different disciplines. They found that student participation increased awareness of other professional roles and the benefits and challenges of interprofessional teams.

Background

The Interprofessional Showcase Event

The IPSCE took place in the College of Health Professions (CHP) of a public university with a total student enrollment of 4,528 in 23 graduate and undergraduate programs. The 209 participants were from Athletic Training; Audiology; Exercise Science; Family Studies; Health Education; Nursing; Occupational Therapy; and Speech Language Pathology. Most students at the event were junior or senior level undergraduate students (164; 78%) and the remainder (45; 22%) were graduate students from Speech/Language Pathology (33; 16%) and Audiology (12; 6%).

Participants had no previous formal academic exposure at this university to professional practice in college programs other than their own as CHP did not offer interprofessional coursework at the time of this event. Therefore, the IPSCE was their first exposure to interprofessional collaboration in the current academic setting. The IPSCE consisted of two major components:

1. An Interprofessional Showcase in which students toured and interacted with activities in professional workspaces/academic learning areas of various CHP disciplines and,

2. Interprofessional discussion where students were provided with micro-vignettes to engage in problem solving.

The Interprofessional Showcase Committee (IPSCC), comprised of faculty from each CHP department and the Department of Family Studies in the College of Liberal Arts, developed four micro-vignettes for interprofessional problem solving. The IPSCE objectives were provided to students at registration via an online link to prepare them for collaborative discussion. The objectives and expected learning outcomes were as follows:

1. Gain exposure to settings of clinical practice and/or academic learning other than those affiliated with your pursuit of study.
2. Engage in collaborative, team-based learning involving prioritization and development of strategies which mutually address complex health care issues.
3. Develop a broader understanding of challenges and benefits of working on an interprofessional team.
4. Acquire an enhanced appreciation of your own role and the roles of other professionals on an interprofessional team.

Interprofessional showcase

The first activity of the event, the Interprofessional Showcase, introduced students to settings of clinical practice and/or academic learning other than those affiliated with their pursuit of study. The showcase activities were designed to be interactive and hands-on to provide students with a broader view of the health professions and stimulate thought about their potential for collaborative interactions within each setting.

Prior to the event, the IPSCC determined which clinical practice/academic learning spaces on campus would best highlight interprofessional collaborative practice. Committee members solicited faculty showcase presenters and predetermined activities for each showcase space. These activities focused on the clinical/educational activities that occur in the space, health professionals that are involved, and interprofessional collaboration that occurs. Students were preassigned to the showcase spaces not related to their major to maximize their exposure to a variety of professional settings. For example, a speech language pathology student was assigned to the Nursing Simulation Lab for an experience while an occupational therapy student was assigned to the Vestibular Lab. Showcase spaces and the activities that occurred there are enumerated in Table 1.

Table 1

Professional Affiliations, Activities, and Showcase Spaces

Professional Affiliation	Activity	Showcase Space
Athletic Training	Helmet Removal, Spine Boarding, and Intubation	Athletic Training Lab
Audiology	Rotary Chair/Vestibular Assessment	Vestibular Lab
Audiology	Audiology Assessment	Audiology Booth
Exercise Science	VO2 Max Testing	Exercise Science Lab

Exercise Science	Research and Education Programs	University Wellness Center
Nursing	Adult Patient Simulation	Adult Health Simulation Lab
Nursing	Obstetrics Patient Simulation	Family Health Simulation Lab
Nursing	Pediatric Patient Simulation	Pediatric Simulation Lab
Occupational Therapy	Visual Deprivation Demonstration	Occupational Therapy Kitchen
Occupational Therapy	Autism Independent Living Skills	Center for Autism Apartment
Occupational Therapy	Pediatric Assessment	Occupational Therapy Classroom
Occupational Therapy	Psychosocial Assessment	Occupational Therapy Classroom
Occupational Therapy	Splinting Demonstration	Occupational Therapy Classroom
Occupational Therapy	Trunk, Balance and Motor Control	Surf Board Room
Occupational Therapy	Virtual Voices	Occupational Therapy Classroom
Occupational Therapy/ Speech Language Pathology	Therapeutic Nursery School Activities	Children's Treatment Center
Speech Language Pathology	School Aged Child Therapy	Speech Treatment Center

The event began with students arriving at a central location where they were welcomed, introduced to the event activities, and received their showcase assignments. Students were divided into groups to travel, accompanied by faculty committee members, to the showcase spaces on campus by walking or by charter bus. Upon arrival, students were greeted by showcase faculty presenters who provided information about the space and introduced the predetermined activities. Showcase presenters were encouraged to facilitate thinking and discussion related to interprofessional collaboration in each clinical/learning space and activity. Students participated in two showcase demonstrations lasting approximately 20 minutes each and returned to the workshop venue on foot or by bus. Their experiences in the showcases were referenced throughout the remainder of the event to encourage students to develop a broader understanding of their own professions, other professions, and interprofessional collaboration.

Interprofessional micro-vignette discussion

The second part of the IPSCE consisted of interprofessional discussion of three micro-vignettes. Students reconvened at a conference-style venue on campus and were preassigned to two mixed discipline numbered roundtables of no more than 8 students per table. Each student's table assignments were pre-printed on their name tags. At each table, students were provided with a packet of information that contained a micro-vignette, two guiding questions designed to start discussion of the micro-vignette, and four individual envelopes labeled Roadblock #1, Roadblock #2, Roadblock #3, and Roadblock #4.

The CHP Dean opened the event with a brief address about IPE, and the IPSCC chair instructed students to introduce themselves and their major to the other students around the table. Students were asked to identify a table leader to take notes and speak on behalf of the members of the table. Students were allotted approximately 20 minutes to discuss the micro-vignette providing perspectives from their own disciplines and/or personal experiences. The micro-vignette and guiding questions initiated the interprofessional discussion and the event activities continued as illustrated in Figure 1.

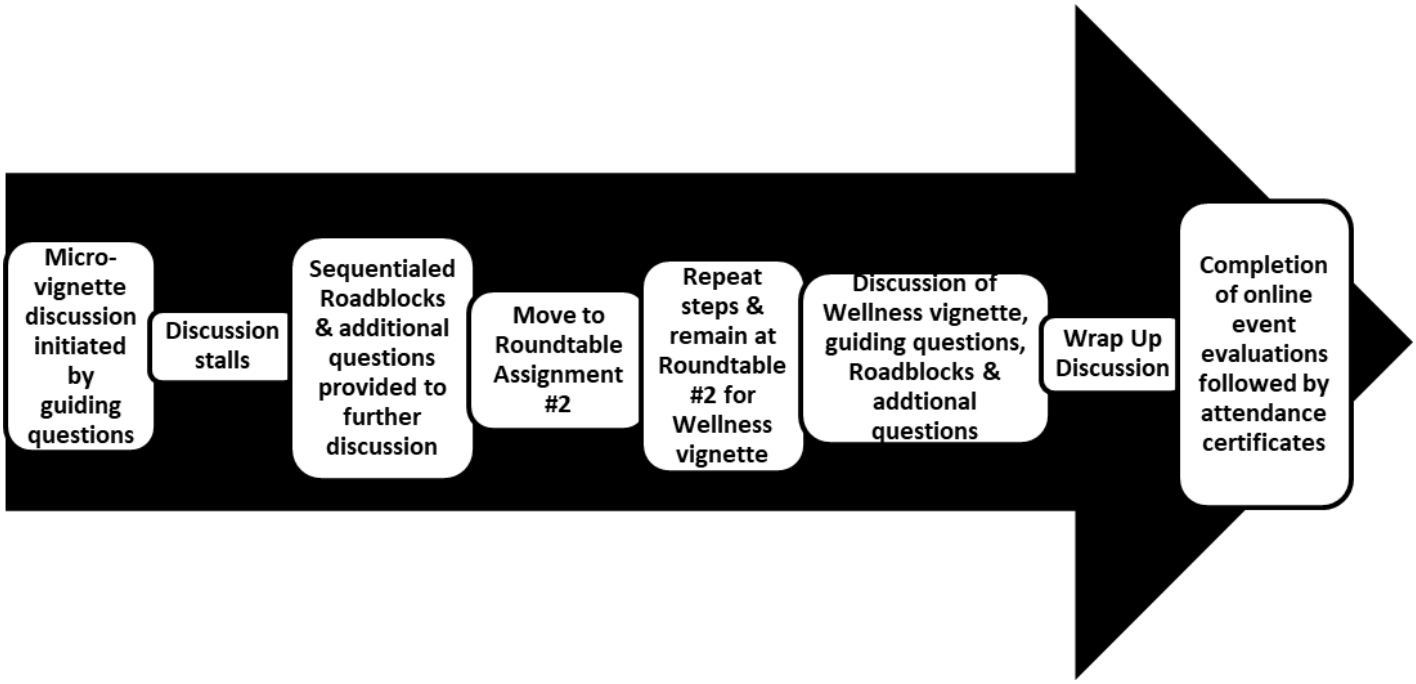

Figure 1. Step by step sequence of interprofessional roundtable activities

Micro-vignette examples

An example of a micro-vignette and the associated guiding questions and roadblocks is as follows:

Scenario: Mr. Gonzales, a 68-year-old male with high blood pressure, is playing in a park with his grandchildren when he experiences symptoms of a stroke including slurred and slowed speech, weakness in his right arm, and facial asymmetry indicating an ischemic stroke.

Guiding Questions:

1) Where would you start with the client?

2) What role would your discipline potentially play in the care of this client/patient?

Roadblock #1: Mr. Gonzales does not read and write English well and has difficulty understanding medical information since English is not his first language.

Roadblock #2: Mr. Gonzales lives alone. His daughter is a 28-year-old single mom who works two jobs, but she lives close by and can help in a limited capacity, mostly on the weekends. When he returns home, he will need assistance with medication management, daily hygiene tasks, and meal preparation.

Roadblock #3: After discharge from the rehabilitation facility, he will need to continue with physical therapy two days per week and join a local gym where he will exercise on his own three days per week.

Roadblock #4: He has been working with the Speech Language Pathologist who suspects he also has an underlying hearing impairment.

Additional Questions:

1) What would be a priority intervention that you could implement within your professional role?

2) What other health professions/disciplines would be involved in the care of this client/patient?

3) How would you work together for the best outcome for this client/patient?

Upon completion of the first interprofessional micro-vignette discussion, students were directed to re-package the table packets and roadblock envelopes for the next group of students assigned to the table. Table assignments and student re-grouping were strategically planned to provide for different student composition and micro-vignettes for the second round of discussions. Three micro-vignettes were utilized for the first and second table assignments insuring that each student would discuss a different micro-vignette at each of their table assignments. The two additional micro-vignettes used for interprofessional discussion involved a high school athlete with diabetes and a sixty-year-old marathon runner diagnosed with prostate cancer.

Wellness Micro-vignette

The wellness micro-vignette used for discussion was as follows:

Scenario: You and your colleagues are members of the wellness team that received a contract to work with employees and their families at a major corporation in your city. As part of this team your task is to identify the potential health risks in the clients and plan appropriate physical and mental health screening and assessments, potential direct and indirect interventions, and wellness education to help reduce the risks.

Guiding Questions:

1) Where would you start with the corporate wellness client?

2) What role would your discipline potentially play in the care of this client/patient?

Roadblock #1: Many of the hourly employees work long hours and do not have access to onsite exercise facilities.

Roadblock #2: Company headquarters is in a part of town where fast food restaurants predominate, and employees are allowed a 30-minute lunch break.

Roadblock #3: The onsite corporate nurse informs you that numerous employees have multiple chronic disease diagnoses including diabetes, hypertension, cardiovascular issues, elevated blood lipids, hearing loss, and arthritis.

Roadblock #4: Numerous employees indicate regular use of tobacco products and alcohol.

Additional questions facilitator can pose to continue the discussion:

1) What would be a priority intervention that you could implement within your professional role?

2) What other health professions/disciplines would be involved in the care of this client/patient?

3) How would you work together for the best outcome for this client/patient?

Event wrap-up discussion

The event concluded with an overview of the day's activities facilitated by members of the IPSCC. Wireless microphones were used to enable students to share with the larger group what they observed during showcasing and interprofessional discussions. Students also responded to several questions regarding interprofessional education and collaboration. Discussion was driven by these questions but became open-ended and spontaneous as the wrap up progressed. At the conclusion, students completed an online event evaluation survey using their mobile devices or provided iPads. A survey completion confirmation page served as proof of participation and a means by which the student attendees were awarded a signed certificate of event attendance.

Methods

The IPSCE was designed to introduce students to other professions in CHP and to engage them in interprofessional discussion. This pre-post comparison study investigated attitude change in the IPSCE participants. The sample consisted of 182 students who registered for the event and provided matched pre-and post-survey responses.

Data Collection

Two weeks prior to the showcase event, students completed an online registration survey and created a unique identifying number to enable their responses from the

pre-survey to be linked anonymously with the post-event survey. A four point Likert scale where 1 was Strongly Agree and 4 was Strongly Disagree was used to assess participant knowledge about other professions and attitudes toward interprofessional collaboration using the statements found in Table 2. Chronbach's alpha for these questions was 0.906 suggesting a high degree of internal consistency between the survey questions in measuring attitudes related to interprofessional understanding.

At the close of the showcase, participants completed a digital post-evaluation survey on site using personal devices or iPads provided at the event. Using the unique identifier created at registration, participants responded to statements regarding attitude change as a result of participation on the same criteria screened in pre-event survey. Chronbach's alpha for these questions was 0.91 suggesting a similar degree of internal consistency in the post-survey as was demonstrated in the pre-event attitude survey.

Data Analysis

Pre-post results that could not be paired were discarded and means were calculated for the 182 responses. A paired *t*-test using an alpha level of .05 was performed on these means using IBM SPSS Statistics for Windows, Version 19.0. (Armonk, NY). Ethics approval was granted by the university Institutional Review Board for the Protection of Human Participants. The research was considered exempt from general human participant requirements with exemption number 15-x075.

Results

Matched data from 182 pre- and post-responses were analyzed from the following majors: Athletic Training (13, 7.1%); Graduate Audiology (11, 6.0%); Exercise Science (31, 17.0%); Family Studies (14, 7.7%); Health Education (14, 7.70%); Nursing (46, 25.3%); Occupational Therapy (24, 13.2%); and Graduate Speech Language Pathology (29, 15.9%).

A paired *t* test showed a statistically significant difference in six attitude questions. Pre-post-means and paired *t* results for all survey questions are reported in Table 2. A Likert scale where 1=Strongly Agree, 2=Agree, 3=Disagree and 4=Strongly Disagree was utilized. Therefore, a decline in mean values from pre-event to post-event suggests a positive shift in student attitude.

Table 2

Pre-Post Attitude Means and Paired t for the 2016 interprofessional Showcase Event

Pre-Post Questions	N	Mean (SD)	*t*	*df*	*p*
Pre: My academic preparation has enabled me to confidently verbalize the role of my profession as it relates to other professions in a health care/community setting.	182	1.73 (.698)			

Post: This event has enabled me to confidently verbalize the role of my profession as it relates to other professions in a healthcare/community setting.	182	1.42 (.615)	4.629	181	.000
Pre: My academic preparation has enabled me to clearly explain to others the role of other professionals in a health care/community setting.	182	1.84 (.650)			
Post: Through participation in this event, I am able to clearly explain to others the role of other professionals in a healthcare/community setting.	182	1.55 (.571)	5.010	181	.000
Pre: I would need guidance to effectively interact with other healthcare professionals to mutually address complex issues in a healthcare/community setting.	182	1.77 (.682)			
Post: This event has prepared me to successfully interact with other healthcare professionals to mutually address complex issues in a healthcare/community setting.	182	1.43 (.607)	5.284	181	.000
Pre: My academic experiences have prepared me to identify the benefits of working in interprofessional teams.	182	1.60 (.695)			
Post: This event has prepared me to identify the benefits of working in interprofessional teams.	182	1.37 (.577)	4.073	181	.000
Pre: My academic experiences have enabled me to identify the challenges of working in interprofessional teams.	182	1.85 (.669)			
Post: This event has prepared me to identify the challenges of working in interprofessional teams.	182	1.49 (.592)	6.007	181	.000
Pre: I have had the appropriate academic preparation to work as a member of an interprofessional team in a clinical rotation, internship or job.	182	1.81 (.714)			
Post: This event provided the academic preparation to work as a member of an interprofessional team in a clinical rotation, internship, or job.	182	1.46 (.582)	5.364	181	.000

P < .05

Likert scale 1=Strongly Agree, 2=Agree, 3=Disagree, and 4=Strongly Disagree

The IPSCE was successful in bringing together students across the CHP and a group of Family Studies students from the College of Liberal Arts to participate in a variety of work spaces and engage in interprofessional discussion. Activities in the showcase spaces introduced participants to practice areas not typically integrated into their previous academic experiences at the university. Students actively learned about the roles other professionals have in the workplace and how their professions might be integrated into these settings.

The micro-vignette discussions allowed participants to share their expertise with other health professional students. Pre-post survey results showed that participants gained a better understanding of their professional roles as a result of the event. Verbalizing their professional roles to others increased this understanding as evidenced by the change in attitude before particpation in the IPSCE mean 1.73 (SD = 0.698), to the after participation mean 1.42 (SD = 0.615). These findings are consistent with Turrentine et al. (2016) who found that nursing and medical students had increased knowledge of their professional roles and could communicate this information better after participation in an IPE activity.

Additionally, the sharing in the showcase spaces and interprofessional discussion increased participants' understanding of other professional roles. Students' attitudes shifted more towards strongly agreeing, mean 1.55 (SD = 0.571), that they could clearly explain the role of other professions after IPSCE participation than they could before the event, mean 1.84 (SD = 0.65). Information gleaned from each showcase space was built upon in the interprofessional micro-vignette group discussions. Observing other professionals in simulated work environments, participating in these environments, and solving the micro-vignette problems with other pre-professionals assisted students in gaining a broad understanding of other professional programs in the college. These findings agree with those of Wilson et al. (2016, 2017) who found that student teachers and speech-language therapy students who participated in an IPE event and shared professional practice placements were better able to understand the other's professional role and, consequently, increased their competencies for collaborative practice.

Prior to the event, participants agreed that they would need guidance, mean 1.77 (SD = 1.43), to interact with other professionals in the health care environment. After the event, students more strongly agreed that they were better prepared to work in interprofessional groups, mean 1.43 (SD = 0.607), because of participation in the IPSCE. Being able to express their professional roles more confidently and understand the roles of other health professionals made participants feel more prepared to interact with colleagues to address complex issues in healthcare and community settings. Students enjoyed the opportunity to provide their professional expertise and benefited from what they learned about other professional roles. Similarly, Gould, Lee, Berkowitz and Bronstein (2015) found that medical and social work students valued the opportunity to learn from one another in a collaborative IPE activity. Their collaborative approach to problems provided an enhanced understanding of patient needs and resulted in improved care.

As noted previously, improved outcomes are important in a variety of work settings in addition to health care. The benefits of interprofessional collaboration were noted by Dobbs-Oates and Morris (2016) in improving PreK-12 student outcomes particularly as it related to the education of pre-service special educators and school counselors. They noted that interprofessional collaboration among a variety of professionals is essential to school effectiveness and student well-being and emphasized the importance of IPE in the training of these professionals. Additionally, the importance of IPE was emphasized by Tarr et al. (2013) who developed face to face education in teacher training that incorporated interprofessional instruction involving education, health, police, and social work disciplines to ensure effective provision of child protection services.

Interprofessional discussion of the micro-vignettes brought out a variety of perspectives from individual professions and resulted in creative problem solving. Differing opinions and perspectives did not dampen student enthusiasm regarding the benefits of interprofessional collaboration. Instead they increased their understanding of these benefits from pre-event, mean 1.60 (SD = 0.695), to post-event mean, 1.37 (SD = 0.577). A decrease in these means indicated a stronger trend toward strongly agreeing that there are benefits to interprofessional collaboration. Likewise, student attitudes regarding the challenges of interprofessional collaboration moved in a more positive direction from prior to the IPSCE mean, 1.85 (SD = 0.669), and after the event mean, 1.49 (SD = 0.592), through the interprofessional discussions and activities provided in the IPSCE. Understanding both the benefits and challenges of interprofessional collaboration was an important goal of this event because it allowed students to acquire a better understanding of both the positive and potentially negative situations that could develop in collaborative team work settings. Students felt that this event provided them with an introductory academic experience to enhance their ability to work as a member of an interprofessional team. Their attitudes toward this preparation shifted in a more favorable direction from before the event mean, 1.81 (SD = 0.714), to the post-event result mean, 1.46 (SD = 0.582). As previously mentioned, the participants had no formal participation in an IPE event at this university. Therefore, the changed attitude after event participation accomplished an intended outcome of increasing student self-reported confidence in their ability to work in interprofessional teams.

Reeves et al. (2012) suggested that effective IPE should provide an interactive learning approach. The IPSCE provided a combination of observation, simulation, interaction, and interprofessional discussion and could serve as a model for IPE in other pre-professional programs. Similarly, Arora and Arora (2015) engaged business students in an interactive, interdisciplinary problem-solving game combining the above characteristics, which resulted in increasing their understanding of the nuances of supply chain, marketing, and advertising disciplines. Active participation in simulated events and problem solving as a team had similar benefits to students trying to understand complex business situations as health professionals trying to solve complex patient problems. The interactive and experiential elements of these learning events increased student confidence to work as a part of an interprofessional team in clinical rotations, internships, and

professional positions. It is imperative that students have exposure to similar events to prepare them for future professional roles.

Limitations

The results and observations obtained in this study are specific to the students who participated in the IPSCE. It is possible that these students have similar characteristics to other health care professional students or other pre-professional students. However, these students represent a small subset of CHP students and of health professional students in general and results may not be the same with different student populations. Additionally, CHP programs were not equally represented by participants in the IPSCE. Therefore, the results were influenced by the programs that had a larger representation. Evaluation of attitudes related to interprofessional collaboration were taken immediately following the event. Therefore, follow-up assessments would be necessary to determine if attitude change was maintained over time.

Conclusion

The goal of IPE is to develop professionals that are prepared to participate in collaborative work environments. The IPSCE provided CHP students with an introduction to and simulation of this work environment. Through event participation, students communicated effectively with their colleagues in other pre-professional programs. This communication and problem-solving increased confidence in their own role and their understanding of other professional roles. IPSCE participation increased students' understanding of interprofessional collaboration and improved their self-assessment of their ability to work as a member of an interprofessional team. As an introductory event, the IPSCE was instrumental in setting the stage for future interprofessional training opportunities both inside and outside the classroom. The attitude change that resulted from IPSCE participation was important because it allowed students to appreciate the uniqueness of their professional role and increased their understanding of other professional roles. The event also provided participants with an appreciation of the value of interprofessional collaboration in the workplace. In doing so, the IPSCE provided an initiation event for ongoing development of student interprofessional competencies throughout CHP. Additional study is needed to determine the most effective methods to further develop and reinforce these competencies by incorporating IPE both inside and outside the academic classroom and professional placement settings at our institution.

The need for interprofessional collaboration in health and other professions will only increase in the future. Nandan and London (2013) suggested that the global economy and information age have increased the complex and dynamic nature of problems faced by communities and nations. They have, therefore, advocated for developing interprofessional competencies for students in both undergraduate and graduate education programs. Nandon and London (2013) indicated that "most professionals (e.g. social work, accountants, engineers, economists, nurses, physicians, lawyers, and teachers) regularly work with individuals from different professional fields. The complexity of issues they address

necessitates cooperation and collaboration with diverse professionals" (p. 819). Therefore, it is vital that educators in all pre-professional programs identify, develop, and implement effective IPE in the academic setting to improve student understanding of other professional roles and enhance future interprofessional collaborative practice.

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this article.

References

Abu-Rish, E., Kim, S., Varpio, L., Malik, E., Craddick, K., Blondon, K., & Zierler, B. (2012). Current trends in interprofessional education of health sciences students: A literature review. *Journal of Interprofessional Care, 26*(6), 444–451. doi:10.3109/13561820.2012.715604

American Interprofessional Health Collaborative. (2015). *American interprofessional health collaborative transcending boundaries: Transforming learning.* Retrieved from https://aihc-us.org/storage/documents/AIHC%20Case%20Statement%2011%2030%2011.pdf

Anderson, E. M. (2013). Preparing the next generation of early childhood teachers: The emerging role of interprofessional education and collaboration in teacher education. *Journal of Early Childhood Teacher Education*, *34*(1), 23–35. doi:10.1080/10901027.2013.758535

Arora, A., & Arora, A. S. (2015). "Supply chain—marketing shark tank" experiential lab game in interdisciplinary business education: Qualitative and quantitative analyses. *Decision Sciences Journal of Innovative Education*, *13*(1), 21–43. doi:10.1111/dsji.12053

Association of American Medical Colleges. (2012, September). *Changing delivery system increases focus on interprofessional education*. Retrieved from https://www.aamc.org/

Association of American Medical Colleges (2016, September) *Interprofessional learning prepares students for team-based practice*. Retrieved from https://news.aamc.org/medical-education/article/interprofessional-learning-prepares-team-practice/

Charles, G., Bainbridge, L., & Gilbert, J. (2010). The University of British Columbia model of interprofessional education. *Journal of Interprofessional Care*, *24*(1), 9–18. doi:10.3109/13561820903294549.

Curran, V. R., Heath, O., Kearney, A., & Button, P. (2010). Evaluation of an interprofessional collaboration workshop for post-graduate residents, nursing

and allied health professionals. *Journal of Interprofessional Care, 24*(3), 315–318. doi:10.3109/13561820903163827.

D'Eon, M. (2005). A blueprint for interprofessional learning. *Journal of Interprofessional Care, 19*(1), 49–59. doi:10.1080/13561820512331350227.

Dobbs-Oates, J., & Morris, A. W. (2016). The case for interprofessional education in teacher education and beyond. *Journal of Effective Teaching, 42*(1), 50–65. doi:10.1080/02607476.2015.1131363

Gould, K. Day, K. H., Barton, A. T. (2017) Changing student attitudes through interaction: Findings from an interprofessional workshop. *Journal of Interprofessional Care, 31*(4), 540–542. doi:10.1080/13561820.2017.1287165

Gould, P. R., Lee, Y., Berkowitz, S., & Bronstein, L. (2015). Impact of a collaborative interprofessional learning experience upon medical and social work students in geriatric health care. *Journal of Interprofessional Care*, *29*(4), 372–373. doi:10.3109/13561820.2014.962128

Johnson, A. F., & Graves, C. W. (2017). What makes us who we are? Investigating the chemistry behind genetics in an interdisciplinary course for undergraduate students. Part I. *Journal of College Science Teaching*, *46*(3), 19–27.

Lattuca, L. R., Knight, D. B., Ro, H. K., & Novoselich, B. J. (2017). Supporting the development of engineers' interdisciplinary competence. *Journal of Engineering Education*, *106*(1), 71–97. doi:10.1002/jee.20155

MacDonnell, C. P., Rege, S.V., Misto, K., Dollase, R., & George, P. (2012). An introductory interprofessional exercise for healthcare students. *American Journal of Pharmaceutical Education, 76*(8), 1–6. Retrieved from http://www.ajpe.org/doi/full/10.5688/ajpe768154

Nandan, M., & London, M. (2013) Interdisciplinary professional education: Training college students for collaborative social change. *Education + Training*, *55*(8/9), 815–835. Retrieved from https://doi.org/10.1108/ET-06-2013-0078

Reeves, S., Tassone, M., Parker, K., Wagner, S. J., & Simmons, B. (2012). Interprofessional education: an overview of key developments in the past three decades. *Work*, *41*(3), 233–245. doi:10.3233/WOR-2012-1298

Self, J. A., & Baek, J. S. (2017). Interdisciplinarity in design education: Understanding the undergraduate student experience. *International Journal of Technology and Design Education, 27*(3), 459–480. doi:10.1007/s10798-016-9355-2

Stacey, D., Brière, N., Robitaille, H., Fraser, K., Desroches, S., & Légaré, F. (2014). A systematic process for creating and appraising clinical vignettes to illustrate interprofessional shared decision making. *Journal of*

Interprofessional Care, 28(5), 453–459. doi:10.3109/13561820.2014.911157.

Tarr, J., Whittle, M., Wilson, J., & Hall, L. (2013). Safeguarding children and child protection education for UK trainee teachers in higher education. *Child Abuse Review*, *22*(2), 108–115. doi:10.1002/car.2275

Turrentine, F. E., Rose, K. M., Hanks, J. B., Lorntz, B., Owen, J. A., Brashers, V. L., & Ramsdale, E. E. (2016). Interprofessional training enhances collaboration between nursing and medical students: A pilot study. *Nurse Education Today*, 4033–4038. doi:10.1016/j.nedt.2016.01.024

Villadsen, A., Allain, L., Bell, L., & Hingley-Jones, H. (2012). The use of role-play and drama in interprofessional education: An evaluation of a workshop with students of social work, midwifery, early years and medicine. *Social Work Education, 31*(1), 75–89. doi:10.1080/02615479.2010.547186

Wilson, L., McNeill, B., & Gillon, G. T. (2016). A comparison of inter-professional education programs in preparing prospective teachers and speech and language pathologists for collaborative language–literacy instruction. *Reading and Writing, 29*(6), 1179–1201. doi:10.1007/s11145-016-9631-2

Wilson, L., McNeill, B., & Gillon, G. T. (2017). Inter-professional education of prospective speech-language therapists and primary school teachers through shared professional practice placements. *International Journal of Language & Communication Disorders*, *52*(4), 426–439. doi:10.1111/1460-6984.12281

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Retrieved from http://www.who.int/hrh/resources/framework_action/en/

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this article.