Online Video Conferencing: A Promising Innovation in Interprofessional Education

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This pilot project demonstrated using online video conferencing with students from eight disciplines for providing care of a rural elder with multiple chronic conditions. Eighty-three students participated in 12 video case conferences, each led by a nurse-practitioner student. All students were given information on care of elders and the core competencies for interprofessional practice. Nurse-practitioner students were given information and practice on running a team meeting. A survey evaluated the activity in terms of interprofessional competency attainment in four domains (IPEC) by using data aggregated from 14 Likert scale questions. Participants (n=81, 98% response) rated the value of this activity highly (>60% strongly agreed and >25% agreed) across all four competency domains. Differences between disciplines were not found. Open-ended questions confirmed that the students valued the activity but also conveyed a desire for more in-person interprofessional activities to be included in their education. *J Allied Health* 2016; 45(3):222–225.

HEALTH CARE SERVICES in the United States have been provided by a variety of professionals for many years; however, not always in a coordinated manner. It took until 1972 for the Institute of Medicine (IOM) to convene a conference on "Education for the Health Team" which called for interdisciplinary education for health science.[1] Participants of this conference concluded that in order to meet patient, family, and community health care needs, health care professionals must coordinate efforts in the form of teams sharing common goals. And the existing educational system was not adequately preparing health professionals for this team work.

Unfortunately, over 40 years since the first IOM report, health care professional education is still largely housed in individual silos. Interprofessional education (IPE) must be thoughtfully planned and incorporated across curricula. Only when students understand how to work interprofessionally are they able to practice effectively as a part of a collaborative practice team (WHO, 2010).[2] While many disciplines and their accreditors have recognized the importance of IPE, barriers have prevented its implementation in many educational institutions.[3,4] In a meta-analysis of 1,570 articles, the following barriers to IPE were identified: scheduling conflicts, rigid curricula including issues of required vs extra-curricular activity, different degree timetables, and limited knowledge about other health professions and lack of perceived value.[5]

To overcome the barriers of scheduling and packed curricula, some educators have turned to e-learning and virtual team partners.[6] Similarly, this project involved the development of an online, synchronous educational activity for students from eight different health care professions to participate simultaneously via video conference. This activity focused on interprofessional team planning regarding the care of a rural elder with multiple chronic conditions.

Methods

Description of Activity

The interprofessional practice (IPP) activity was centered on a case study written by a nurse-practitioner (NP) student based on a recent clinical experience. The NP students were instructed to write a case of a frail elder living in a rural community with multiple medical/social problems which would be ideally addressed by a variety of disciplines. Cases were reviewed by nursing faculty for accuracy and understandability. The case study, background information on elder care and IPP, as well as the Core Competencies for Interprofessional Collaborative Practice (IPEC, 2011)[7] were reviewed by all students prior to the video conference. The preparation time for participants was approximately 2 hours. The NP students received additional training in group work to prepare for their role as the facilitators of the video conference.

Twelve conferences, 90 minutes in length, were held over a 2-week period in November 2013. Each student signed onto the Readytalk™ platform <**AU: give mfg name/city/url**> for their scheduled video conference.

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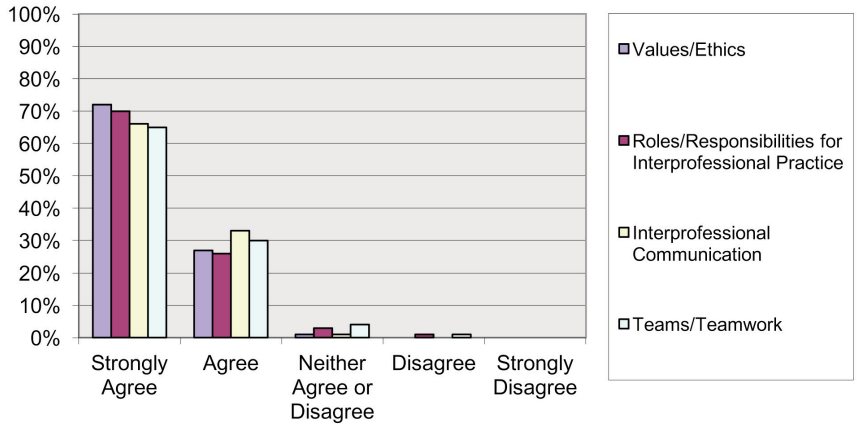

FIGURE 1. Students' rating of interprofessional competency domains.

Four students were visible on the computer screen at one time, with each student being responsible for enabling their webcam while speaking. The program also included a hand raise function and a type chat box for participants to voice ideas and concerns. Students also dialed into the conference via phone for the audio component. This feature provided a backup for students who might have computer issues or poor internet service connections.

In order for the meeting to be run in a timely and productive manner, each student was required to select or be assigned a meeting role such as facilitator (NP student), recorder, time keeper, jargon buster, equalizer, keeper of the rudder, processor (faculty), and wellness provider. These meeting roles were developed and utilized by a longstanding interprofessional collaboration working on care of children with disabilities.[8]

Participants included 83 students from eight different disciplines in two neighboring institutions, who were participants in the 12 video conferences. They were graduate students at differing levels of their education in nursing, medicine, pharmacy, physical therapy, and communication sciences and undergraduate students in social work, nutrition, and exercise science. While the activity was voluntary for pharmacy and medical students, it was a course requirement for the other disciplines. The communication science students observed the video conference during class time while one classmate was the active participant. In each video conference, 8 to 12 students were actively engaged in the discussion. In order to accommodate varying numbers of students across disciplines (class size of 12 to 60), several faculty assigned teams to review the case and then chose 1 active participant as a spokesperson for the conference.

Evaluation Description

The evaluation survey was developed using the Core Competencies for Interprofessional Collaborative Practice (2011)[7] and included 14 multiple-choice and 5 open-ended questions. Interprofessional competency attainment was evaluated in the following four domains: 1. values/ethics for interprofessional practice, 2. roles/responsibilities, 3. interprofessional communication, and 4. teams and teamwork.[7(p16)] These competencies provided a structure for the evaluation questions, and a review by faculty in each discipline also provided content validity. Reliability of the survey instrument was not tested or established.

Results

Following each of the 12 video conferences, students were asked to complete the evaluation survey. Eighty-one students (n=81, response rate 98%) completed the survey. The breakdown by discipline was: nursing 16% (n=13), physical therapy 14% (11), pharmacy 20% (16), social work 16% (13), nutrition 15% (12), exercise science 2% (2), medicine 15% (12), and communication sciences and disorders 2% (2). Participants (n=81) were 73% female and 83% caucasian. Data from 14 Likert scale questions were aggregated in four IP competency areas. Participants rated the value of this activity highly (>60% strongly agreed and >25% agreed) across all four competency domains (Figure 1). Differences between disciplines were not found to be significant using Fisher's Exact test.

Open-Ended Questions

1. Was the webinar a valuable experience? Why or why not?: The online video conference was seen as a valuable experience by all students. The minimal exposure to other health professional students was a recurring theme. One medical student described the limited exposure in his/her education as follows:

> "*As a medical student, my exposure to students in other areas is non-existent. That is unfortunate given that we will all work together in the future in order to provide care for our patients. The*

TABLE 1. Summary of Open-Ended Questions

How could the webinar be structured differently in order to better help you learn?		
Response	Number of Students	Percentage
More webcam spots	12	14%
More structure	6	7%
In-person meeting	7	8%
Unsure/other	30	37%

Response	No. of Students	%
What aspects of the webinar were particularly helpful for your learning?		
Learning from other disciplines (i.e., medication information from a pharmacy student)	45	55%
Learning about other disciplines (i.e., what a specific profession does to care for a patient)	9	11%
The collaborative process	31	39%
Other	5	6%
Please comment on what could be improved.		
More webcam wpots	17	21%
Meet in person	4	5%
Trouble hearing	23	28%
More discussion	10	12%
Other	30	36%
Please comment on what worked well for you in the webinar.		
Technology	23	28%
Facilitator	12	15%
Raising hand function	14	17%
Collaboration/respect	41	50%
Other	4	5%
Was the webinar a valuable experience? Why or why not?		
Showed importance of interprofessional care	45	54%
Experience working in an interprofessional team	35	42%
Yes	82	99%

current academic system of isolation does not help us work toward the ultimate goal of functioning as a team. This webinar is hopefully a sign that those problems are being recognized and addressed. Overall, this was a great experience."

The importance of a team in providing patient care was identified:

"*It [the online video conference] really showed me the importance of all of the disciplines getting together to come up with a treatment plan for complicated individual. It really stressed that there is no discipline more important than another. It also showed the importance of being able to communicate across the different disciplines and showed the different points of view.*"

2. Please comment on what worked well for you in the webinar: Assigning roles prior to the meeting was seen as helpful in making the conference run smoothly and stay on topic. "*Having a different roles for each team member—like jargon buster and time management—was helpful in making the experience a lot smoother*," and "*Having roles as a group to stick to which helped adherence to norms and the topic*." Students appreciated the webcam feature as it simulated a "face-to-face" encounter, and this was seen as a big improvement over conference calls: "*I liked the webcam/phone combo for seeing and hearing people. I have done a lot of conference calls, and it is always better being able to personalize who you are talking to by seeing their face*." The schedule of the conference and the ability to participate from home were also appreciated.

3. Please comment on what could be improved: Many students commented that having more than four webcams visible at once would be an improvement: "*Add in more camera slots!*" A preference for meeting in person was expressed: "*If there's a way to do this in person, I think the discussion would be improved. It's hard to respond directly or debate with another participant when you have to un-mute and be recognized to speak*." Limiting technical difficulties (such as echo) was mentioned as a way to improve the meeting. Only 2 students out of 83 were not able to make their webcams work. Ongoing introductions were suggested to keep the participants aware of the background of the speaker: "*It may be helpful to remind people to introduce themselves each time as well as their roles because I didn't always know who was speaking*." Others students expressed an awkwardness during pauses when they did not know whose turn it was to speak. A tendency to direct comments solely to the facilitator was also noted: "*It seemed like individual members were speaking only to the facilitator, not to each other*."

4. What aspects of the webinar were particularly helpful for your learning?: Having a variety of health professionals participating and hearing their perspectives were seen as very helpful. One student explained, "*Listening to the many perspectives was particularly helpful. It demonstrated what issues other professions may prioritize and how we can collaborate with one another to promote the best interest of our client*." Being able to learn from the other health professionals was noted as a different and positive contribution to their education: "*It really opened my eyes on how it's necessary to understand other professions to better the care I give my patient*."

5. How could the webinar be structured differently in order to better help you learn?: The availability of more webcam spots on the screen, in-person meetings, and more interactions between disciplines were mentioned as ways to improve the experience.

Table 1 gives a complete summary of open-ended questions.

Implications for IPE and IPP

Interprofessional care of elders with complex chronic illnesses is needed to improve health outcomes, which must be taught and role modeled for students. Early integration of interprofessional care in the education of health care professionals has been recommended by multiple international organizations.[1,7] It will take cre-

ative and flexible educators to ensure this happens. In our setting, some health care professional students expressed they had no exposure to other health care professionals prior to the online video conferences. Integrating the knowledge and expertise of multiple health care professionals requires practice prior to entering the field. This project demonstrated a way to surmount the logical difficulties of in-person IPE.

In this interprofessional education activity, the NP student gained experience as the coordinator of patient care. This is a role well suited to the NP working in primary care, but it could be taken on by any profession. The coordinator of care needs skills to not only serve as a patient advocate but also the ability to lead teams in devising a plan of care will make a substantial contribution to the care of elders. The video conferencing in this project provided an opportunity for NP students to practice leadership and learn communication, interpersonal, and professional skills in order to optimize patient care. Other students had the opportunity to participate in a virtual case conference and try out a meeting role meant to promote effective communication for interprofessional groups.

When the financing of health care is reformed to create a payment system based on outcomes instead of fee-for-service, health professionals will be rewarded for working together to optimize patient care. The online meeting with multiple different health care providers could save the patient from multiple appointments, reducing travel costs and co-payment expenses. Under the current fee-for-service system, fewer visits may reduce revenues for providers, but an outcomes payment system will provide incentive for providers to reduce patient visits and prevent hospitalizations. The online meeting format also can allow the primary care provider to obtain specialized information without extensive time and space coordination. By using online video conference, consultations from specialists across town or across the country would be possible with a few clicks. In the case of frail elders, the integration of specialists by video conferencing would improve quality of primary care coordination and decrease the number of specialist visits necessary. The inclusion of the patient and/or local or distant family in the care planning meetings is also beneficial. This would allow the patient and family to have more input into the plan of care; consequently, they would be more likely to adhere to the plan, thus improving health outcomes.

Conclusion and Recommendations

This project utilizing online video conferencing demonstrated an effective IPE activity for future health professionals. The overwhelmingly positive faculty and student response was encouraging, making video conferencing a promising venue for IPP education. Logistical barriers of students with varied schedules and physical locations were overcome so they could all participate together. While a preference for in-person meetings is acknowledged, a large number of student participants also expressed appreciation for the convenience of the online format. Advances in video conferencing technology in the future will no doubt make more webcam spaces available and allow for fuller participation by all at the virtual meeting. In addition, inclusion of the distant family will be vital as the population of frail elders living alone at home increases.

Further research involving IPE pedagogy and the use of distance technologies is recommended, as the evaluation of this activity was limited by a small sample size in one geographic area. Yet, the mandate to health professional educators is clear—innovation is needed to break down barriers and empower students to embrace IPP as a necessary solution for the complexity of care, particularly for frail elders.

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