Distance Interprofessional Education for Healthcare Professionals

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Abstract

Purpose: Healthcare professionals can improve patient outcomes through the use of interdisciplinary collaboration. Interprofessional education (IPE) can be delivered effectively to healthcare professionals through the use of distance education technologies. Distance education offers schedule flexibility and interdisciplinary collaboration opportunities. Methods: A literature search on PubMed was conducted, revealing 467 articles. The articles were screened for relevance using the following inclusion criteria: 1) Did the study use IPE in their design criteria? 2) Did the study employ distance education technologies to train their participants? 3) Did the study include participants from two or more healthcare professions? 4) Did the participant body contain more than 95% adult learners (age > 18 year old)? 5) Was more than one study venue used? 6) Was the study published within the last six years? Results: Out of the IPE studies published over the last six years, seven studies met the inclusion criteria. Three main themes for successful IPE delivery to healthcare professionals were identified by this meta-synthesis: (1) a sound andragogic course design, (2) asynchronous learning activities and face-to-face interactive sessions, and (3) an unique niche for distance education. Conclusions: Distance education provides an opportunity to deliver IPE to healthcare professionals. The themes that arose during this meta-synthesis will be valuable for future IPE via distance education research. Advances in Knowledge: IPE via distance education is an effective tool to deliver training to healthcare professionals.

Introduction

In the age of sharing best practices, interprofessional education (IPE) via distance education is one solution to enhancing the technical competency of healthcare professionals today. IPE occurs when educators and participants from multiple health care professions create an environment of trust and respect where the sharing of technical expertise flows freely. The goal of IPE is to improve collaboration of different professions in order to provide a better quality of care.¹ In regard to healthcare, IPE allows students and professionals to learn how to function on interprofessional teams and to utilize this skill in their own practices to improve patient outcomes.² Thus, collaborative practices engendered by IPE have become an essential part of healthcare education, not only in professional schools for students, but also in practice.
sites for healthcare providers. For some healthcare providers, obtaining training becomes an insurmountable obstacle because access to educational facilities and/or faculty members is limited. To overcome this physical limitation, healthcare professionals have turned towards distance education. Distance education is defined as education that takes place when facilitators and participants are separated by space and time, but are able to interact through the use of technologies. Support for the combination of IPE and distance education has been shown by healthcare professionals in Australia and Puerto Rico. Approximately 40% of physicians and 51% of pharmacists have used distance education to complete their required continuing education training. The meaning of distance education and the use of technology in the health care context of this study is that it brings many benefits to adult learners. Some of the benefits to clinician training include: 1) convenience as they can do the learning activity in a time that works within their schedule; 2) saves time as it decreases the need to spend time traveling to a location for training; 3) and saves travel costs. Various types of technology tools are available to provide IPE via distance education (e.g. online learning management system to provide asynchronous e-modules, synchronous video sessions, telephone, online discussions).

Learners’ computer literacy skills have improved. Over time this has allowed adult learners to do a variety of distance education activities to enhance their learning experiences (such as participating in online discussion boards, sharing photos with other learners etc.). This makes adult learners more comfortable with technology as part of their learning experience.

In this meta-synthesis, health care professionals from different disciplines (e.g. nursing, physician) were given training via distance education. The training they received had different goals such as to improve their interprofessional, clinical, and technical knowledge/skills in specific areas (e.g. rural mental health, disaster preparation of surge capacity, caring for children with disabilities, posttraumatic stress disorder (PTSD) treatment). An emerging trend in healthcare professional education is the transition from pedagogy to andragogy teaching styles. Pedagogy was developed in Europe during the seventh century in order to instruct aspiring monks. It is a teacher-centered practice and consists of four main tenets: (1) young students are dependent upon their teachers; (2) learning is subject-centered; (3) young students are extrinsically motivated to learn; and, (4) prior experiences of the young students are inconsequential. In contrast, andragogy was practiced by ancient philosophers such as Plato and Confucius and then brought to the fore during the nineteenth and twentieth centuries by Kapp, Lindeman, and Knowles. Andragogy is student centered with teachers acting as educational guides. It offers these principles with which to teach adult learners: (1) adult students need to understand the relevancy of the training itself; (2) adult students have the need for self-direction; (3) the experiences of the adult students are leveraged through problem solving, group discussion, simulation, and case study techniques; (4) adult students prefer to learn new information which applies directly to real-life situations; and, (5) adult students are intrinsically motivated to learn. Taylor and Kroth described the impact of andragogy on adult learners in this manner: “when adults teach and learn in one another’s company, they find themselves engaged in a challenging, passionate, and creative activity”. Their main criticism of andragogy is that it is supported by a limited body of evidence and, thus, lacks the qualities of a science. In a 2008 literature review, two andragogy principles, the learner-centered and the problem-based learning principles, were used to train nursing and social work students, residents and postgraduate practitioners, and the results of this study revealed high participant satisfaction with the problem-based learning and increased comprehension with the learner-centered principle. It was also noted in this review that there were differences in the preferment of problem-based learning over that of conventional teaching methods (i.e. lectures). Over the last few years, interdisciplinary educational experiences have been studied extensively from the technological vantage point. This meta-synthesis will attempt to merge the concepts of andragogy with the advantages of asynchronous and synchronous internet technologies in order to create an optimal educational experience for future researchers to employ.

Methods

The study identified and compared outcomes of IPE studies utilizing distance education for healthcare professionals and determined whether educational or
technological themes were commonly found and could be recommended into future studies.

Inclusion Criteria

This literature review identified as many relevant studies as possible using distance education as the delivery method. Although the quality of these studies varies widely, the use of a meta-synthesis will allow the evidence to be combined and evaluated in order to reach higher analytic goals. The inclusion criteria were:

1) Did the study use IPE in their design criteria?
2) Did the study employ distance education technologies to train their participants?
3) Did the study include participants from two or more healthcare professions?
4) Did the participant body contain more than 95% adult learners (age > 18 years)?
5) Was more than one study venue used?
6) Was the study published within the last six years?

Search Process

PubMed was the source of all studies included in this meta-synthesis and queries were conducted using the search terms “interprofessional education” and “interprofessional learning” (both in quotes) with each of the following terms (without quotes): interdisciplinary education, multidisciplinary education, webinar, distance education, and distance learning. 467 articles were found matching these search terms. These articles were published between 2010 and 2016. Initially, the titles and abstracts were screened for relevance; for inclusion, the full texts were reviewed.

Studies which were found to be relevant were then synthesized through a series of steps:

• The study results were grouped together in common themes.
• The study results were reviewed again for research design and methodology.
• A final data analysis was performed by combining the results from the previous, two steps.
• Key themes were identified.

Results

In total, seven interprofessional studies utilizing distance education to train health care professionals met the meta-synthesis inclusion criteria, and Table 1 provides further study details. The findings section will present each study by year, the technologies used to deliver the training, the course content, and the outcomes of each study.

Interventions

The 2010 Halabisky et al. study used internet-based technology to deliver distance education. Their course intervention included eight asynchronous e-modules covering the basic principles of collaborative practice, a group assignment requiring four face-to-face team meetings, on-line surveys completed at baseline and at course conclusion, and one month post-course conclusion, and post-course focus groups to elicit qualitative data. Each e-module consisted of text-based information, online activities, audio and video clips, and homework assignments.

In 2011, three IPE distance education studies were published. The Schopf and Flytkjaer web-based course included asynchronous e-modules based on social constructivist theory and the experiential learning principle, a discussion board, an optional test set of eight or nine multiple choice questions, quiz feedback from the facilitator within three to five days of submission, and an online questionnaire completed upon course conclusion. The e-module course content was presented to the learners in narrative text, photograph series, audio clips, three hypothetical patient cases, and various hyperlinks to other resources. Wearne et al. approached the IPE
distance education through asynchronous e-modules focused on clinical education based upon the principles of adult learning, a discussion board, homework and reflective assignments, and an optional, face-to-face intensive workshop. The study by Robinson et al. provided five asynchronous web-based modules consistent with the principles of adult learning, a discussion board, a self-assessment, timely feedback to problem sets, and professional plan development. The interactive e-modules contained a tutorial for the online environment, structured clinical scenarios, and a professional plan.

In 2013, Atack et al. pursued their continuing education internet course through an asynchronous e-module, pre- and post-test surveys, self-assessments, a discussion board, and optional simulation. The e-module consisted of site navigational features, video-clips, general resources, and graphics. All of the study participants were volunteers. Additionally, Lotrecchiano et al. provided their participants with asynchronous e-modules based upon a blended learning model developed for adult education, a discussion board, self-assessments, weekly, face-to-face training sessions, clinical experiences, and professional poster development. The e-modules consisted of visual or audio-clip narratives, group case study practice problems, and homework assignments as well as readings from text books, journal articles, or informational websites.

In 2014, Ruzek et al. created a distance education experience with three asynchronous e-modules based upon evidence-based treatments using cognitive–behavioral therapy (CBT) interventions, small group face-to-face sessions facilitated over the phone, standardized patient measured skill acquisition levels at the baseline and post course, and questionnaires. The e-modules consisted of homework assignments, hardcopy manuals, and quizzes. This study used a control group for comparison purposes.

Outcomes

Halabisky and colleagues found increased confidence in their collaborative skills and knowledge (p<0.05). In addition, participants reported that e-learning is an effective approach to deliver education and offers a more flexible learning opportunity. There was no significant change to participants’ level of engagement and attitudes toward collaborative practice.

Schopf and colleagues showed no statistical difference in mean questionnaire and homework assignment scores between physicians and nurses. Qualitative findings indicate physicians and nurses were equally satisfied with the course curriculum and that they could interface with facilitators and fellow participants through the discussion board. It was unclear whether the distance education experience improved collaboration between the physicians and the nurses.

Weare and colleagues gathered qualitative information from their participants such as the “convenience of online learning meant that clinicians could work at [their] own pace” (p. 1001), “I got a strong sense of not being alone as I watched others contribute to the same problems on the discussion board” (p. 1001), there was no consensus on whether the professions increased collaboration during the training, “I found it very hard work… because I wasn’t very internet literate” (pg. 1001), “the lack of face-to-face contact made building relationships difficult” (p. 1001), “it probably would have been more beneficial to have a structured night for study each week that involved all students” (p. 1002), and online learners had practical challenges balancing a busy work schedule with their online training.

Robinson and colleagues revealed that their participants had statistically significant, positive differences in four of the five items related to confidence in computer and internet related skills (p<0.001), eight of the nine items related to confidence in responding to mental health and related problems (p<0.023), all eight items related to the knowledge about the roles of different services in mental health care, and all five items related to the perceived ability to work safely in a rural setting (p<0.001). Participants also gave positive responses to all seven items related to perceived work quality in rural mental health. Lastly, another qualitative result indicates participant’s ability to obtain study leave from work determined whether they completed the course and were satisfied with their education.

Atack and colleagues found a statistically significant increase in adult learners’ surge capacity knowledge and competency completion through pre- and post-course survey results (p=0.000). Participants’ mean course satisfaction rating was 76.2%. Qualitative
comments included “some of the content was redundant and participants at one site had trouble accessing the video files” (pg. 110) and participants suggested “making the online discussion more case-based” (pg. 110).

Lotrecchiano and colleagues presented the following qualitative findings: “faculty found that a more detailed introduction to developmental disabilities materials could be provided in the online platform because they could post a wide variety of materials” (pg. 1728), participants stated that the “onsite meetings and online discussions were great” (pg. 1729), and “online discussions felt more time-consuming than time-bound classroom discussions” (pg. 1729). Further, this study recommended that participants should be advised about utilizing time-management and obtaining basic computer skills ahead of course participation.

Ruzek and colleagues showed that both of the online training groups exhibited a greater improvement in the two of the three CBT skill sets over the control group (p<0.001), and the online training group with face-to-face training sessions performed better than the online training group without this additional training. In addition, most study participants were highly educated with master’s degrees (57%) and doctorates (36%) in the field of mental health.

Quality

The seven studies captured in this meta-synthesis were evaluated for quality. Parameters used to evaluate the study quality were number of participants and study design. We classified as “high quality”, studies that had a sample size of greater than 50 and were quantitative or both quantitative and qualitative research. If a study had less than 50 participants and/or reported only qualitative data, we classified as “moderate quality.” Of the seven studies contained within this meta-synthesis, two had low participation4,10 and a third study12 did not disclose its number of learners. In addition, one study4 was designed as qualitative research and documented analytical themes only. As a result, four6,7,9,11 of the original seven studies can be considered “high quality” and the rest4,10,12 can be considered as “moderate quality.”

Participants in the IPE training classes have diverse backgrounds. The learners represented in the meta-synthesis studies were from various professions (i.e. pharmacists, paramedics, social workers, nursing professionals. Furthermore, nurses and physicians represented the overall majority of the learner population.

Discussion

Three main themes arose from the analysis of the seven studies presented in this meta-synthesis: sound andragogic course design, asynchronous learning activities and face-to-face interactive sessions, and a unique niche for distance education.

Theme 1: Sound Andragogic Course Design

Healthcare professionals need effective, convenient interdisciplinary learning opportunities. Distance education via advanced technologies can meet these needs. In the early 1980’s, Knowles presented four basic elements of the adult learning process referred to as andragogy today. Two additional element refinements were added later and will be further described in this article. Some educators have incorporated their learning materials into this adult education model with success. For others, they have an opportunity to improve their course impact using the andragogy template. The first element of andragogy is that adult learners need to understand the relevance of the training. In this context, the adult learner recognizes that he or she lacks the requisite knowledge and that he or she will invest the time and energy to obtain this information. For example, adult learners in the Lotrecchiano et al. study invested one year of their lives to complete graduate level training because it was meaningful to them. For the second andragogic element, adult learners become self-directed. Self-directed learners will take ownership of the entire learning process; they will decide which educational needs they will pursue, determine how to execute them, and assess whether their personal goals were achieved. This trait was exhibited by a 2012 study; all of their adult learners volunteered for this training and their overall course satisfaction was rated at 76.2%. In the third and fourth andragogic elements, adult learners possessed a reservoir of knowledge and pursued problem solving activities, group discussions, or case studies as their primary method of learning. In a study by Schopf et al., the participants discussed the class information during face-to-face sessions and then molded their
experiences into three hypothetical patient cases. The fifth andragogic element, adult learners pursue educational opportunities that are relevant to their healthcare roles. In a study by Ruzek et al., participants characterized this element by focusing on improving their CBT intervention skill sets. Finally, the sixth andragogic element, adult learners were intrinsically motivated to learn new information. Participants, who may have been motivated by self-esteem enhancement, delivered better care to their patients as a direct result of completing the training course.

Theme 2: Asynchronous learning activities and face-to-face interactive sessions

Over the last decade, IPE delivered through distance education has evolved from simple internet modules to full continuing education classes. Current trends in distance education formats include: information technology (IT) e-modules as the initial training opportunity; e-module training combined with synchronous and/or face-to-face sessions; and, discussion boards and face-to-face sessions to create a sense of community.

A trend among adult participants is the need for IT training at the beginning of the course. In two studies, the participants expressed dissatisfaction with their online experiences. One participant stated, “I found it very hard work... because I wasn’t very internet literate” (p.1001) Other learners had trouble accessing videos at their study site. In contrast, participants with orientations to online learning showed a statistically significant improvement in four of the five items relating to internet skills (p<0.001). Halabisky et al. and Ruzek et al. addressed the second improvement opportunity. These studies had asynchronous e-modules for the participants to work through individually. Face-to-face sessions or small group sessions complemented their learning activity. Ruzek et al. showed asynchronous e-modules combined with interactive learning produces superior performance scores.

Adults need to feel part of the community through physical or visual contact. For distance education, community contact can be established through discussion boards or through face-to-face sessions.

Almost all of the studies included in this meta-synthesis utilized these two methods to create community. Discussion boards alone worked well for some participants. One participant wrote, “I got a strong sense of not being alone as I watched others contribute to the same problems on the discussion board” (p. 1001) while other participants felt “the lack of face-to-face contact made building relationships difficult” (p. 1001). When face-to-face sessions are included in the distance education format, participants can possibly have positive results in their learning. In the study by Halabisky et al., participants experienced four face-to-face team sessions and felt they would be more likely to engage in collaborative practice after their learning experience (p<0.05).

Theme 3: Unique niche for distance education

Distance education fills unique educational niches for healthcare professionals. Busy professionals favor the flexibility that distance education offers. Through distance education experiences, professionals are better able to balance their busy work schedule with their need to maintain technical excellence in their respective fields. In a 2014 study, health care professionals had their online cognitive-behavior knowledge evaluated through the use of a standardized patient assessment, and in a 2012 study, healthcare professionals participated in an interdisciplinary disaster preparation course.

Distance education classes offer healthcare professionals the opportunity to upgrade their job status through diploma or graduate level classes. Two studies presented in this meta-synthesis offered diplomas and/or graduate level training courses to their healthcare participants. This benefit is further illustrated by healthcare professionals who would not have been able to obtain advancement because access to educational facilities and technical experts were not available. Distance education allows healthcare professionals to share their knowledge with each other and, essentially, become the technical experts. This concept was borne out by the study in which group projects were completed by the interdisciplinary participants. This approach raised the quality of the learning experience for all participants since the collective technical backgrounds of the learners outweighed that of the facilitator.
There are several limitations identified in these studies: lack of complete andragogy based course content, unknown optimal course duration for distance education, and challenges in the participants’ sense of community. Some studies in this meta-synthesis had components of the adult centered learning concepts; however, to be more effective, future IPE studies should include all of the andragogy concepts in their course materials design. The adult training sessions in this study spanned six hours to one year. Future studies could be designed to establish an optimal range of training course durations for adult learners. Finally, the sense of community for future distance education participants could be enhanced by the use of face-to-face sessions via physical proximity or web-cams.9

This meta-synthesis also has several limitations. First, this review was conducted by searching studies only in PubMed. Although PubMed is a comprehensive database that includes biomedical and life sciences journals from Medline, some studies may not have been included if they were listed in other databases. Second, only studies written in English were included, so this review may not catch other countries’ IPE studies. Third, not all studies used the same distance IPE method. This makes it difficult to draw a universal conclusion for all methods that were used in the studies. Forth, participating healthcare professionals were also various among studies and many studies evaluated if the distance IPE improves certain skill sets. Depending on the participating healthcare professionals and their purpose of the education, the distance IPE method may (or could) result in different outcomes. Fifth, only one study was randomized control trial and most studies used pre & post questionnaires or a survey that can lead recall bias. Lastly, included studies, with the exception of the Ruzek et al. trial, had a very small sample size.

In summary, overarching andragogy concepts have been successfully embedded in training content. We recommend that future studies utilize all elements of andragogy to achieve full learning impact. Other studies showed that asynchronous and synchronous training opportunities enhanced the educational satisfaction of adult participants. As technology improves distance education functionally, IPE researchers should focus on developing training material consistent with the andragogy concepts for adult healthcare professionals.

Conclusions

The key message of this meta-synthesis is that distance IPE is an effective tool to deliver training to adult health care professionals. Health care professionals have shown statistically significant improvement in practical skills.

References


