



4-11-2018

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Inter-professional Education: A Literature Analysis and
Description of Professionals
Accelerating Clinical Education Redesign Study at
Western Michigan University

Kari Scholten

April 11, 2017

Abstract

Inter-professional education is a topic that is widely gaining popularity throughout the healthcare field. Because inter-professional practice in the hospital and beyond has proven its value time and time again, universities must take it upon themselves to train their healthcare students to work efficiently and communicate effectively with other disciplines in the healthcare field. Through a thorough literature review, it was demonstrated that inter-professional education studies and simulations that were performed in a range of settings have had positive effects on a variety of factors, including communication, quality of care given, and perceptions of professional roles. A study performed at Western Michigan University demonstrated the positive effect inter-professional education had on the attitudes of students towards working inter-professionally. The ultimate goal of training students inter-professionally is promoting long-term multidisciplinary teamwork, which has been proven to improve patient outcomes in a variety of ways.

Inter-professional Education: A Literature Analysis
and Description of Professionals Accelerating Clinical Education Redesign
Study at Western Michigan University

Inter-professional education is a method of educating health profession students with a multidisciplinary focus so that, upon completion of the course, students can work competently as team members with other disciplines in the healthcare field (Buring, et al., 2009). Inter-professional education seeks to prepare students to adequately perform as parts of multidisciplinary healthcare teams. The skill of satisfactory multidisciplinary communication is one that must be learned in order to promote the cohesive and safe care of every patient. Universities have a prime opportunity to effectively train students in the health professions on both the importance of and skills for multidisciplinary communication. Students cannot simply be told to communicate with members of other health professions; they must be given a chance to put into practice the inter-professional communication and teamwork for themselves. Inter-professional education opens up a whole new realm of possibilities for students of every health profession.

Inter-professional Education for Health Discipline Students

In order to promote and enhance multidisciplinary teamwork in the workforce, it must be emphasized and promoted from the start of undergraduate health professional training. New graduates entering the workforce cannot be expected to have the skillset to immediately work within multidisciplinary teams if they have not been given the proper training. Universities have a prime opportunity for exposing undergraduate and graduate students to inter-professional teams, while focusing on the benefit for the patient and healthcare team as a whole. The concept of training undergraduate students to have a multidisciplinary focus is a relatively new notion

that is rapidly gaining momentum among universities and colleges around the world in the form of inter-professional education.

In a review of current literature regarding inter-professional education, the general structures of the studies were found to be very similar: students from several fields of study would participate in educational modules, and then perform their respective roles in either a simulated or authentic setting. Pre-tests and post-tests would be done to determine student attitudes and ability in working with inter-professional teams. The situations varied, including settings such as: palliative care (Saylor, Vernoony, Selekman, & Cowperthwait, 2016), pediatric care (Stewart, Kennedy, & Cuene-Grandidier, 2010), maternity care (Meffe, Moravac, & Espin, 2012), emergency department (Ericson, et al., 2017), musculoskeletal care (Battistone, et al., 2016), and complex patient care (Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013). The student groups used in these studies typically included anywhere from two to four disciplines, involving nursing, medical, physical therapy, physician assistants, and/or nurse practitioner students (Battistone, et al., 2016; Ericson, et al., 2017; Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013; Meffe, Moravac, & Espin, 2012; Saylor, Vernoony, Selekman, & Cowperthwait, 2016; Shanahan & Lewis, 2015; Stewart, Kennedy, & Cuene-Grandidier, 2010). The numbers of participants in these inter-professional education studies ranged from nine to 176 (Battistone, et al., 2016; Meffe, Moravac, & Espin, 2012).

For the majority of studies, evaluation of the effects of the modules and education was done through pre-tests and post-tests performed by the participants. The questionnaires used varied from study to study, but overall had the same themes of communication, collaboration, and appreciation for inter-professional teamwork (Battistone, et al., 2016; Ericson, et al., 2017; Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013; Saylor, Vernoony, Selekman, &

Cowperthwait, 2016; Shanahan & Lewis, 2015; Stewart, Kennedy, & Cuene-Grandidier, 2010). Not all studies, however, only used questionnaires. In a study that looked at inter-professional education regarding palliative care, the researchers also used experienced, objective evaluators to watch the simulations and measure the students' inter-professional collaboration. The evaluators all had two to eight years of experience and practiced scoring for two hours prior to the actual simulation. These measurements, along with the answers from the students' questionnaires, provided the results for the study (Saylor, Vernoooy, Selekman, & Cowperthwait, 2016). Results for the maternity care inter-professional education study were drawn from four interviews with each participant that lasted thirty to sixty minutes. The purpose of this study was to determine how inter professional education could impact knowledge, skills, attitude, and collaboration among inter professional students. The interviews were taped and coded to find themes. Several themes that were discovered included improved communication, woman/family-centered care, and readiness to collaborate. (Meffe, Moravac, & Espin, 2012). In a realist setting study performed in an emergency department, objective observation, questionnaires, and interviews were all implemented to measure the effects of the inter-professional education (Ericson, et al., 2017). In a study published in 2016 regarding musculoskeletal care and inter-professional education, a clinical examination of skills was paired with the questionnaire, in order to test whether participants had truly gained the knowledge that they had claimed to gain through the inter-professional education week (Battistone, et al., 2016). While methods like interviews, observations, and examinations were implemented in a few studies, questionnaires were found to significantly be the most popular tool to measure inter-professional education effects.

Regardless of the methods and tools used in inter-professional education studies, the results for each study were overall quite consistent. Firstly, several studies found an

improvement in the identification and understanding of professional roles amongst the healthcare team. The participants reported an increased perception of their own roles and responsibilities, along with an understanding of the roles of their healthcare team members (Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013; Shanahan & Lewis, 2015; Stewart, Kennedy, & Cuene-Grandidier, 2010). Learning to successfully work and communicate with the various members of the inter-professional disciplines proved to be the second main theme that emerged from various studies. An increase in inter-professional collaborative behaviors and/or communication was reported in several studies, either through questionnaires or interviews (Ericson, et al., 2017; Meffe, Moravac, & Espin, 2012; Shanahan & Lewis, 2015). The third theme to appear as a benefit from inter-professional education was an emphasis on the relationship between the various disciplines' students. Relationship-building emerged as a common refrain, along with an overall improvement in the attitudes towards interdisciplinary relationships (Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013; Meffe, Moravac, & Espin, 2012; Saylor, Vernoooy, Selekman, & Cowperthwait, 2016). Identification of roles and responsibilities, improvement in collaboration and communication, and building up of inter-professional relationships are three extremely vital benefits of inter-professional education that demonstrate the efficacy of inter-professional courses.

In addition to the benefits already described, inter professional education also improved self-efficacy of students (Saylor, Vernoooy, Selekman, & Cowperthwait, 2016) and increased confidence and ability in performing the skills for specialized care. The skills were validated by an Objective Structured Clinical Examination (OSCE) (Battistone, et al., 2016). This specific inter-professional education study occurred in Salt Lake City, Utah at the University of Utah Health Sciences Center.

Inter-professional Education in Musculoskeletal Care in Salt Lake City, Utah

When a lack of education regarding inter-professional teamwork and musculoskeletal problems and care were discovered by faculty at the University of Utah Health Sciences Center, a curriculum was formed which emphasized both these subjects. The decision was made to implement a change in the curriculum for students with an inter-professional education focus. Medical residents from various areas of medicine were involved, along with students from the physician assistant, nursing, and physical therapy programs. One week was taken out of their regular clinical schedule, and replaced with an educational and multi-disciplinary week that focused on musculoskeletal problems and treatment. The week-long seminar included lessons regarding shoulder and knee evaluation, osteoporosis, arthrocentesis, and rheumatology. In the beginning of the week, the students and residents were instructed through didactic and group practice settings. Towards the end of the week, the focus swung more to putting their knowledge into practice in outpatient settings and working with professionals in the field. A Likert-scale survey given before and after the week of education and training was used to determine the benefits of the program. In the three years dedicated to the study, there was a total of 176 students that participated.

The inter-professional education week was found to significantly improve care given and enhance student knowledge in musculoskeletal conditions. For example, self-perceived ability to manage musculoskeletal shoulder complaints went from 9% to 87%. Confidence for students in doing injections for patients with musculoskeletal conditions jumped from 10% to 70%. The actual capabilities of the students involved were tested through OSCE, and the findings of the clinical test demonstrated dramatically improved proficiency (Battistone, et al., 2016). Inter-professional education leads to proficiency in both knowledge and communication among peers.

Appraisal of Current Instruments to Measure Inter-Professional Education Outcomes

There are a variety of instruments currently used to measure the outcomes for inter-professional education. This section will focus on instruments that are most commonly used in exploring and measuring inter-professional education. As demonstrated by Curran, et al. (2011) and King, Shaw, Orchard, and Miller (2010), developing an original tool to measure inter-professional education outcome is an arduous and lengthy process. In a study done in Canada, Curran, et al. (2011) used a three step process, which included a literature review to identify commonly used competency statements, utilization of expert opinions, and focus group feedback. The focus group was made up of both students and faculty from the disciplines of medicine, nursing, pharmacy, social work, and rehabilitation. Furthermore, focus groups were done in both English and French, and participants were pulled from multiple institutions and programs. The researchers used a 5-point Likert scale to determine both the importance and clarity of their competency statements. Their method of competency statement development demonstrated Likert scores ranging from 4.30 to 5.00 for importance and 3.25 to 4.82 for clarity. The focus groups participants felt that the tool was valuable in assessing inter-professional educational principles (Curran, et al., 2011).

King, Shaw, Orchard, and Miller (2010) also performed an in-depth study on the development of an inter professional education outcome assessment tool. Their focus was identifying the beliefs, behaviors, and attitudes that both affect and are affected by inter professional education. The authors focused on the socialization that took place, defining socialization as transformative learning. King, Shaw, Orchard, and Miller developed the Interprofessional Socialization and Valuing Scale (ISVS) by studying current literature, and came up with three categories: Awareness and Understanding, Comfort and Ability, and

Appreciation and Valuing. After testing for validity and clarity, they developed a thirty-four item questionnaire, using 7-point Likert scale competency statements. The preliminary version of ISVS was given to 124 students at the end of an inter professional education workshop. When the results were examined, ISVS showed solid structure and internal consistency. Cronbach's alpha was determined to range from 0.79 to 0.89 for the three factors of the ISVS. The coefficient alpha was 0.90 when the scale was viewed as a single entity (King, Shaw, Orchard, & Miller, 2010). The extensive work that goes into developing new tools to measure perceptions and outcomes of inter-professional education has led many researchers to seek alternate routes.

Interprofessional Socialization and Valuing Scale

Some researchers use already-developed scales, either utilizing them verbatim or basing tools on them. The ISVS is one such tool, being put into practice numerous times since its development. De Vries, Woods, Fulton, and Jewell (2016) analyzed the ISVS in a study done using occupational, physical, and recreational therapists and speech-language pathologists. The study had two separate goals: to look at the inter-professional attitudes of the health professionals and to determine validity and reliability of the ISVS. The ISVS was found to have validity for the three original factors proposed by King, Shaw, Orchard and Miller (2010), since these three factors, with two additional factors, were also discovered by De Vries, Woods, Fulton and Jewell. The researchers examined the Cronbach's alpha for each of the five factors to determine reliability. Factor 1 yielded a 0.877, Factor 2 was 0.863, Factor 3 was 0.762, Factor 4 was 0.802, and Factor 5 was 0.657. Factors 1, 2 and 4 had the highest reliability and were, respectively: Comfort in Working with Others, Value in Working with Others, and Self-Perception of Team Responsibility. Factors 3 and 5 had the lowest reliability and were, respectively: Self-Perceived Ability to Work with Others and Valuing of Patient-Centered Care. Overall, it was determined

that the ISVS was a valid and reliable tool, but could reveal different factors based on which fields of study it was utilized in (De Vries, Woods, Fulton, and Jewell, 2016).

Another study that was performed using the ISVS was done in New Zealand at Auckland University of Technology. The students that participated in this study were from a variety of professions, including physiotherapy, nursing, occupational therapy, podiatry, oral health and psychology. Three questionnaires were used: the ISVS for quantitative data, the Clinical Placement Short Responses Questionnaire for qualitative data, and a questionnaire to determine demographic data. The internal consistency (Cronbach alpha) of the ISVS as a whole was determined to be 0.91. Three factors similar to the factors from the original study were examined. Self-perceived Ability to Work with Others had a Cronbach alpha value of 0.77, while Value in Working with Others had a value of 0.85. Comfort with Working with Others originally had a score of 0.61; however, one item was omitted from this subscale of the ISVS completely, and the Cronbach alpha score rose to 0.74. The item that was omitted was “I believe that interprofessional practice is difficult to implement”. The researchers hypothesized that the reason that this specific item failed to meet the standards for internal consistency was because it forced students to think of how they would act in the future, instead of examine their feelings on their current inter-professional interactions. Overall, however, the researchers determined that while some minor modification to the scale may be needed, the ISVS demonstrated reliability and validity (O’Brien, McCallin, & Bassett, 2013).

Readiness for Inter-Professional Learning Scale

Another tool that has served as a template for many studies is the Readiness for Inter-Professional Learning Scale (RIPLS). The RIPLS was based on four core values: multidisciplinary relationships, collaboration, roles/responsibilities, and overall benefits. The

items on the questionnaire were broken down into two groups called “Teamwork and Collaboration” and “Professional Identity”. The questionnaire was built to assess what preconceptions about personal and multidisciplinary roles students had, and to evaluate how they perceived their relationships with other disciplines (Parsell, 1998, as cited in Keshtkaran, Sharif, and Rambod, 2014). RIPLS has been used in a variety of settings. Keshtkaran, Sharif, and Rambod (2014) used RIPLS to assess the readiness of nursing, medical, and surgical technology students in Iran to work inter-professionally. These researchers reported three separate studies that had been completed using RIPLS to demonstrate a Cronbach’s alpha coefficient of 0.62—0.87 (Keshtkaran, Sharif, & Rambod, 2014). In a study performed in Northern Ireland, Stewart, Kennedy, & Cuene-Grandidier (2010) based their questionnaire, which included both Likert statements and open-ended questions, on RIPLS. Another study that looked at inter-professional relations between nurse practitioner and resident physicians developed a tool called the Inter-professional Attitudes and Practice Survey, which was based off a revised RIPLS. The researchers noted in the article that they planned to use the revised RIPLS itself for future studies in this area, as it carried more weight as a standardized tool (Hanyok, Walton-Moss, Tanner, Stewart, & Becker, 2013).

Description of Professionals Accelerating Clinical Education Redesign (PACER) Study at

Western Michigan University

In the spring of 2017, the author was given the opportunity to assist two Western Michigan University (WMU) faculty members with a PACER study which focused on inter-professional education with a pediatric eating disorder simulation. There were approximately nine simulation sessions, involving twenty to twenty-four students each session. The students involved came from a variety of disciplines: medical, psychiatry, dietary and nursing. While the

setup of the simulation day evolved as the study went on, a standard format was ultimately put in place. The simulation days were held at Western Michigan University Homer Stryker M.D. School of Medicine. Upon arrival, the students were placed at tables with students of other disciplines. Each table had at least one nursing, medical, psychiatric, and dietary student. Prior to beginning the simulation, students discussed their educational background, current courses, and clinical experiences to better understand the similarities, differences, and expertise in the members of the team. Next, a video case study involving a young girl named Olivia who was struggling with anorexia nervosa was viewed. The students were given a packet to guide their discussion as they watched the case study unfold. At the conclusion of the case study, the students were asked to work together as a team to come up with a plan of care for Olivia. The students were encouraged to pick a group leader to head up the discussion, and then were permitted to begin their dialogue.

Faculty observed how the students from the various disciplines interacted. A before-and-after assessment of the attitudes towards Inter-Professional Education (IPE) was completed using the Interprofessional Socialization and Valuing Scale. The students reported overall positive attitudes towards inter-professional learning and communication. As the simulations progressed, the faculty learned that the students interacted better when faculty members stepped back and did not participate in the discussion. The initial sessions were video-taped to explore the teamwork that occurred in the inter-professional teams. Students were able to ask for a consult from faculty if they had a question. Faculty would interact with the group. While faculty participation was initially used to facilitate good discussion, it became apparent that once faculty left the group, the inter-professional communication that had taken place did not resume at the same level as before faculty intervention.

The packet that was given to students also underwent a transition, as faculty learned which parts were and were not helpful for the students. The author personally assisted with two of the nine simulation days, and observed positive attitudes towards collaboration and teamwork among the students. The students enjoyed working with and learning from students of other disciplines. The students reported that the IPE day was beneficial, and that they would be more likely to participate in inter-professional and multidisciplinary interactions in the future.

Benefits of Multidisciplinary Teamwork

Along with universities focusing on training students to work inter-professionally, multidisciplinary training is beginning to take a major role in the healthcare setting. A study that looked at the impact of multidisciplinary training regarding sepsis used healthcare members already in the field, including residents, emergency department nurses, and respiratory therapists. In the sepsis inter-professional module, overall short-term and long-term knowledge on the subject was increased, as demonstrated by immediate and eight-month follow-up tests (Chung, Medina, & Fox-Robichaud, 2016). The healthcare team members are not the only ones benefited from multidisciplinary teamwork, however, as evidenced by studies performed by Kesson, Allardice, George, Burns, & Morrison (2012) in Scotland and Chen, et al. (2014) in Taiwan. The benefits demonstrated in these two studies clearly prove the importance of multidisciplinary teamwork, and in turn, the need for inter professional education for healthcare students everywhere.

Scotland Multidisciplinary Study with Breast Cancer Patients

A study conducted in 2012 noted the concrete benefits of multidisciplinary teamwork in a clinical setting. The study specifically looked at how breast cancer patients were impacted when multidisciplinary care was implemented. The research took place in Scotland, as a retrospective,

comparative study looking at 13,722 cases of breast cancer. First, researchers looked at breast cancer mortality rates from January 1990 to September 1995. Starting in October 1995, multidisciplinary teams were put in place in the hospitals of Greater Glasgow, which was the intervention area. The teams were made of specialized nurses, radiologists, oncologists, pathologists, and breast cancer surgeons. The teams held weekly meetings, where they determined the proper course of action for the coming week. They also had lead clinicians that would meet regularly with the director of public health, to discuss audit results and any departures from healthcare standards. In contrast, teams were not placed in the hospitals of the west side of Scotland. Care was continued as usual, with surgeons typically making all major decisions regarding the patient's healthcare. At the start of the study (January 1990-September 1995), mortality from breast cancer was 11% higher in Greater Glasgow than it was in west Scotland. In 2000, the rates were looked at a second time. Researchers found that after multidisciplinary care was introduced in the intervention area, the mortality rate from breast cancer dropped to 18% below the non-intervention area mortality rate (Kesson, Allardice, George, Burns, & Morrison, 2012). The drop of 29% clearly demonstrates the efficacy of multidisciplinary teamwork, and shows that multidisciplinary teams directly affect the mortality rate of patients.

Taiwan Multidisciplinary Study with End-stage Renal Disease Patients

Patient mortality rates are not the only factors that improve with multidisciplinary team work. A three-year study was done in Taiwan, which looked at the effects of multidisciplinary teams on the outcomes of end-stage renal disease (ESRD) patients. Taiwan has the highest rates of chronic kidney disease in the world, but most of the country's population is unaware of its signs and symptoms. For this study, 822 ESRD patients were chosen from five different

hospitals, and multidisciplinary care was initiated on 391 of them. The multidisciplinary teams in this case were made of a nephrologist, a nephrology nurse educator, renal dietician, social worker, pharmacy specialist, and surgeon. For the other 431 patients, care was given as usual, with just one specialist making the decisions. The specialist was typically an endocrinologist, nephrologist, or cardiologist.

The results of the study were remarkable. The patient group that received multidisciplinary care were less likely to be hospitalized at dialysis initiation and had fewer temporary catheters put in place. If hospitalized on dialysis initiation, the multidisciplinary group tended to have shorter stays, with an average of 15.5 days. The usual care group stayed an average of 22.4 days. Furthermore, compared to when the study was started, the multidisciplinary group had a 15% less risk of being hospitalized. Cost was another affected factor. When comparing the multidisciplinary and non-multidisciplinary teams, there was a 50% reduction in cost of care for patients with inter-professional teams (Chen, et al., 2014). Overall, multidisciplinary teams were found to be beneficial in areas of care quality, reducing readmissions, and cost.

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