

Interprofessional Education (IPE) for Healthcare Students: How Does Teamwork Develop?

Dana H. Washburn, Caitlyn Anderson, and Stephanie Schrader

University of Wisconsin - Milwaukee

Abstract: A recent interest in the improvement of teamwork in the healthcare industry has occurred as well as a realization that medical errors are often related to poorly functioning interprofessional teams. This interest is triggering changes in pre-professional accreditation standards for allied health programs which require the use of interprofessional education (IPE). A mixed-methods study using an experiential learning framework is underway to assess the effects of IPE clinical simulations on the development of teamwork skills and the extent to which this improves the understanding of teamwork among allied health students.

Keywords: teamwork, interprofessional education, experiential learning theory, allied health students, clinical simulation

The delivery of healthcare today is complex and multifaceted. No single discipline can deliver the best care, and interprofessional teams have been established in recent years as the best way to render quality care for patients (Zajac et al., 2021). There is an increasing realization that the nature of healthcare delivery has significant effects on medical outcomes and can even prevent or contribute to medical errors (Rosen et al., 2018). Specifically, the effectiveness of healthcare teamwork is associated with the quality of healthcare delivery (Rosen et al., 2018). Better teamwork is associated with lower patient morbidity and mortality, as well as lower staff turnover and increased patient satisfaction (Zajac et al., 2021). Similarly, poor teamwork and healthcare coordination between disciplines can result in medical errors and poor patient outcomes (Rosen et al., 2018; Schmutz et al., 2019). There are many theories as to the causes of poor teamwork in healthcare and why it persists; however, the strong hierarchy of medical practice (Green et al., 2017; Rosen et al., 2018) and a pre-professional emphasis on a siloed identity (Thomson et al., 2015) are among those most often cited. The Interprofessional Education Collaborative (IPEC) has highlighted important aspects of interprofessional teams and includes teamwork as one of four competencies that are crucially important to working with other professionals (IPEC, 2016). In a recent systematic review of the healthcare team literature, it was found that teamwork has a medium-sized effect on clinical performance (Schmutz et al., 2019). The current state of teamwork in the healthcare industry is inconsistent and fraught with challenges and has been cited as a significant contributor to medical errors (Rosen et al., 2018; Zajac et al., 2021). Recent research has recommended that teamwork should be promoted through training and implementation related to treatment guidelines and policies (Schmutz et al., 2019). For the purposes of this study, teamwork will be defined as, “a process that describes interactions among team members who combine collective resources to resolve task demands” (Schmutz et al., 2019, p. 2).

Problem Statement

Considering the problematic nature of teamwork in the healthcare field today and its association with medical errors, questions naturally surface about education and skills development in this area for healthcare professionals. What education is provided at the pre-professional level regarding teamwork skills and how to work with professionals outside of the student practitioner's field, and is it enough to promote collaborative medical practice? The recent interest in the improvement of teamwork in healthcare industry and a realization that medical errors are related to poor interprofessional teams (Rosen et al., 2018) have triggered pre-professional changes. Accreditation standards for pre-professional health professions students have been added in recent years to include interprofessional work, an acknowledgement that teamwork is a skill that must be developed beginning with pre-professional experience (ACOTE, 2018; CAPTE, 2020). Despite the push to do more interprofessional pre-professional education from accrediting bodies, barriers exist such as inflexible university structures and constraints related to curricula and specific courses which make such coursework difficult (Brewer & Flavell, 2018). Generally, medical and allied health fields complete their education within siloed programs, learning with others who are preparing for the same profession (Ketcherside et al., 2017). As a result, many pre-professional healthcare students' experience working with other health professionals (or student health professionals) tends to be very limited. This can lead to profession-centrism (Ketcherside et al., 2017) which can lead to poor collaboration in the field (Schmutz et al., 2019). The literature does not explicitly offer many perspectives regarding the depth of preparation provided for interprofessional healthcare practice at the pre-professional level, but it does suggest that it is difficult to translate teamwork skills into professional practice at current levels (Ketcherside et al., 2017).

Purpose of This Paper

Considering the current issues in healthcare surrounding teamwork and their correlation with medical errors there is room for improvement which could facilitate a higher quality of care. To learn more about how university IPE influences learning it seems logical to examine the nature of pre-professional education of health professionals and the student experience as they prepare to enter the field. This paper will explore current literature related to IPE and propose a methodology to answer the research question: How do interprofessional experiences affect the professional development of the healthcare student?

Literature Review

Interprofessional Teamwork in Healthcare

In any industry, and especially one as vital as healthcare, teamwork can be argued as essential to daily operations completed in multiple settings. Recently there has been a realization that poor coordination of healthcare between disciplines is problematic and could be related to poor teamwork skills in the field (Rosen et al., 2018). Healthcare delivery is by nature interdependent; no single professional within the medical team can ensure that a patient receives the highest level of care or prevent them from coming to harm because of treatments that are poorly applied. Teams within healthcare are naturally interprofessional. Despite this risk of patient harm, healthcare as a field has not been heavily invested in processes to manage interprofessional teams and coordinate care (Rosen et al., 2018). There is a need to examine interprofessional team dynamics within healthcare settings to improve the quality of care (Thomson et al., 2015).

Previous research shows us that quality teamwork can improve patient care and safety, organizational effectiveness, and can increase job satisfaction; conversely, a lack of adequate teamwork can increase the likelihood of patients experiencing complications of surgery (Rydenfält et al., 2017) as well as medical errors (Green et al., 2017); Rosen et al., 2018; Shrader et al., 2013), and increased morbidity and mortality (Zajac et al., 2021). In fact, delivery of healthcare today is considered fragmented, and the multidisciplinary services required for patients are poorly coordinated (Rosen et al., 2018). Interprofessional healthcare team dynamics are often problematic due to many reasons, including a tendency of these professionals to take too much of an individual professional identity approach causing a clash in cultures in the clinical setting (Thomson et al., 2015). Improvements in teamwork and collaborative practice within the healthcare field are needed (Thomson et al., 2015; Rosen et al., 2018); indeed, they are “crucial if we are to improve patient care” (Green et al, 2017, p. 450).

Research linking teamwork quality and healthcare performance has been conducted to examine the linkage between the two phenomena. It has been theorized that quality teamwork is essential to improving healthcare delivery due to its ability to utilize the expertise of team members to maintain safety and optimal outcomes for patients (Schmutz et al., 2019). However, a recent systematic review and meta-analysis reveals that study results are mixed regarding the relationship between teamwork and clinical performance in healthcare (Schmutz et al., 2019). These inconsistencies may be due to several reasons, including variations in conceptualization of teamwork due to research being spread across disciplines; small sample sizes in teamwork research; and problems with ignoring important contextual variables of teams within existing research such as team characteristics, task type, team familiarity and performance measures used (Schmutz et al., 2019). Zajac et al. (2021) assert that the healthcare field lacks an evidence-based, comprehensive framework to better understand what facilitates and detracts from multidisciplinary teamwork.

Findings of various studies give insight into the relationship of teamwork to clinical performance. In a study by Shrader et al. (2013), a positive relationship was found between effective teamwork and positive clinical outcomes in a pre-professional simulated environment; when teamwork was evaluated as good, clinical outcomes tended to be more positive as evaluated by trained faculty members. Based on the research of Thomson et al. (2015) it is theorized that increasing socialization between professions and strengthening connections between professionals within healthcare settings can improve individual practitioners’ identification with their team, thereby increasing teamwork ability. Team identity was also found to be important to performance (Thomson et al., 2015). In addition, a systematic literature review and meta-analysis by Schmutz et al. (2019) found that teamwork has a medium-sized effect on healthcare performance. Collectively, this research suggests that healthcare organizations should, as Schmutz et al. (2019) suggest, “recognize the value of teamwork and emphasize approaches that maintain and improve teamwork for the benefit of their patients” (p. 1).

Experiential Learning Cycle and IPE

Experiential learning theory (ELT) can be used as a framework with which to consider the process of interprofessional education. ELT originally was conceptualized as a cognitive process largely contained within the individual. William James, considered one of the foundational

scholars of experiential learning, believed that the duality of the mind versus the physical world is brought together simultaneously because both are experienced, albeit in different ways (Kolb et al., 2014). It is from the work of James and others that the experiential learning cycle evolved, and David Kolb first articulated the ELT and its associated cycle as having four different stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb 1984; Kolb et al., 2014). This cycle is the most widely recognized concept in ELT (Kolb 2015; Peterson & Kolb, 2017).

In his work, David Kolb articulates his belief that learning creates knowledge which results from the processing of ‘pure experience,’ the nature of which violates the expectations of previous understanding and convictions the learner has had enough to trigger reflection (Peterson & Kolb, 2017). Kolb’s learning cycle described how learning occurs (Merriam & Bierema, 2014). According to Kolb, the “effective learner” utilizes four different abilities which form the four stages of the experiential learning cycle: concrete experience abilities (CE), reflective observation abilities (RO), abstract conceptualizing abilities (AC), and active experimentation abilities (AE) (Merriam & Bierema, 2014). The learning cycle describes two ways of grasping experience, which encompasses interpretation of experience as well as action based on this process. Learners engage in concrete activities which they observe and reflect upon, processing these experiences (Kolb et al., 2014). Their reflections are then processed, yielding abstract concepts to add to the learner’s knowledge. The learner can then take this new knowledge to assist them into experimenting further in new experiences (Kolb et al., 2014). During full cycle learning the learner progresses through all stages via a recursive process (Kolb et al., 2014).

Teamwork and Experiential Learning Theory

Teamwork has effects on learning and can be conceptualized or situated in an experiential learning framework. As working in teams becomes more common in both education and work settings, more emphasis is placed on team members’ ability to work in teams and learn effectively within this process (Kayes et al., 2005). While teamwork can enhance learning in academic and other settings, working in teams is not always a positive experience for all, due to negative team patterns and factors. An intention for learning can minimize negative effects and foster the learning process. Kayes et al. (2005) describe six aspects of team development which can help or hinder the learning involved in teams: purpose, membership, role leadership, context, process, and action. These aspects relate well to experiential learning and team functioning. Kayes et al. (2005) recommend several strategies to enhance group functioning and maximize team learning and outcomes. The first recommendation is that members must create and foster a conversational space that allows reflection on the team’s experiences together and facilitates group feedback on its own processes. This reflective space must provide psychological safety and ideally be centered around an acceptance of each other’s differences (Kayes et al., 2005). This conversational space also must facilitate honest reflection of team members on team processes and help to foster problem-solving about ways to grow and improve these processes (Kayes et al., 2005). Without the availability of this neutral space teams will have difficulty maturing and evolving into groups that learn well and ultimately meet their goals.

Applying experiential learning to pre-professional IPE, the challenge is to create university experiences that give students new perspectives and facilitate both cooperation and teamwork with students from other healthcare fields.

Research Design

Saldana (2011) states that mixed methods research utilizes both quantitative and qualitative data collection analysis to strategically take advantage of the methodological advantages of each. Using both types of inquiry can allow the researcher to uncover many dimensions of the findings. This type of research can result in robust findings in some cases, whereas contradictory data can result in others (Saldana, 2011). Mixed methods research can give multi-dimensional depth that may be lacking when using a single method of research inquiry. Therefore, a mixed methods research design is being used to extract rich data for analysis regarding the effect of IPE events on teamwork skills and conceptualization of teamwork among pre-professional healthcare students.

The research questions addressed by this study include: 1. How do interprofessional experiences affect the professional development of the healthcare student? 2. How do students conceptualize teamwork skills needed for working in healthcare? 3. Can allied health students build teamwork skills by working together in a simulated clinical setting?

This study is being conducted by an interprofessional team of occupational and physical therapy university professors as these professions often work together in the field. The team is studying the effects of an IPE activity on graduate-level occupational therapy and physical therapy students in terms of team skills and conceptualization of teamwork. For each IPE event, the students are assigned to mixed-disciplinary teams and complete a two-part clinical simulation where they must assess and treat a standardized patient (a faculty/staff member who has been trained to portray the patient). Students receive a pre-brief and debrief related to the simulation. The research methods include: (1) pre- and post-simulation completion of the IPEC Competency Self-Assessment Tool v.3 (focuses on teamwork constructs and skills; NCIPPE, 2016) and (2) completion of open-ended questions regarding teamwork after completion of each IPE event. Both types of data are collected for each IPE event using anonymous Qualtrics surveys and events are held biannually. Quantitative data analysis (for change in scores from pre-test- to post-test) will occur using statistical analysis such as t-tests, estimated Cohen's d and r^2 to determine effect size for the IPE activity. Thematic analysis will be used to detect patterns and themes in qualitative data from post-test open-ended questions. This research design was approved through University of Wisconsin – Milwaukee's IRB (Study 23.071) in November 2022 and the study is currently underway. Findings will be published after data has been collected and analyzed from multiple IPE events.

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