Faculty Perceptions of Preparation of Medical and Nursing Students for Interprofessional Collaboration

DISsertation

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By

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ABSTRACT

The effectiveness of teams comprised of physicians, nurses, pharmacists, and allied health care providers is critical to the safe and effective delivery of health care. Teamwork is necessary in the current health care environment because patient problems and health care needs have become so complex that no single practitioner can be expected to manage them effectively alone.

A number of reports, government agencies, and private organizations have been remarking on the association between team effectiveness and patient safety for more than 20 years. The first of the Institute of Medicine reports on this topic, To Err is Human: Building a Safer Health System, is credited with bringing the issue of patient safety to the forefront, and included the figures most often cited in discussions of health care safety issues.

Recommendations to reduce the incidence of medical error and improve the outlook have considered the many causative elements related to health care safety and effectiveness. A number of these recommendations focus on collaboration as a way to improve team effectiveness. Much of the focus has concentrated on physicians and nurses, who form the core dyad on health care teams. The body of literature on interprofessional education to improve team effectiveness is expansive, however health care systems and academic health centers continue to struggle to implement successful methods to enhance collaborative teamwork.

Health professions educational programs share the academic health center setting, but students continue to be educated in discrete and separate programs. There is usually little opportunity for learning together that provides for the makings of common ground and cross-profession understanding. The body of literature on interprofessional education is growing, however much of the literature continues to focus on practicing
professionals rather than students. In addition, while faculty are the group of experts charged with educating students, they continue to be the least frequently surveyed.

To address these gaps in the literature, this qualitative study with 32 nursing and medical faculty from 3 Midwestern universities explores faculty perceptions of the preparation of pre-licensure medical and nursing students for interprofessional teamwork and collaboration with one another, and challenges related to student outcomes.

Results suggest that a number of successful curricular strategies and pedagogies used by faculty facilitate students’ learning of interprofessional collaboration. These included authentic experiential learning, as well as faculty mentoring, role modeling, and facilitated reflection. The use of simulated learning experiences, and teaching communication principles and techniques were also important. Faculty who were successful built collaborative relationships with faculty from the other profession, identified common ground between the professions, engaged students in peer learning, and engaged faculty members in cross-professions teaching. The building of interfaculty relationships, and the use of effective strategies and pedagogies helped to overcome structural and functional barriers to interprofessional education found in both the educational and clinical environments.
DEDICATION

To Bob and Katie

You have been my inspiration. I could not have accomplished this without your love and support.
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It is an amazing thing, to be a first-generation college student, and to finish doctoral study well into one’s career. Chapter 1 starts with the beginnings of an old proverb, “it takes a village.” It took a village to see me through this work, and I am grateful for the support of many professors, colleagues, friends, and my family.

First and foremost, my deepest thanks go to Dr. Ada Demb, my advisor and mentor. At the suggestion of a friend, colleague, and graduate of the program Dr. Polly Owen, I met with Dr. Demb the summer before I applied. The program of study was just what I was looking for, but the possibility of working with Dr. Demb was the deciding factor for me. The rest is history. It has been a long journey, and she encouraged me the entire way. She has been a tireless and relentless supporter, and the best adviser anyone could ask for. She has made me think in new ways; I am a better scholar and educator for it.

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My furry family member, Gabby, took on many roles. She has been my stress management specialist, research associate, and all-around Girl Friday.

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Publications


Fields of Study

Major Field: Education
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INTRODUCTION

“It takes a village . . .”

The effectiveness of teams is critical to the safe and effective delivery of health care. These teams may be comprised of physicians, nurses, pharmacists, and a plethora of other primary and allied health care providers. Teams are necessary in the current health care environment because patient problems and health care needs have become so complex that no single practitioner can be expected to manage them effectively alone.

A number of reports (Brennan et al., 1991; Committee on Quality of Health Care in America, 2001; Greiner & Knebel, 2003; Kohn, Corrigan, & Donaldson, 2000; O’Neil & the Pew Health Professions Commission, 1998; and The Center for the Health Professions, University of California, San Francisco, 2006), government agencies (Agency for Healthcare Quality Research, 2009), and private organizations (Institute for Healthcare Improvement, 2009; and The Joint Commission, 2009), including philanthropic organizations such as the Robert Wood Johnson Foundation (Quality & Safety Education for Nurses [QSEN], 2009) have been remarking on the association between team effectiveness and patient safety for close to 20 years. The most notable report was published by the Institute of Medicine (IOM), To Err is Human: Building a Safer Health System (Kohn, Corrigan, & Donaldson, 2000). This report included the figures most often cited in discussions of health care safety issues, estimating that between 44,000 and 98,000 people die annually in U.S. Hospitals due to medical errors (Kohn, et al., 2000).
Recommendations to reduce the incidence of medical error and improve the safety outlook have considered the many causative elements related to health care safety and effectiveness. A number of these recommendations focus on team effectiveness. These recommendations acknowledge the need for change in individual accountability, team performance, and in the organization and function of health care systems. *To Err is Human* reported that “As recognition has grown that errors are caused by failures in systems, interdisciplinary collaboration may become increasingly necessary for redesigning complex systems of care” (Kohn et al., 2000, p.146). A follow-up report issued by the IOM, *Crossing the Quality Chasm: A New Health System for the 21st Century*, highlighted “. . . cooperation among clinicians, calling for clinicians and institutions to actively collaborate and communicate to ensure appropriate exchange of information and coordination of care” (Committee on Quality of Health Care in America, p. 9). More recently, The Joint Commission has identified improvement of the effectiveness of communication among caregivers as a National Patient Safety Goal for 2009 (The Joint Commission, 2009). The importance of effective team communication has also been a focus of attention for the Institute for Healthcare Improvement, as demonstrated by its programs and products focused on these topics (Institute for Healthcare Improvement [IHI], 2009). In addition, the US Agency for Healthcare Research (AHRQ) has provided substantial leadership to the making of improvements in interprofessional collaboration as a method to improve patient safety (Mitchell, Robins, & Schaad, 2005; & O’Daniel & Rosenstein, 2008).

Teams of health care professionals work in a variety of settings. These may include high-acuity environments in hospitals such as operating rooms, emergency rooms, and intensive care units. Other kinds of hospital environments may be less acute than those just mentioned, but are no less complex because of the breadth of patient issues, for example patients on general medical or medical/surgical units. Patients on these units present with a wide variety of problems, and often suffer from a number of co-morbidities. Adding to the complexity of care is the fact that most hospitals consist of floors or units that are geographically arranged according to medical specialty. This kind
of “silo” architectural organization is convenient for specialist physicians, but may or
cannot be helpful in supporting the scope of other kinds of patient care issues that
complicate care-giving, for example psycho-social or spiritual issues. Non-hospital
health care settings are also plentiful, and include primary care (e.g. physician’s offices),
urgent care settings, specialty settings (e.g. psychiatric/mental health, geriatrics,
obstetrics, and pediatrics), and community/public health settings. The greater the
complexity of care, the greater is the need for health care professionals to work
interdependently.

The impact of interdisciplinary teams on safety and quality health care outcomes
is increasingly recognized and has been the subject of extensive study. The effect of
collaborative interdisciplinary teams has been reported in the literature (Ladden,
Bednash, Stevens, & Moore, 2006; Greiner & Knebel, 2003; O’Neil, E. H. & the Pew
Health Professions Commission, 1998; and The Center for the Health Professions,
University of California, San Francisco, 2006). Teams that function effectively have
been found to be especially important in providing safe and effective care in acute tertiary
care hospital units serving complex, high-risk patients (Baggs, Ryan, Phelps, Richeson, &
Johnson, 1999; Baggs, et al, 1999; Wheelan, Burchill, & Tilin, 2003; and Vazirani, Hays,
Shapiro, & Cowan, 2005), in operating rooms (Sexton, et al, 2006), on resuscitation
teams (Henderson & Ballesteros, 2001), and on teams involved in complex discharge
planning (Pethybridge, 2004).

However, the adoption of interprofessional care delivery models and a culture of
interdependent practice have been slow in developing. A status quo in the traditional
relationships between physicians and other health care providers remains (Baldwin,
2007a). Nurses and physicians often demonstrate differing perspectives about patient
care, and may have a limited understanding of each others’ professional roles (Hamrick
& Blackhall, 2007; Higgins, 1999; and Weller, et al, 2008). In addition, nurses and
physicians often report conflicting perspectives on whether physician-nurse collaboration
was successful under the circumstances of study (Baggs & Ryan, 1990; Krogstad,
Hofoss, & Hjortdahl, 2004; Manias & Street, 2001; Thomas, Sexton, & Helmreich, 2003; & Thomson, 2007). These differences in perspective have implications for preparing health care professionals to work in teams, particularly physicians and nurses.

The need for training necessary for effective collaboration to occur has become increasingly evident. “Most care delivered today is done by teams of people, yet training often remains focused on individual responsibilities leaving practitioners inadequately prepared to enter complex settings . . . the ‘silos’ created through training and organization of care impede safety improvements,” (Kohn et al., 2000, p.146). Both health care facilities and academic institutions preparing health care professionals are challenged to establish organizational support for interprofessional teams, and infrastructures for concomitant education and training. (Greiner & Knebel, 2003; O’Neil, E. H. & the Pew Health Professions Commission, 1998; and The Center for the Health Professions, University of California, San Francisco, 2006). An evolving strategy for improving the outlook is to focus on the next generation of practitioners through interprofessional pre-licensure education.

Interprofessional education is not a new concept. A number of academic health centers have initiated demonstration projects, some of which began prior to the generation of the first IOM reports. A few academic programs have been able to sustain their efforts and have contributed to the growing body of work on success in interdisciplinary education (Holmes & Osterweis, 1999; Mitchell et al, 2006; O’Halloran, Hean, Humphris, & Macleod-Clark, 2006; and Walrath, et al, 2006). Despite the national support for the integration of interprofessional curricula in health professions education, progress in its development has been slow and episodic, often dependent on funding streams and sponsorship. Efforts to promote interdisciplinary education are consistently met with barriers that include professional discipline territoriality and academic health systems inertia; only a few have been able to sustain the effort such that the curricula has become mainstreamed (Baldwin, 2007b). As a result, health professions students continue to be largely educated in their discrete programs, with limited opportunities to
learn together and from one another. Also, health professions students have been unlikely, during their formal education, to learn how to work in teams, or have training in team-based collaboration skills.

Support for interprofessional education comes from a variety of sectors. In addition to the IOM, these include health care focused organizations and agencies such as The Joint Commission, IHI, and AHRQ. The World Health Organization (WHO) announced its renewed interest in interprofessional education several years ago. A WHO Study Group on Interprofessional Education and Collaborative Practice was launched, and recently published an international assessment and synthesis of the current state of the research and identified the potential for action on a global scale (World Health Organization [WHO] 2010; and Yan, Gilbert, & Hoffman, 2007).

National health professions program accrediting agencies and professional associations have recently joined in the interprofessional collaboration movement. These agencies have incorporated criterion supportive of interdisciplinary communication or collaboration into their standards and competencies (Accreditation Council for Graduate Medical Education, 2007; American Association of Colleges of Nursing, 2008; Liaison Committee on Medical Education, 2008; and National League for Nursing Accrediting Commission, 2008), although significant differences in the focus, terminology, and level of detail are evident. In addition, content related to interdisciplinary collaboration, performance improvement, and quality assurance has been incorporated into the most recent revision of the NCLEX-RN® Test Plan by the organization responsible for producing the registered nurse (RN) licensure examination (National Council of State Boards of Nursing [NCSBN], 2010).

The measures set forth by these organizations serve to provide a foundation for academic health centers to incorporate interdisciplinary education into their programs. At a minimum, academic programs in nursing and medicine must establish outcome objectives compliant with relevant standards, criteria, and competencies related to
communication, collaboration, and team effectiveness in order to achieve and maintain accreditation.

**Statement of the Problem**

The safety and effectiveness of patient care in today’s complex health care environment depends on the knowledge, skills, abilities, attitudes, and collaborative contributions of interprofessional teams. Interprofessional teams may include physicians, nurses, pharmacists, and a variety of allied health professionals. The core dyad has historically consisted of, and continues to be comprised of, nurses and physicians.

While educational programs that prepare physicians and nurses may structurally share the academic health center setting, students continue to be educated in discrete and separate programs, with little or no opportunity for learning together where shared learning experiences might provide for the makings of common ground and the beginnings of cross-profession understanding. Each profession continues to teach its own content, in its own “silo” in the university setting, while its students are separately acquiring clinical skills, often in the same clinical settings and contexts as one another (Greiner, & Knebel, 2003; & Larson, 1999). Also, most programs have historically provided minimal, if any, education and training in collaboration and team building skills to prepare students for collaborative interprofessional practice once graduated.

Efforts on the part of creative faculty, forward thinking academic departments, and funding organizations have provided rich ground from which interprofessional education can emerge. However, the true beginnings of fundamental change in this area have only come with the recent revisions in academic standards, criteria, and competencies in nursing and medical education accreditation requirements. These new standards are driving change in the way students are educated to achieve the desired outcomes. Until these are fully realized, novice health care professionals will continue to be at a disadvantage; upon graduation, they will be expected to embrace the
interprofessional team concept and to have acquired the basic knowledge, skills, and attitudes necessary to function effectively in interprofessional teams.

Faculty are charged with the responsibility for designing, implementing, and evaluating curriculum and pedagogy to improve student outcomes in interprofessional collaboration. However, direction provided by accreditation organizations is as yet broad and generalized. The body of literature on student outcomes in collaboration and teamwork skills is just beginning to emerge. Although these accreditation standards are fairly new, many faculty have experience in preparing nursing or medical students to work collaboratively with the “other” profession and are an excellent source of information. Faculty are the group of educational experts least frequently surveyed in the interprofessional literature. To address these gaps in the literature, a study must be conducted to explore faculty perceptions of student outcomes and factors related to the preparation of medical and nursing students for interprofessional teamwork and collaboration.

**Purpose and Research Questions**

The purpose of this study is to explore faculty perceptions of the preparation of medical and nursing students for interprofessional teamwork and collaboration with one another, and their perceptions of factors affecting student competencies and outcomes related to the achievement of knowledge, skills, and attitudes that prepare graduates for collaborative interprofessional team practice.

**Research Questions**

The research questions will explore faculty perceptions of student outcomes and factors related to the preparation of medical and nursing students for interprofessional teamwork and collaboration with one another.
**Research Question 1**: How do medical school and nursing school faculty describe the experiences that enable medical and nursing students to learn how to work collaboratively in interprofessional teams?

**Research Question 2**: To what degree do faculty perceive that students are achieving outcomes related to interprofessional teamwork and collaboration, based on current relevant accreditation standards/competencies?

**Research Question 3**: What factors do faculty perceive as hindering the development of these competencies?

**Research Question 4**: How could hindering factors be overcome to remove barriers to collaboration?

The theoretical methodological design of this study is qualitative and utilizes semi-structured interview (Barbour & Schostak, 2006, Glesne; 2006; Jones, Torres, & Arminio, 2006; Warren, 2001; and Weiss, 1995). The study will be guided by a constructionism epistemology, and an interpretivist theoretical perspective. Interviews will be conducted using questions which are based on the four primary research questions, and developed using collaboration and cooperation theory, other critical frameworks, and accreditation outcomes for guidance.

A thematic analysis of the perceptions of both nursing and medical education faculty will provide a number of benefits. First, a summary of perceptions could serve as a foundation to guide curriculum development in nursing and medical education programs to achieve the desired outcomes. Next, comparisons can be drawn between the perspectives of nursing and medical education faculty, to determine the extent to which perceptions align or differ. Finally, the results of this research could provide the basis for future study to explore the usefulness of relevant theory, such as collaborative education and experiential learning theory, in the understanding of achievement of student outcomes related to interprofessional collaboration.
A set of critical frameworks are important to this research. Among these are collaboration theory based on the work of Baggs (1990, 1999a, & 199b), D’Amour (2005 & 2008), Freeth (2005), Reeves (2001 & 2008), Rosen (2007) and others, as well as Axelrod’s (1997, 2006) contributions to cooperation theory. Collaboration describes an active and usually ongoing partnership between people from either similar or diverse backgrounds, who work together to create value, solve problems, or provide services (Freeth et al, 2005 & Rosen, 2007). Effective collaborative relationships typically exhibit cultural elements, such as trust, sharing, common goals, and common values that provide a foundation for ongoing working relationships. Cooperative behavior, on the other hand, is the positive outcome of some type of collective action that is engaged in by a group of two or more individuals, despite the potential costs to the individuals involved (Axelrod, 2006). Other frameworks include interprofessional education (Barr, et al., 1999; Barr et al., 2005; Hammick et al., 2007; Ladden et al., 2006; Reeves, 2001; and Reeves et al., 2008), high reliability organization theory as it relates to health care (Gaba et al., 2003; Helmreich, 2000; Hunt & Callaghan, 2008; Lyndon, 2005; Sexton et al., 2006; and Sexton, Thomas, & Helmreich, 2008), experiential learning theory (Kolb, 1984; and Kolb, Baker, & Jensen, 2002), and collaborative learning (Barkley, Cross, & Major, 2005; Dillenbourg, 1999; and Smith & MacGregor, 1992).

**Significance of the Study**

This study will provide insight about a variety of factors affecting the performance and outcome achievement of students as they learn about and practice interprofessional teamwork. It will do so through the unique perspective of the faculty who are charged with the responsibility of constructing effective learning environments in which this takes place. A thematic analysis of the perceptions of both nursing and medical education faculty will provide a number of benefits, beginning with a comparison of the perspectives of nursing and medical education faculty to determine the extent to which perceptions align or differ.
Second, this study will provide data about faculty perceptions of gaps between expected student outcome achievement and actual student achievement. The accreditation standards and competencies related to interprofessional collaboration and teamwork are relatively new, and an analysis of this type through the faculty lens will provide unique information. Third, an analysis of faculty perspectives on successful curricular strategies or pedagogies will reveal themes related to best practices. A summary of perceptions could serve as a foundation to guide curriculum development in nursing and medical education programs to achieve the desired outcomes. Fourth, obstacles specifically related to the development of these competencies will be revealed. And fifth, an understanding of obstacles that stand in the way of student competency achievement will provide faculty and academic leadership with information that could be useful as they anticipate future curriculum planning. Sixth, the results of this research could provide the basis for future study to explore the usefulness of relevant theory, such as collaborative education and experiential learning theory, in the understanding of achievement of student outcomes related to interprofessional collaboration.

Finally, understanding similarities and differences in perceptions between pre-licensure nursing educators and medical educators may provide better insight into the dilemma currently facing many academic health centers, which is that efforts to promote interprofessional education are often met with barriers that include professional territoriality and academic health systems inertia. Analysis of similarities in perceptions may uncover areas of common ground that can provide leverage for promoting interprofessional education across health professions.

**Definition of Terms**

1. **Collaboration**: describes an active and usually ongoing partnership between people from either similar or diverse backgrounds, who work together to create value, solve problems, or provide services.
2. **Cooperation**: describes the positive outcome of some type of collective action that is engaged in by a group of two or more individuals, despite the potential costs to the individuals involved.

3. **Interprofessional education**: Interprofessional education occurs when two or more professions learn with, from and about one another to improve collaboration and the quality of care (Centre for the Advancement of Interprofessional Education [CAIPE], 2002).

Note: The term “profession” generally refers to a line of work that requires either academic or practical preparation, or both. The term “discipline” generally refers to a branch of knowledge. The literature reporting on the cooperative work of multiple health professionals has evolved; the current term for this phenomenon is “interprofessional”. Therefore, for the purposes of this study, the term “interprofessional” will be used rather than the term “interdisciplinary”, which was used extensively in earlier literature.

4. **Patient**: is the individual who is the recipient of health care. Traditional definitions state that this person is one who endures or bears pain, difficulty, or provocation without annoyance. The nursing profession more often uses the term “client”, to denote that the individual is engaging the services of a professional. This implies a level of partnership and mutual health care decision-making. The term “patient” is used here because it is more familiar to the public in this context.

5. **Patient safety**: is defined as a patient’s freedom from accidental injury due to medical care or error (IOM, 2001).

6. **Quality of Care**: is defined as the degree to which health services for patients increase the likelihood that the desired health outcomes are achieved, and that care provided by health care providers is consistent with the current professional standard of care.
7. **Medical education:** post baccalaureate education leading to the Medical Doctor (MD) or Doctor of Osteopathy (DO) degree, and eligibility to apply for a license as a medical doctor or doctor of osteopathy. For the purpose of this study, this term will be limited to education leading to the MD degree.

8. **Medical error:** is defined as the failure of a planned action to be completed as intended, or the use of a wrong plan to achieve an objective. A medical error may involve problems associated with the health care provider’s practice, with the products involved, the procedures carried out, or systems that are intended to support the provision of care.

9. **Nursing education:** for the purpose of this study, this term is limited to undergraduate education leading to the Bachelor of Science in Nursing (BSN) and subsequent eligibility to apply for a license as a registered nurse (RN). Both traditional BSN and graduate entry/second degree prelicensure programs are included in this study.

10. **Sentinel events:** unexpected events involving death or serious physical or psychological injury or the risk thereof (The Joint Commission, 2009).

11. **Teamwork:** describes the process whereby a group of people with a common goal work together to increase the efficiency of the task, with each doing a part, but all minimizing the importance of their personal contribution to the benefit of team efficiency.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

This research is driven by the need to explore faculty perceptions of student outcomes, curriculum and pedagogy, and situational factors related to the achievement of knowledge, skills, and attitudes that prepare graduates of nursing and medical education programs for collaborative interprofessional team practice. Interprofessional collaboration is one practice among many that have been shown to contribute to increased effectiveness and safety and health care. This literature review will provide a synthesis of previous research, perspectives, and theoretical foundations related to the research questions described in Chapter 1. This chapter will be organized into several major areas.

The first section will provide a synthesis of the literature that addresses collaboration and cooperation. This section will begin with an explanation of the unique features of collaboration within team structures and then introduce the research and writings of Baggs (1990 & 1999), D’Amour (2005), Freeth (2005), Hammick (2007), Koppel (2001), Rosen (2007), Reeves (2001 & 2008) and others, as well as Axelrod’s (1997, 2006) in order to identify theoretical constructs of collaboration and cooperation related to the health professions. Following this, a discussion of how perceptions of the meaning and nature of collaboration differ for the populations that are the focus of this research, nurses and physicians, will be presented. In the next section, three major themes found in the health care literature relevant to collaboration and cooperation in teams will be addressed. The first theme focuses on elements exemplified by high performance
teams. This section highlights unique attributes of collaboration and cooperation demonstrated by these teams and discusses how lessons learned from other high-reliability fields, such as aviation, relate to health care teams. A second theme focuses on support and direction for interprofessional collaboration in pre-licensure nursing and medical education programs. This section describes the changes that have recently occurred in relevant accreditation standards and criterion, outcomes expected of graduates related to collaboration, and a national project in nursing education to specifically address these changes. A third theme is interprofessional education (IPE) as an academic model and movement to promote collaboration between health care professionals. This section will describe IPE, and includes an overview of its definitions, emergence, and current emphasis on collaboration and cooperation as a means of enhancing performance improvement efforts that promote patient care quality and safety. A description and synthesis of systematic reviews of IPE research will be offered, with particular attention to cooperation and collaboration. The strengths and limitations of that body of literature will be explored. This theme concludes with an explanation of collaborative learning, which is increasingly used in academic settings to promote IPE.

The final section will describe nursing and medical education. This section will introduce the current structures in pre-licensure nursing and medical education, licensing, and accreditation to provide a foundation for understanding fundamental commonalities and differences between the two professions that form the most prevalent dyad in health care systems. These commonalities and differences will be highlighted as they contribute to or detract from the potential for the two professions to collaborate during their educational process, and ultimately in practice settings.

The literature on interprofessional practice and outcomes of collaboration in particular has grown enormously in the last decade. The body of literature related to student outcomes in interprofessional teamwork and collaboration is just beginning. Therefore the intent of this review is to present research, theory, and discussion most relevant to the research questions identified.
Collaboration and Cooperation in Interprofessional Teams

Competition has been shown to be useful up to a certain point and no further, but cooperation, which is the thing we must strive for today, begins where competition leaves off.

Franklin D. Roosevelt
BrainyMedia, 2009

The increasing complexity of patient care demands that health care professionals work together collaboratively to improve their effectiveness (Baggs, Ryan, Phelps, Richeson, & Johnson 1999; Baggs et al., 1999; Greiner & Knebel, 2003; Henderson & Ballesteros, 2001; Ladden, Bednash, Stevens, & Moore, 2006; O’Neil & the Pew Health Professions Commission, 1998; Pethybridge, 2004; Sexton et al., 2006; The Center for the Health Professions, University of California, San Francisco, 2006; Vazirani, Hays, Shapiro, & Cowan, 2005; and Wheelan, Burchill, & Tilin, 2003). This notion represents evolutionary change from the standpoint that “. . . health care now requires far more than one profession to be involved and militates against the claim of any one group to be in charge of all transactions at all times” (Baldwin, 2007, p. 100). The following sections describe collaboration in teams, collaboration theory, and cooperation theory.

Collaboration in Teams

Interprofessional collaboration calls for individuals to be proficient in the knowledge, skills, and attitudes necessary to work effectively in a team. Several types of teams are identified and differentiated in the interprofessional literature by their composition and function. Multidisciplinary teams are comprised of individuals from different professions working independently but in parallel. The term interdisciplinary team implies greater collaboration between team members than is found in multidisciplinary teams. Finally, transdisciplinary teams, also currently referred to as interdisciplinary or interprofessional teams, seek consensus; in these teams, territoriality is diminished in comparison with other types of teams (Centre for the Advancement of Interprofessional Education, 2002; D’Avray, 2007; and Hall & Weaver, 2001).
The term “team” is often used without consideration of its meaning or operational definitions. Katzenbach and Smith (1993) provide a classic discussion differentiating teams from other workgroups, and describe what makes teams work. They suggest that “. . .the essence of a team is common commitment” (p. 165). Whereas working groups perform results as an eventuality of composite individual contributions, team performance results in both individual and collective work products that reflect joint contributions, so requires both individual and mutual accountability. Contributions are dependent on a set of skill requirements; these include technical or functional expertise, problem-solving and decision-making skills, and interpersonal skills. In addition, teams share a set of values, share leadership roles, and are driven to respond to a set of performance goals. Teams that demonstrate a high degree of goal clarity tend to have more productive discussions on how to pursue those goals. Katzenbach and Smith point out that “. . . specific objectives have a leveling effect conducive to team behavior” (167). This notion is especially important in interprofessional dynamics, where the most common structures are hierarchical. The authors further observe that:

“. . . when a small group of people challenge themselves to get over a wall or to reduce cycle time by 50%, their respective titles, perks, and other stripes fade into the background. The teams that succeed evaluate what and how each individual can best contribute to the team’s goal and, more important, do so in terms of the performance objective itself rather than a person’s status or personality.”

(emphasis added, p. 167).

The idea that a team, comprised of persons from different professional backgrounds, experiences a leveling effect when the performance objectives supersede rank and ego provides an essential backdrop to the intended outcomes of improved quality and safety in health care. In addition, Katzenbach and Smith (1993) indicate that factors such as “. . . drama, urgency, and a healthy fear of failure” affect a team’s drive toward a challenging goal (p. 167). Situations that reflect these factors are plentiful in tertiary care settings, for example in intensive care units (Baggs et al., 1992; and Baggs & Schmitt, 1997). In addition to common purpose and approach, characteristics of teams include a voluntary
rather than coerced sense of mutual accountability, as well as two critical aspects which are commitment and trust (Katzenbach & Smith, 1993).

In the health professions context, the notions of team and teamwork are seen as conditions and a framework for effective collaborative practice (D’Amour et al., 2005; Greiner & Knebel, 2003; and Kohn, Corrigan, & Donaldson, 2000). A conceptual basis for interprofessional collaboration is described by D’Amour and colleagues (D’Amour, et al., 2005), and features concepts found prominently in the organizational theory and organizational sociology literature. These include sharing, partnership, power, interdependency, and process (D’Amour et al., 2005). Coopman (2001) agrees, noting the gains made toward goal achievement when cooperation is evident, and emphasizing that cooperation is essential for complex production processes. In addition, two elements of collaborative purpose that consistently emerge in analyses of interprofessional dynamics are “. . . the construction of a collective action that addresses the complexity of client needs. . . and . . . the construction of a team life that integrates the perspectives of each professional and in which team members respect and trust each other” (D’Amour et. al., 2005, p. 127). Further, the same authors purport that these two purposes are inseparable, in that the construction of a “team life” is essential for the client-directed collective action. The authors also hold that the drive to manage client needs provides the grounding and rationale for establishing a collective life. In other words, the team dynamic must be understood contextually as both “. . . a professional (and) a human process” (D’Amour et. al., 2005, p. 128).

Rosen (2007) suggests that collaboration creates greater value than is possible through the use of traditional structures of communication and teamwork, although he notes that communication is still a significant component of collaboration. In addition, he indicates that “. . . collaboration transcends hierarchy, education, field, function and location” and defines collaboration as “. . . working together to create value while sharing virtual or physical space” (p. 9). So, while the notion of team may be considered
separately from the concept of collaboration, the conditions for achieving collaboration and team effectiveness are not mutually exclusive.

In summary, the team is differentiated from other groups in that it has a professionally distinct purpose and context; its collaborative interactions are mission driven rather than social. This discussion provides a level of clarity in terms of defining the characteristics of teams, in particular interprofessional health care teams, and helps to differentiate the terms *team* and *collaboration*. This discussion also provides a segue to the further examination of collaboration and cooperation as concepts essential to an understanding of team dynamics.

**Collaboration Theory**

The Merriam-Webster Online Dictionary defines collaboration as follows:

1) to work jointly with others or together especially in an intellectual endeavor; 2) to cooperate with or willingly assist an enemy of one’s country and especially an occupying force; and 3) to cooperate with an agency or instrumentality with which one is not immediately connected. (June 2009).

Collaboration, in the context of interprofessional health care teams, has been described as “... front-line staff respectfully working together by sharing information and coordinating activities to achieve a goal” (Nembhard, Tucker, Horbar, & Carpenter, 2007, para 2), the process by which interdependent professionals voluntarily and collectively negotiate and act to satisfy the achievement of patients’ care needs (San Martin-Rodriguez, Beaulieu, D’Amour, & Ferrada-Videla, 2005), and as a process of ongoing interactions that is best viewed as a relationship (Schmalenberg et al., 2005). The dictionary definition reveals a comparatively simplified description of joint work, but is consistent with definitions in the health professions literature. However, it is interesting that the Merriam-Webster definition makes note that collaboration may involve the need to “cooperate” with an “enemy” or with an actor with whom one is not immediately connected. This reference to cooperation in a less-than-friendly context is relevant to the
importance of cooperation theory in interprofessional collaboration; this will be discussed later.

Definitions of collaboration generated by health professions authors expand further on the dictionary definition by bringing attention to a broader collection of collaboration attributes and interactional determinants. These attributes and determinants have been identified in a number of reviews of theoretical and empirical studies, and also in concept analyses. They include shared information leading to goal achievement (D’Amour et al., 2005; Fewster-Thuente & Velsor-Friedrich, 2008; Henneman, 1995; and Nembhard et al., 2007), relationship and mutual respect (Baggs & Schmitt, 1997; and Schmalenberg et al., 2005), willingness to collaborate in the context of a partnership (Baggs & Schmitt, 1997; Borrill et al., 2002; D’Amour et al., 2005; and Sicotte et al., 2002), trust and mutual respect (Baggs & Schmitt, 1997; D’Amour et al., 2005; Silen-Lipponen et al., 2002; and Sicotte et al., 2002), interdependency and shared power (Baggs & Schmitt, 1997; and D’Amour et al., 2005); and communication (Baggs & Schmitt, 1997; D’Amour et al., 2005; San Martin-Rodriguez et al., 2005; and Silen-Lipponen et al., 2002).

Collaboration has been discussed in the literature as both a concept and as a dynamic theory. Baggs and Ryan (1990) explored the relationship between interdisciplinary collaboration and outcomes for patients in a medical intensive care unit using an instrument developed specifically for the study, the Decision About Transfer Scale. The authors found that critical care nurses’ perceptions of the amount of collaboration in the transfer decision was a predictor of risk for negative outcomes. Negative outcomes were defined as either readmission to the medical intensive care unit or death during the same hospital admission. As nurses’ perception of collaboration increased, the incidence of negative outcomes decreased. This was in contrast to the medical residents’ reports of interdisciplinary collaboration, which was not a significant predictor of patient outcomes. This early work led Baggs (1994) to develop and pilot another instrument, the Collaboration and Satisfaction About Care Decisions. The investigator drew from organizational theory for conceptual support, noting that
Thompson’s term “reciprocal interdependence” (as cited in Baggs, 1994, p. 176) was a useful concept to describe dynamic, unpredictable, complex organizations such as intensive care unit environments.

A concept analysis performed by Hanneman and colleagues provided additional insight about conceptual components and defining attributes of collaboration. The authors define attributes of collaboration as characteristics without which collaboration cannot occur. These include: 1) that two or more individuals must be willingly involved in a joint venture which requires planning and decision making; 2) that individuals who view themselves as team members demonstrate expertise that is mutually acknowledged by group members who are engaged in the process and share responsibility for outcomes; and 3) that nonhierarchical relationships exist in which power is shared, based on knowledge and expertise rather than role or title (Hanneman, Lee, & Cohen, 1995).

These attributes are consistent with concepts mentioned earlier that help define collaboration; these include sharing, partnership, interdependency, power, and collaboration as a dynamic process. An exercise to further define each of these concepts resulted in the following elaborations: 1) sharing includes the notions of shared responsibility, shared health care philosophy, shared values, shared data, or shared planning and intervention; 2) partnership implies two or more actors joining in an undertaking or venture characterized by authentic, constructive, collegial relationships that demonstrate open communication, and mutual trust and respect; and 3) interdependency arises from a common quest to meet patients’ health care needs, implies dependence and shared power between professionals rather than autonomy, and results in synergy when team members become aware of the interdependent nature of the dynamic (Hanneman, et al., 1995).

Theoretical frameworks useful for explaining collaboration have been developed by several teams of authors. D’Amour et al. (2005) conducted a literature search for the express purpose of identifying existing theoretical frameworks for collaboration in the health professions. Ten models were found; of these, seven demonstrated a satisfactory
degree of strength, being based on empirical data, an explicit theory, or both. Of these, two were derived from organizational theory, one from organizational sociology, one from social exchange theory, and one was based on social exchange theory with the addition of the concept of alliance. Most of the frameworks addressed issues related to team structure, including team composition and collaborative settings. The analysis of frameworks and models added significantly to the understanding of collaboration structures and settings. However, the authors indicated the analysis did not necessarily address interpersonal processes necessary for interprofessional collaboration. The authors commented that “they do not help us understand what transpires in the working lives of a group of collaborating professionals or the nature of their interactional dynamics” (D’Amour et al., 2005, p. 126).

More recently, D’Amour and colleagues developed the structuration model of collaboration, which was designed specifically to analyze collaboration in regional perinatal services healthcare facilities located in the province of Quebec (D’Amour, Goulet, Labadie, San Martin-Rodriguez, & Pineault, 2008). The model consists of two relational dimensions and two organizational dimensions. The two relational dimensions are: 1) shared goals and vision, which includes appropriation of a vision and a common set of goals by the team; and 2) internalization, which acknowledges the individual professional’s awareness of interdependencies. Internalization also highlights the need to manage interdependencies to increase a sense of belonging or team, enhance development of knowledge about others’ values, and the building of trust. The two organizational dimensions include: 1) formalization, which is related to expectations and responsibilities; and 2) governance, which refers to leadership and support for collaboration within the organization. The two relational dimensions are more closely related to the purpose of this study, so will be explained further. Indicators for the dimension “shared goals and vision” include: 1) goals, the most important of which are those that promote patient-centered care; and 2) client-centered orientation versus other allegiances, which means that the interests of the patient are greater than professional or organizational self-interests. Indicators for the dimension “internalization” include: 1)
mutual acquaintanceship, meaning that group professionals must know each other personally and professionally to the extent that values and competence are mutually known; and 2) trust, specifically trust in the others’ competence and ability to assume responsibilities. The presence of these indicators reduces uncertainty and risk in collaborative relationships (D’Amour et al., 2008).

Additional theoretical frameworks describing dimensions of collaboration are found in the organizational literature. These affirm the concepts found in the health professions literature, but offer perspectives that reveal additional information about the nature of collaboration in teams. A cognitive theory of collaboration, developed under the auspices of the Office of Naval Research, identifies cognitive failure as a primary cause of failure in teams. In this framework, teams may be motivated to succeed, but can still fail if they do not have the knowledge necessary to act. This theory also identifies a number of factors important to team collaboration which include team roles and functions, team structure, and team member dependencies (Christie, 2004). These factors are relevant to a later discussion on characteristics of high performance teams.

A second cognitive theory of collaboration, described as an inductive formal model, has also appeared in the organizational literature. Development of this model resulted from an analysis of the dynamics of trust, collaboration, and knowledge sharing in the context of a multi-governmental, interorganizational management information systems project. The model focuses on reinforcing dynamics, and demonstrates that working together provides an environment in which individuals enhance knowledge of one’s own work, but also knowledge of the others’ work. The development of mutual knowledge about the work makes it possible to place a greater degree of trust in the other group members. Trust building provides a foundation for information sharing, enhancing the effectiveness of the collaborative work. The investigators propose that collaboration is the sum of the participants’ engagement, and that the greater the engagement the greater the degree of collaboration, resulting in increased productivity. In addition, the authors propose that when participants have greater knowledge about their own and the
other’s role in the project, the probability of error in joint work is low. (Black, et al., 2003).

In summary, regardless of profession or discipline, the literature consistently describes collaboration as necessary for successful collective action, generally agrees on concepts and determinants necessary for collaboration to occur, and provides a number of conceptual frameworks and theoretical models that help in understanding the dynamic nature of collaboration. The literature also supports the notion that collaboration may still occur within interpersonal dynamics that are less than friendly. Use of the term “enemy” (Merriam-Webster, 2009), and reference to collaboration between sometimes adversarial groups, which may include physicians and nurses (Henneman et al., 1994) is consistent with the assumption that it is possible for collaborative work to be accomplished whether the interpersonal dynamics are ideal or not. However, consequences may emerge when there is disequilibrium in dynamics, such as discord amongst team members regarding conflict between team decisions and individual’s decisions. Consequences may include restrictions on the use of collaborative resources, leading to barriers in providing patient care (Kvarnstrom, 2008). Social exchange theory, which is based on the fundamental concepts of exchange and negotiation, helps to explain that negotiation processes begin when individuals offer to contribute to the work of the group with the expectation that there will be a benefit in return (D’Amour et al., 2005). The idea of benefit and self-interest as motivating factors is important to understanding the process of collaboration. A concept helpful for understanding these complex dynamics evident in collaborative relationships is cooperation.

**Cooperation: Game Theory and Human Applications**

The Merriam-Webster Online Dictionary defines cooperation as follows: 1) the action of cooperating: common effort; 2) association of persons for common benefit (June 2009). There is a fundamental difference between the dictionary definitions of collaboration and cooperation. Whereas the definition of collaboration focuses on group work and goal accomplishment, the definition of cooperation notes that joint effort may
result in mutual benefit for individuals as well. A common theme in cooperation theory is the possibility that cooperation involves risk and may come at some cost to the individual. However, the benefit of cooperation outweighs the risks and cost, therefore it is in the cooperating parties’ best interest to cooperate. Dugatkin (1998) has contributed to the definition of cooperation as follows: “Cooperation is an outcome that – despite potential costs to individuals – is ‘good’ (measured by some appropriate fitness measure) for the members of a group of two or more individuals and whose achievement requires some sort of collective action” (pp. 38-39).

The origin and stability of cooperative behavior has been the subject of study for a variety of social, biological, and psychological scientists because of its usefulness in predicting behavior in a number of species, including humans. Cooperation and cooperation theory originates from game theory (Axelrod, 1997, 2006; and Dugatkin, 1998). Cooperation theory, as described by Axelrod (2006), is grounded in an exploration of the strategies of interaction between group members “...who pursue their own self-interest without the aid of a central authority to force them to cooperate with each other” (p. 6).

The objective of Axelrod’s (2006) research was to develop a theory of cooperation that could be used to explain the conditions necessary for cooperation to emerge between parties; this effort began with the simple question “When should a person cooperate, and when should a person be selfish, in an ongoing interaction with another person?” (p. vii). The model used by Axelrod to test cooperation theory was derived from the Prisoner’s Dilemma game (PD). The PD game is an abstract formulation of common situations that involve 2 players, each of which has 2 choices, to either cooperate with the other player, or to defect. To “defect” means to desert the other player for the sake of self interest. For each of the four possible outcomes the players earn “points”. If both players cooperate, both do well, and are “rewarded” for mutual cooperation. If one player cooperates, but the other defects, the player who cooperates while the partner defects gets no reward; this is known as “Sucker’s payoff” and earns
zero points. So it is in the player’s best interest to defect if they think the other player will cooperate. There is a problem, however; if the logic that it pays to defect is understood, it holds for the other player as well. So, logically, both players should defect to preserve their own self-interest. Mutual defection is the fourth possible outcome. But, there is a much smaller payoff if both defect than if both cooperated in the first place. So, individual rationality, or knowing it is better to defect than to cooperate, leads to a worse outcome for both; this is what constitutes the dilemma (Axelrod, 1997, 2006; and Kuhn, 2007).

There are a number of ways to resolve PD. These are based on allowing activities that can fundamentally change the problem by permitting alterations to the strategic interactions between players. However, the additional activities may not be available in certain situations. In its most basic form, without consideration being given to possible alterations in the game, PD exhibits elemental problems: 1) players cannot make enforceable threats or commitments, because there is no mechanism to do so; 2) there is no method by which a player can be assured what the other player will do on any given move, so there is in effect no way for a player to develop a reputation for reliably behaving in a certain way; 3) players cannot be eliminated or escape the interaction, so every player continues to have the ability to cooperate or defect on every move; and 4) there is no way to alter payoffs for the other player (Axelrod, 2006).

There are a number of versions of PD; the most powerful is a relatively simple strategy called Tit for Tat (TFT). The TFT strategy instructs players to cooperate on the first move, upon the first meeting of the opponent. Subsequently, the player then does whatever the other player did on the previous move, copying what the opponent does. Three characteristics define TFT and are the basis for its success in computer tournaments. First, it is nice, in that it always begins by cooperating. Niceness allows for a series of possible cooperative exchanges to be initiated and continued. Second, it is retaliatory; it defects in response to a defection on the part of its opponent. Retaliation is protective, and guards against cheating on the part of the partner. Third, it is forgiving, in
that it only recalls the last move. The characteristic of forgiveness allows for an escape from the possibility of continued defections on the basis of a single move of. This is particularly helpful considering that a player may have made the wrong move in error (Axelrod, 1997, 2006, and Dugatkin, 1998).

Another strong version of PD is described by Axelrod (2006) as “Live-and-Let-Live”. The phenomenon exemplified in this computer game was seen in World War I in trench warfare. Axelrod (2006) differentiates the trench warfare of World War I from other combat situations that were mobile, short term, and bloody, in that small units were assigned to immobile sectors for extended periods of time. The circumstances of this kind of trench warfare are consistent with versions of PD in which stability leads to conditions favorable to mutual cooperation based on reciprocity. In trench warfare, both sides followed strategies whereby they would not be the first to defect, but would defect if provoked. It was important for cooperation to both begin and to be sustained. Examples of strategies based on reciprocity included unspoken cease-fires at tea time, ad hoc “weather truces” during which opposing factions simply stopped shooting but re-engaged in their habitual pattern of mutual restraint after the weather improved, and turning a deaf ear to orders from central command to engage the enemy. Important factors that became problematic included rotation of troops, and level of vulnerability. The rotation of troops was important because the new troops had to be familiarized with the rules of the game; in terms of vulnerability, the artillery was less prone to retaliation from the enemy than the ground-fighting infantry, for example.

The demise of the “Live-and-Let-Live” arrangement of World War I came about as the result of a headquarters-initiated system that required the soldiers to fight incessantly and in such a way that headquarters could monitor the raids. In summary, cooperation began as a result of local action, was able to sustain itself because of the proximity and duration of contact between small units, and was eventually destroyed when controlling leadership removed the small units’ freedom to act independently (Axelrod, 2006).
Certain factors related to the success or failure of the emergence of cooperation in teams is the nature of the team’s social structure. Two of these factors in particular are relevant to health care teams. These are: 1) labels, stereotypes, and status hierarchies; and 2) reputation and deterrence (Axelrod, 2006). In cooperation theory, labels are seen as fixed characteristics that can have the effect of leading to self-confirming stereotypes and supporting status hierarchies. Reputation is obtained through the observations others make of the player during their interactions with others; this raises the stakes of appropriate, trustworthy, and ethical action, particularly when those attributes are values of the other team members (Axelrod, 2006).

There is very little in the health care literature that associates cooperation theories with interprofessional practice, or interprofessional education. One author speculated on a theory of interprofessional education, and discussed cooperation as one theoretical approach for developing an IPE framework (Clark, 2006), although more widely published theoretical frameworks focus more on collaboration than cooperation (Interprofessional Education Collaborative, 2011).

In summary, game theory provides mathematical evidence of the characteristics and nature of cooperation. The principles revealed through the use of computer iterations have human applications and can be of use to achieve a greater understanding of the dynamics of interprofessional collaboration.

**Perceptions of Interprofessional Collaboration**

The literature reveals that opinions about the effectiveness and collegiality of physician-nurse collaboration differ depending on whether those perceptions are viewed through the lens of the nurse or the physician. A variety of studies have clearly demonstrated that physicians and nurses think differently about the success of collaborative interactions in the patient care setting. Critical care areas are particularly suited to the study of nurse-physician collaboration because of the critical time-factors related to making decisions about care, and the intensity of the environment.
Thomas, Sexton, and Helmreich (2003) studied attitudes of critical care nurses and physicians about teamwork. The investigators used the Intensive Care Unit Management Attitudes Questionnaire, which was adapted from the Flight Management Attitudes Questionnaire developed for the aviation industry. The data demonstrated that a high proportion of nurses (71%) rated the quality of communication and collaboration with other nurses very high, but a much smaller percentage of nurses (33%) rated communication and collaboration with physicians as high or very high. Also, physicians rated the quality of communication and collaboration with other physicians very high (70%), but in contrast with nurses, 73% of physicians perceived the quality of collaboration and communication with nurses as high or very high. Overall, physicians were more satisfied with nurse-physician collaboration than were nurses. A study by Hamric and Blackhall (2007), also involving nurse-physician perceptions in a critical care setting, focused on the relationships among collaboration, moral distress, ethical climate, and satisfaction with the quality of care for dying patients. Nurses experienced higher moral distress and lower collaboration than physicians, were not as satisfied with the quality of care, and perceived their ethical environment to be more negative. The investigators found that assessments of quality of care were strongly associated with perceptions of collaboration. Nurses were generally more satisfied with the way physicians communicated with their terminally ill patients than they were with the way physicians communicated with them about the end of life care for patients in their care. Nurses perceived that physicians regularly withheld information about end of life care decisions from them, however physicians did not believe they were uncommunicative with nurses about their plans. Physicians reported they were unaware of the nurses’ dissatisfaction, and that the nurses had not expressed frustration to them about this issue.

These studies (Hamaric & Blackhall, 2007; and Thomas, Sexton, & Helmreich, 2003) are consistent with earlier research, also conducted in the critical care area. King and Lee (1994) also studied perceptions of collaborative practice behaviors, but in a population of Navy nurses and physicians in a sample of Navy teaching hospitals. The unique feature of this study was related to the effects of the ranking structure; it was not
uncommon for junior-ranking physicians to work with senior-ranking nurses. Despite the variable of military rank, the investigators found similar disparities in perceptions of collaborative practice; physicians perceived that a greater degree of collaborative practice existed than did the nurses. Another unique study was based on the hypothesis that a positive gender bias may exist, that is, that female physicians would demonstrate more positive attitudes toward physician-nurse collaboration than male physicians. This hypothesis was not confirmed; female physicians were no more collaborative with nurses than were their male counterparts (Hojat et al., 2001), which suggests that either preconceived biases or those induced during the educational process may be more powerful than gender alone.

Only one study (Thompson, 2007) was found that examined differences in attitudes of nurses and physicians regarding nurse-physician collaboration in the medical-surgical patient care setting. In these settings the intensity of care may be somewhat less than what is experienced in critical care areas, however, the challenge is the expansive spectrum of patient problems. Using the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration, the investigator found that nurses held generally more positive attitudes toward collaboration than physicians. In contrast with other studies, this population of nurses and physicians held generally positive attitudes regarding shared education and teamwork, caring versus curing roles, and the autonomy of nurses with regards to their qualifications to assess and respond to patient’s needs. Both nurses and physicians demonstrated neutral attitudes toward physician dominance. The author speculated that this could be indicative of a trend toward greater physician-nurse collaboration and a change in parochial attitudes about the dominance of physician authority. The author also noted that the subject demographics revealed a younger, more egalitarian-focused generation. These findings were consistent, in part, with those of Hojat and colleagues (2003); and similar to trends found in other studies (Hojat et al., 2001; and Thomas et al., 2003).
The idea that the existence of preconceived biases may have an effect on interprofessional collaboration has also been studied. Typically, student socialization is profession-specific, therefore is driven by the attitudes and behaviors of their own faculty. Faculty may be immersed in traditional professional culture norms and may be likely to omit emphasis on the role and strengths of other professions. Further, the unique socialization processes and perspectives on patient care found in nursing and medicine are apparent not only in the classroom, but are modeled in clinical practice, the setting in which students learn to put their didactic learning and psychomotor skills to the test of reality (Lindeke & Stieckert, 2005).

Biases have been identified in research involving pre-licensure health professions students in addition to licensed clinicians. In a study of student attitudes about their experiences in undergraduate health professions education, Tunstall-Pedoe, Rink & Hilton (2003) found that students enter their professional programs with stereotyped views of each other which worsened during their interprofessional collegiate experience. Throughout the program, medical students consistently held a lower opinion of the academic quality of others health professions students. These factors have implications for future interprofessional collaboration as students graduate and take their place as licensed professionals.

Summary of Strengths and Limitations of the Literature on Interprofessional Collaboration and Cooperation

The literature is replete with analyses of collaboration as both a concept and a dynamic theory that serves as a framework for understanding team behavior. There is wide agreement on the attributes and determinants of collaboration. There is also agreement that interdisciplinary relationships that exhibit these attributes are key elements for the provision of higher quality and safer care to patients in a variety of health care environments. The use of game theory, in particular Prisoner’s Dilemma and its offshoots, Tit for Tat and Live and Let Live, are useful in understanding strategic human behavior in situations where cooperation is in the best interest of the participants,
but where advantages of established relationships, such as the building of trust and reputation, are limited or absent. The application of these concepts and principles to the relationships between physicians and nurses has been demonstrated. The literature is also clear on the fact that different groups, in this case nurses and physicians, perceive collaboration and cooperation through different lenses. That these attitudes and perceptions may be related to the existence of preconceived bias has been studied.

A number of questions remain about interprofessional collaboration and cooperation amongst medical and nursing students. The kinds of experiences that may enable students to learn to work collaboratively in interprofessional teams, and what factors might hinder the development of competencies necessary for achievement of interprofessional teamwork and collaboration in student populations is not fully understood. Additionally, how those experiences and hindering factors are perceived in ways that are unique to nursing or medical educational program faculty is not known.

**Themes Related to Development of Collaboration and Cooperation in Health Care Teams**

Methods to enhance the development of collaboration between health care professionals have increased in number and scope as the body of literature expands. Learning outcomes related to the acquisition of knowledge, skills, and attitudes necessary for collaboration by pre-licensure and post licensure health professionals have been suggested (Freeth, Hammick, Koppel, & Reeves, 2005), and a variety of methods for enhancing interactions between nursing and medicine in health professions education have been described (Hager, 2001). A number of demonstration projects with foci on aspects of developing collaborative performance improvement are in the implementation process. One example is the Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), which is an approach for integrating teamwork into practice developed by the U.S. Department of Defense and the Agency for Healthcare Research and Quality (King et al., 2006). A second example is Achieving Competence Today (ACT), an improvement-based teaching resource for health care educators offered
by the Institute for Healthcare Improvement (Institute for Healthcare Improvement [IHI], 2009). An additional example is the MedsTeam project, which will be addressed later in a discussion of high performance teams. Two models embedded in the practice learning environment are The Common Learning Programme in the North East (Steven, Dickinson, & Pearson, 2007), and the Trent Universities Interprofessional Learning in Practice Program, known as TULIP (Armitage, Connolly, & Pitt, 2008). The Quality and Safety in Nursing (QSEN) project (Bargagliotti & Lancaster, 2007; and Cronenwett et al., 2007) has grown out of both a need to address the IOM competencies for health professions education in nursing programs specifically, and as a practical method to provide nursing faculty with the tools to implement revised standards for nursing education programs into the curriculum; the QSEN project will also be addressed in more detail later in the literature review.

The variety of efforts toward the goals of improved quality and safety through enhanced interprofessional collaboration demonstrate the strength and breadth of interest in bettering patient outcomes. The review of the literature revealed that the body of work related to interprofessional collaboration, particularly focused on behavioral outcomes that result in improved teamwork, communication, and collaboration, sorted into three themes. The first theme is related to the principles and training used in High Reliability Organizations (HROs) and the applicability of these principles and training methods to health care teams. A second theme focuses on support for interprofessional collaboration in pre-licensure nursing and medical education programs, the direction for which is largely driven by first the IOM competencies for health professions education, and then by the newer standards for education programs that now mirror those competencies to some degree. A third theme is interprofessional education (IPE) as a movement, and as a means to promote interprofessional collaboration between health care professionals. Interprofessional education applies to both seasoned, licensed clinicians and to students while they are learning in their pre-licensure education programs.
High Performance Teams: Lessons from Aviation

Many of the recommendations published in the IOM report *To Err is Human* (Kohn, Corrigan, & Donaldson, 2000) were designed to encourage health care organizations to be more like other high reliability organizations (Baker, Day, & Salas, 2006). High Reliability Organizations (HROs) are institutions that perform successfully and safely in complex, hazardous environments with very low levels of failure over long periods of time (Baker, et al., 2006; and Gaba, Singer, Sinaiko, Bowen, & Ciavarelli, 2003). Examples of HROs include nuclear power plants, grid dispatching centers, hostage negotiation teams, and the aviation industry which embraces the “subcategories” of air traffic control systems and nuclear aircraft carriers (Weick & Sutcliffe, 2001). Many of the complexities common to these industries, such as human-technology interaction, human-to-human interaction, and stressful situations, are also common to health care environments (Wakefield, 2000).

High Reliability Organizations are distinguished from other kinds of organizations by five hallmarks, or characteristics, that reduce the incidence of failure. These include: 1) *preoccupation with failure* on both large and small scales; 2) *a reluctance to accept simplification*, which includes an acute awareness that the environment is complex, unstable, and unpredictable; 3) *sensitivity to operations*, with an awareness of loopholes in safeguards and abhorrence of indifference; 4) *commitment to resilience*, which is an ability to determine cause of error and to recover from error; and 5) *deference to expertise*, which is seen as the capability to make excellent decisions based on knowledge and capacity rather than experience alone (Weick & Sutcliffe, 2001). High performance teams share the characteristics of their organizations, and are found in HROs.

The goals most sought after by the health care industry include error reduction and performance improvement. The means by which to achieve these goals includes a
variety of HRO process improvements, including human factors processes such as communication and teamwork. The IOM report *To Err is Human* (Kohn et al., 2000) discusses the impact of these human factors on the reduction of error and enhancement of patient safety. The aviation industry provides models for communication and teamwork training, and is the industry most cited as an example for health care organizations (Gaba et al., 2003; Helmreich, 2000; Hunt & Callaghan, 2008; Lyndon, 2005; and Sexton, Thomas, & Helmreich, 2000).

Similarities and differences between the aviation industry and the health care industry have been noted. The most basic similarity is that safety is vital in both industries (Helmreich, 2000). One major difference between the two domains is the extent of damage from a single accident; aircraft accidents are infrequent, but highly visible and may involve a large loss of life resulting in immediate and exhaustive investigation into the cause, corrective action, and reporting to the public. Adverse events in health care usually involve a single patient at a time, do not often receive the attention of the public, and may or may not be subject to investigation. Although the health care organization culture is evolving such that analysis and reporting of sentinel events generally occurs in U.S. health care organizations accredited by The Joint Commission (The Joint Commission, 2007), there is no standardized method for investigation and reporting. However, in both industries, a high percentage of accidents have been found to involve human error or team error (Helmreich, 2000).

Health care organizations have sought guidance from HROs as a response to devastating sentinel events (Sachs, 2005). Overcoming safety-critical problems requires a systems approach that acknowledges both the limitations of technical solutions, and the necessity to adopt a human factors approach that accounts for interpersonal aspects of performance (Sexton, Thomas, & Helmreich 2008). Research to identify skills sets that describe team performance in health care began with the work of Gaba and colleagues who developed Anesthesia Crisis Resource Management (ACRM). The ACRM is a curriculum modeled after the aviation industry’s training programs, and involves training
anesthesia “crews” to work in teams during simulation. The utilization of team assessment methods used in aviation has extended from the anesthesia environment to include other health care areas. Thomas, Sexton, and Helmreich (2004) adapted The Line Operations Safety Audit used by the aviation industry for use in health care; from this tool 10 behavioral markers for teamwork in neonatal resuscitation teams were developed. Also, Healey, Undre, and Vincent (2004) developed the Observational Assessment for Teamwork in Surgery (OTAS). The OTAS provides an observational assessment of cooperation, leadership, coordination, awareness, and communication in surgical teams consisting of anesthesiologists, nurses, and surgeons. Another team of researchers developed the Safety Attitudes Questionnaire (SAQ) for use in the operating room. The tool assesses for six domains which are teamwork climate, safety climate, job satisfaction, perceptions of management, stress recognition, and working conditions. The SAQ was adapted from the Flight Management Attitudes Questionnaire and the Cockpit Management Questionnaire, and was based on previous research in aviation and health care (Makary et al., 2006; and Sexton et al., 2006).

Methods of assessing and improving team performance in a variety of high-acuity, complex health care team environments have been developed from crew resource management (CRM) principles used in aviation. Crew resource management is part of a broad program of threat and error management designed to avert crises, aircraft accidents in particular, rather than as a way to deal with crises in progress (Hunt & Callaghan, 2008). The CRM approach is based on the following:

The basic principle of CRM is that crew communication and coordination behaviors are identifiable, teachable, and applicable to high-stakes environments. An additional principle is that those behaviors, although seen spontaneously, are not practiced reliably, regularly, or well unless specific training and reinforcement has established them. . . Finally, an essential principle of CRM is that a team needs to be formally established for teamwork behaviors to be effective (Morey, et al., 2002, p. 1555).

The MedsTeam project was a prospective multicenter evaluation of an adaptation of the aviation-oriented CRM teamwork curriculum to the emergency department
environment. Learning modules included team structure and climate, application of problem-solving strategies, communication with the team, the impact of workload on work performance, and improvement of team skills. The researchers found that implementation of the teamwork training in the experimental group improved team behaviors, reduced errors, and improved staff attitudes compared to the control group (Morey et al.). MedTeams has also been used successfully in the labor and delivery setting (Harris, Treanor, & Salisbury, 2006) and in Veterans Administration facilities (Dunn et al., 2007).

The use of aviation industry principles and practices in health care settings has generated a body of literature that informs efforts to enhance team collaboration and effectiveness. However, researchers note the differences between aviation and health care and caution that translation into health care terms is required rather than direct application (Thomas et al., 2003). For example, in non-health care HROs, such as aviation, safe operations demonstrate the following characteristics: 1) a mutual understanding that all team members will work interdependently; 2) an acute understanding that the consequences of any lapse in attention will result in rapid deterioration of the situation; 3) that team members will state their own relevant observations and recommendations; and 4) that they will actively solicit and consider observations and recommendations from other team members (Weick & Roberts, 1993; and Lydon, 2006).

Relationships between the health professions, particularly nurses and physicians, have been characterized by a number of fundamental issues that reduce the likelihood of the kind of reciprocal and egalitarian communication demonstrated in aviation (Brandt, 2000; Lyndon, 2006; and Zwarenstein & Bryant, 2004). An example is the major difference between the two industries regarding the assumption of leadership. A clear hierarchy exists in the cockpit; leadership authority is vested in the “pilot in command” by law. In health care, various scopes of practice and expertise may provide a level of ambiguity (Hunt & Callahan, 2008). Further, the complexities and unpredictability of
health care is not comparable to the cockpit, which is characterized by complex but more predictable situations. Also, a variety of professions and specialties interact with one another to care for a patient, while the composition of the cockpit crew is less complicated. In addition, patients may have conditions, or responses to treatment, that are unknown or unpredictable (Helmreich, 2000; and Hunt & Callaghan, 2008).

In summary, the applicability of HRO principles to manage risk in health care has gained cautious but optimistic support. Teaching health care professionals to work in ways characteristic of HROs has been explored; one approach that been used successfully in health care is a standardized approach to communication during critical times to minimize risks to patient safety.

**Interprofessional communication model to minimize safety risk.** The IOM stance is that health professionals should be educated to deliver care as members of a team; approaches to do so require competencies in interdisciplinary cooperation, collaboration, and communication (Greiner & Knebel, 2003). One competency that has received a great deal of attention is communication, which is particularly important during critical times and situations such as during handoffs among providers and across transitions in care. Effective communication between nurses and physicians is difficult and fraught with barriers; traditionally there has been no shared mental model or framework for verbal communication between the two professions, or structure to guide what information should be communicated during verbal communication. Nadzam (2009) states the problem succinctly; “. . . nurses are trained to be narrative and descriptive in their messages, often painting verbal pictures with a broad brush. Physicians, on the other hand, are very action-oriented and want the main subject matter of the problem so that immediate action can be taken” (p. 184).

The Joint Commission and the IHI have both mandated that healthcare organizations improve professional communication; communication breakdown was cited as the leading root cause in 70% of sentinel event cases reported to The Joint Commission’s Sentinel Event Database between 1995 and 2006 (Ascano-Martin, 2008;
and Nazdam, 2009). The mandate to improve interprofessional communication has found its way into prelicensure curricula as a means to prepare students for future interprofessional practice (Thomas, Bertram & Johnson, 2009).

Although the mandate and methods reflect only one aspect of interprofessional collaboration, it is worthy of note for three reasons. First, improved communication is associated with the Joint Commission’s National Patient Safety Goal 2, to improve the effectiveness of communication among caregivers (The Joint Commission, 2009, 2012). Second, a systematic, consistent method for communication at critical times, known as SBAR, which stands for Situation, Background, Assessment, and Recommendation, has been developed and tested. SBAR has demonstrated success in both clinical health care and nursing education settings, and has become standard practice in many health care organizations; (Haig, Sutton, & Whittington, 2006; Nadzam, 2009; and Thomas et al., 2009). Third, the goal of improved communication at critical times is an example of the application of lessons learned from HROs to the health care environment (Thomas et al., 2009). Achievement of competency in this communication method is one desired outcome among many on the road to improved interprofessional collaboration; this applies equally to licensed clinicians and students while they are providing patient care in clinical areas.

Support and Direction for Interprofessional Collaboration in Prelicensure Nursing and Medical Education

Institute of Medicine safety and quality competencies: Interprofessional collaboration and interdisciplinary education. As one of several next steps following To Err is Human, a subsequent IOM report focused on health professions education (Greiner & Knebel, 2003). This report, Health Professions Education, A Bridge to Quality, established a vision for health professions programs: “All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.“ (p. 3). In addition, competencies were defined, two of which are associated
with collaboration, and are relevant to this study. These are: 1) “Work in interdisciplinary teams: cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable”; and 2) Apply quality improvement: identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification. . .” (p. 4).

**Revisions in accreditation standards in medicine and nursing education.** As attention to quality, safety, and collaboration has become paramount, and in response to national organization and government reports, accreditation organizations have made efforts to actualize these directives. Evidence of quality and safety in nursing and medical education curricula is now required by the respective accreditation organizations (Accreditation Council for Graduate Medical Education [ACGME], 2007; American Association of Colleges of Nursing [AACN], 2008; Liaison Committee on Medical Education [LCME], 2008; and National League for Nursing Accrediting Commission [NLNAC], 2008). All of these accreditation organizations have some language requiring evidence of interprofessional collaboration in the curriculum, although the language in which the criteria are written, and level of evidence required of academic programs, is dependent on the accreditation agency.

Commitment to an adapted version of the IOM competencies was seen first in the medical education standards. These competencies are in place for the continuum of medical education, beginning with medical school, and progressing through the residency program to certification (ACGME, 2007; Leach, 2000; and Regnier et al., 2005). Medical education standards address the IOM recommendation to work in interdisciplinary teams using language such as “interpersonal and communication skills” and “effective information exchange and teaming . . . with other health care professionals” (Regnier et al., 2005, p. 177).

The nursing education community followed suit, focusing on the full gamut of issues of quality and safety education in pre-licensure education (Cronenwett, et al., 2007). The definition of teamwork and collaboration proposed by the nursing education
community uses language encouraging the “... fostering [of] open communication, mutual respect, and shared decision-making ...” (Cronenwett, et al., 2007, p. 125). The AACN revised the Essentials of Baccalaureate Education for Professional Nursing Practice in 2008. The Essentials document is the basis for program and curriculum design in baccalaureate nursing programs, and is used during accreditation assessment by the CCNE. One of the “essentials” of baccalaureate nursing education focuses on “Interprofessional communication and collaboration for improving health care outcomes.” There are six subcategories for this essential, including: 1) the roles and perspectives of the nursing profession as compared/contrasted with others on the health care team; 2) the use of inter- and intra professional communication and collaborative skills; 3) effective communication techniques, including negotiation and conflict resolution; 4) the unique perspective of nursing’s contribution to interprofessional teams and optimal patient outcomes; 5) demonstration of teambuilding and collaborative strategies in interprofessional teams; and 6) advocacy for high quality, safe patient care as a member of the interprofessional team.

The NLNAC (2008) also recently revised its standards for nursing education for all types of nursing programs. The Standards and Criteria – Baccalaureate (NLNAC) are most comparable to the AACN Baccalaureate Essentials. In this document, Standard 4.6 addresses interdisciplinary collaboration, and is mentioned as one aspect in this broad standard along with other components required in the curriculum. This brief mention alone guides nursing programs choosing the NLNAC accreditation path. It should be noted that baccalaureate and higher degree programs may choose accreditation by either the CCNE or the NLNAC.

The differences noted in the interpretation of the IOM competencies are consistent with the observation that health professions accrediting bodies have not achieved consensus in defining a core set of competencies related to interprofessional collaboration (Greiner & Knebel, 2003), and that physicians and nurses define teamwork and collaboration differently (Barnsteiner, Disch, Hall, Mayer, & Moore, 2007; and
The Competencies published by the IOM (2003) are compared with those of the AACN, NLNAC, LCME, and ACGME competencies, and are found in Table 1, *Comparison of IOM, Nursing, and Medical Education Standards Related to Interprofessional Collaboration*, on page 42.

**Quality and safety education for nurses (QSEN).** In an effort to reach consensus on quality and safety competencies, the Quality and Safety Education for Nurses (QSEN) project was developed as a collaboration between the University of North Carolina at Chapel Hill School of Nursing and the AACN, and is funded by the Robert Wood Johnson Foundation. The project goal is “. . . to address the challenge of preparing future nurses with the knowledge, skills and attitudes necessary to continuously improve the quality and safety of the healthcare systems in which they work” (Quality and Safety Education for Nurses [QSEN], 2009, para1). This project began in 2005. The QSEN design team is comprised of nursing education experts from across the country. In the first two phases of the project, a comprehensive set of quality and safety competencies for nurses was developed, and faculty training targets were proposed. To date, a national learning collaborative involving selected schools of nursing have been working with the new curricular objectives and teaching strategies. The goal of the third phase is to develop faculty expertise by providing curricular objectives and teaching strategies that have been successful experimentally. This was found to be necessary because, although faculty agreed that they should be teaching the competencies, and believed they were teaching them, researchers found that faculty understanding of fundamental concepts related to the competencies or pedagogical strategies used in teaching them was not clear.

Another goal of the third phase of the QSEN project is to instill the competencies into the fabric of nursing education nationally (Cronenwett et al; and QSEN, 2009). The QSEN project is designed to be used in all types of nursing programs leading to licensure as a registered nurse, including baccalaureate degree, associate degree, and diploma programs.
Table 1.

Comparison of IOM, Nursing, and Medical Education Standards Related to Interprofessional Collaboration

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<td>All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics (p. 3)</td>
<td>Essential VI: Interprofessional Communication &amp; Collaboration for Improving Health Care Outcomes</td>
<td>4.6 The curriculum and instructional processes reflect educational theory, interdisciplinary collaboration, research, and best practice standards while allowing for innovation, flexibility, and technological advances</td>
<td>ED-19 The curriculum of a medical education program must include specific instruction in communication skills as they relate to physician responsibilities, including communication with patients and their families, colleagues, and other health professionals. Residents are expected to:</td>
<td>Interpersonal &amp; communication skills . . . that result in the effective exchange of information and collaboration with patients, their families, and other health professionals. Residents are expected to:</td>
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<td>Work in interdisciplinary teams: cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable (p. 4)</td>
<td>1. Compare/contrast the roles &amp; perspectives of the nursing profession with other care professionals on the healthcare team (i.e., scope of discipline, education and licensure requirements)</td>
<td>2. Use inter- and intra-professional communication &amp; collaborative skills to deliver evidence-based, patient-centered care</td>
<td>3. Incorporate effective communication techniques, including negotiation and conflict resolution to produce positive professional working relationships</td>
<td>Communicate effectively with physicians, other health professionals, and health related agencies</td>
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<td>Apply quality improvement: identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification (p. 4)</td>
<td>4. Contribute the unique nursing perspective to interprofessional teams to optimize patient outcomes</td>
<td>5. Demonstrate appropriate teambuilding and collaborative strategies when working with interprofessional teams</td>
<td>6. Advocate for high quality and safe patient care as a member of the interprofessional team</td>
<td>Work effectively as a member or leader of a health care team or other professional group</td>
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<td>Act in a consultative role to other physicians and health professionals; and</td>
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Six QSEN competencies have been established. These are derived from the IOM competencies for health professions education, (Greiner & Knebel, 2003) and include: 1) patient-centered care; 2) teamwork and collaboration; 3) evidence-based practice; 4) quality improvement; 5) safety; and 6) informatics (Cronenwett et al., 2007). The 6 QSEN competencies are also consistent with the recently completed Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 2008), but add definitions and detailed outlines of the knowledge and skills students should hope to achieve, and the attitudes they should hope to acquire.

The Teamwork and Collaboration category begins with a competency definition, which is to “Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care” (Cronenwett et al., p. 125). Knowledge outcomes include requirements that students be able to: 1) describe their own strengths, limitations, and values as a member of a team; 2) describe the scopes of practice, contributions, and roles of health care team members, including strategies for identifying and managing areas of overlap in roles and accountabilities; 3) analyze differences in communication styles and discuss effective strategies for communicating and resolving conflict; 4) describe examples of the impact of team functioning on the safety and quality of care, and how authority gradients influence teamwork and safety; and 5) identify systems barriers and strategies to improve team functioning. Concomitant student outcomes related to skills include the ability to: 1) demonstrate awareness of their own strengths and limitations as a team member while respecting different views; 2) function within their own scope of practice and role, to initiate appropriate requests for assistance from others, and to be able to integrate contributions of others on the team; 3) communicate with team members using a communication style that is adaptive and appropriate to the team and the situation, to solicit input from other team members, and to initiate conflict resolution if necessary; 4) follow communication practices that minimize risks associated with patient handoffs and transitions and also diminish risks associated with authority gradients, and to assert own perspective in discussions about patient care; and 5) participate in designing systems to
support effective teamwork. Finally, attitudes faculty hope students to adopt are described. These include valuing the contributions of self and others on the health care team, teamwork relationships, different styles of communication, the influence system solutions may have in promoting effective team functioning, and appreciating the risks associated with handoffs among providers and during transitions in care (Cronenwett et al., 2007).

The QSEN competencies, and strategies for implementation into pre-licensure nursing curricula, will continue to develop. However, nursing educators nationally have expressed a high level of interest in the QSEN project, and many nursing programs have integrated QSEN competencies into the fabric of the curriculum. The fact that QSEN has been received enthusiastically offers promise that implementation in the nation’s nursing programs will be accomplished over time.

**Interprofessional Education**

Interprofessional education (IPE) emerges as a final theme in this body of literature. The IPE movement has grown over a period of time, and is viewed as a means for achieving outcomes related to interprofessional collaboration in both currently practicing clinicians and students. Health professions education for students takes place almost exclusively in discrete silos, even when the academic health center environment is shared. Students are frequently required to learn common core content and similar skills, but they usually do so without interaction with students from other health professions programs. The result is little or no understanding of the value of each others’ contributions, which may produce a sense of territoriality (Baldwin, 2007; and Barnsteiner, et al., 2007). Health care professionals rarely learn skills in interprofessional collaboration during their educational processes, and opportunities to engage one another in joint learning environments are infrequent and inconsistent. The omission of content, skill development, and opportunity to collaborate with students in other health professions places these individuals at a disadvantage once graduated into a health care system that increasingly expects collaboration between licensed professionals. So,
attention to providing health care professionals with opportunities to learn and practice working together collaboratively has necessarily expanded to include pre-licensure education in addition to post-licensure continuing education (Cronenwett et al; and Greiner & Knebel, 2003).

**Interprofessional education defined.** The following definition of interprofessional education is provided by the U.K. Centre for the Advancement of Interprofessional Education (CAIPE). Although it is a decade old, it has withstood the test of time and has not changed:

Interprofessional education occurs when two or more professions learn with, from and about one another to improve collaboration and the quality of care (Centre for the Advancement of Interprofessional Education [CAIPE], 2002).

This definition has also received international acceptance, and was adopted by the World Health Organization (WHO). The definition appears in the WHO 2010 document, *A Framework for Action on Interprofessional Education & Collaborative Practice*.

The definition of interprofessional education is distinct from “multiprofessional” education, which is “. . . when members of two or more professions simply learn side by side whatever the purpose” (Hammick, Freeth, Koppel, Reeves, & Barr, 2007, p. 736). True interprofessional education requires interaction between individuals.

**Interprofessional collaboration as a means to improve quality and safety.** The most compelling argument in favor of interprofessional education is the proposition that learning together will enhance collaboration between health and social care professionals (Barr, Hammick, Koppel, & Reeves, 1999; Broome, 2007; Hammick et al., 2007; Ladden, Bednash, Stevens, & Moore, 2006; and Reeves, 2001). By extension, the expected result of improved collaboration is a higher quality, safer health care environment and better patient outcomes (Baggs & Schmitt, et al., 1999; Barnsteiner et al., 2007; Fewster-Thuente & Velsor-Friedrich, 2008; McPherson, Headrick & Moss; 2001; Reeves et al., 2008; and Sherwood & Drenkard, 2007). The growing interest in
interprofessional education in the U.S. has corresponded to the emergence of research interest in the correlates of quality and safety outcomes in health care.

**Emergence and growth of IPE.** Interprofessional education (IPE) has evolved over time; values intrinsic to IPE are attributed to early models of service learning in the U.S. beginning in the 1930’s. Values culled from service learning include an emphasis on experiential learning, the alternation of active learning with time for reflection, learning through service, and the importance of learning in small, diverse groups that promote comfort with cultural differences and accent the significance of stewardship and servant leadership. Following World War II, the advent of “multidisciplinary” health care teams became popularized in reference to specialized clinical teams assembled to take care of complex hospitalized patients that required the skills and services of multiple providers (D’Avray, 2007). The multidisciplinary team milieu allowed for independent, parallel contributions by individual team members. However, the physician traditionally coordinated these efforts, and prescribed and limited the extent to which team members could contribute (Hall & Weaver, 2001).

The term “interdisciplinary” came into vogue with the advent of the government-driven community health center movement, which was established to provide health services to poor and underserved communities. The idea of interdisciplinary teams was more consistent with the earlier concept of multidisciplinary teams than it was different, but because the relationships between health professionals of the time were community based, rather than set in the more hierarchical hospital environment, the term “interdisciplinary” was more applicable for two reasons. First, the term better characterized more egalitarian relationships between the professions, and second, it helped to gain acceptance of the concept in the academic community (D’Avray, 2007). The term “interprofessional”, as a more clinically-oriented term, was coined in 1975 by Rosalie Kane, (as cited in D’Avray, 2007, p. 7) in a classic monograph on health care teams.
Interest in interprofessional education and teamwork precedes the landmark Institute of Medicine (IOM) reports, including *To Err is Human*, (Kohn, et al., 2000) introduced in Chapter 1. Between 1971 and 1981 the American Nursing Association and the American Medical Association shared an interest in interdisciplinary work, and briefly established a National Joint Practice Association. This effort was unsuccessful, due in large part to conflicts over issues of the expansion of nurses’ roles and financial remuneration (Hall & Weaver, 2001). However, over the past 20 years, interest in IPE has been renewed, and has grown both in the United States and internationally. Interprofessional education demonstration projects have been funded by several private and governmental organizations. One such organization is the Institute for Healthcare Improvement (IHI), a private not-for-profit organization intent on improving the quality and safety of patient care, (Barnsteiner et al., 2007; Institute for Healthcare Improvement [IHI], n.d.). In addition, The John A. Hartford Foundation funded 8 projects nationally to design and implement models of Geriatric Interdisciplinary Team Training. Evaluation data from these projects indicated positive changes in attitudes toward interdisciplinary team participation and application of team skills (Barnsteiner et al., 2007; and Fulmer, Flaherty, & Hyer, 2003). Also, the Robert Wood Johnson Foundation funded two projects, the Collaborative Interdisciplinary Team Education project in 1999, and Achieving Competence Today (ACT) in 2003. The goals of these initiatives were to design, implement, and evaluate interprofessional educational models (Barnsteiner et al., 2007; and Ladden et al., 2006).

A great deal of activity has been seen in the new millennium; ACT is only one example. Others include the Josiah Macy Jr. Foundation summit, which resulted in 18 recommendations for academic health centers aimed at enhancing interactions between nurses and physicians. The recommendations focused on teaching medical and nursing students about one another’s professional contributions, and also how to facilitate improvements in collegial relationships that could improve patient outcomes. Eight of these recommendations were directed specifically to IPE (Ryan, 2001). The IHI continued its interest in IPE, and subsequently organized the Health Professions
Education Collaborative in 2003. The collaborative originally took clinical improvement work into medical schools; the program has expanded and currently includes schools of medicine, nursing, pharmacy, and health administration (Barnsteiner et al., 2007; and IHI, n.d.). Another initiative, the Iowa Geriatric Education Center, was funded by the U.S. Health Resources and Services Administration. In this project, students from medicine, nursing, social work, osteopathic medicine, physical therapy, physician assistant, podiatry, and chiropractic from several Iowa institutions of higher education participated in a multidisciplinary curriculum design. The project purpose was to improve geriatrics education through the development of a multidisciplinary curriculum (Hawk et al., 2002).

More recently, the IOM released a report, *The Future of Nursing: Leading Change, Advancing Health* (IOM, 2010). Two recommendations in this report are relevant to interprofessional education. Recommendation 2 states that opportunities for nurses to lead and diffuse collaborative improvement efforts should be expanded; recommendation 8 states that an infrastructure for the collection and analysis of interprofessional health care workforce data should be built. In addition, an expert panel including the six major health professions education organizations was convened for the purpose of establishing core competencies for interprofessional collaborative practice. Six organizational sponsors participated, and include the American Association of Colleges of Nursing, the American Association of Colleges of Osteopathic Medicine, the American Association of Colleges of Pharmacy, The American Dental Education Association, the Association of American Medical Colleges, and the Association of Schools of Public Health. Four competency domains were established. These are: 1) Values/Ethics for Interprofessional Practice; 2) Roles/Responsibilities; 3) Interprofessional Communication; and 4) Teams and Teamwork (Interprofessional Education Collaborative Expert Panel, 2011).

The IOM report, *Health Professions Education: A Bridge to Quality* (Greiner & Knebel, 2003) generated an even greater level of national attention on IPE. The report
listed 5 competencies required for health professions education in the 21st century; one of those is the ability of health professionals to function effective in interdisciplinary teams. One example of an initiative to achieve excellence in IPE that followed this report is the 2005 Roundtable on *Designing a Patient Safety and Quality Outcomes Health Sciences Curriculum*. This first roundtable was conducted through the joint support of the Telluride Scientific Research Conference, Smithsonian Institute, and grants from the University of Illinois (Chicago) College of Medicine and Southern Illinois University School of Medicine. The roundtable has since become an annual event.

Gains made in the strength of IPE efforts are also due in part to health professions students who have joined the ranks of those pressing for opportunities to learn collaboratively. A group of nursing, medicine, and health care administration students at the University of Minnesota created *Clarion*, an organization to improve health care through collaborative learning, based on the IOM’s *Six Aims for a New Health Care System*, culled from the Quality Chasm reports. These students hold an annual case study competition that started locally, and expanded into a national competition in 2005. (Barnsteiner et al. 2007; and University of Minnesota, 2009).

**Systematic reviews of interprofessional education research related to interprofessional collaboration.** A number of systematic reviews of IPE have been conducted. These reviews shed light on the growing body of knowledge related to educational methods, learner outcomes, organizational outcomes, and evolving research methodologies that contribute to new knowledge about IPE. The systematic review of IPE research began in earnest in 1999, at which time two parallel reviews on the effects of IPE were undertaken by the same group of investigators. This effort was initiated by members of the UK Centre for the Advancement of Interprofessional Education (CAIPE). CAIPE sought a rigorous and systematic means to assess the state of the evidence of IPE. The first of the two reviews was registered with the Cochrane Collaborative, and was conducted by the Cochrane Effective Practice and Organisation of Care group. The Cochrane review was restricted to three research designs, and included only studies using
randomized controlled trials, controlled before-and-after studies, or interrupted time series designs. None of the papers found met the Cochrane inclusion criteria (Barr, Koppel, Reeves, Hammick & Freeth, 2005; Koppel, Barr, Reeves, Freeth, & Hammick, 2001; and Zwarenstein et al., 1999).

The same investigators responsible for initiation of the Cochrane Review, unsurprised by the outcome, simultaneously planned and undertook a parallel review known as the Interprofessional Education Joint Evaluation Team (JET) review (Barr et al., 2005). This second review was as rigorous as the Cochrane Review, but less constrained in terms of inclusion criteria. The parameters of the JET review were otherwise expanded; the research question was reframed, a more inclusive definition of IPE was used, and the reviewers accepted a continuum of outcomes (Barr et al., 2005; and Koppel et al., 2001).

The JET review, using the broader criteria, yielded approximately 10 times the number of abstracts generated by the Cochrane Review. A concentrated review focused on the 107 studies that met the criteria for higher quality. The data culled from the review of pre-licensure and post-licensure studies combined suggested the following: 1) that the longer the IPE intervention, the more effective it may be at improving patient care or changing the organization of care; 2) that the majority of IPE experiences were longer than 2 days, with 54% consisting of 7 or more days, and 24% consisting of between 2 and 7 days; 3) that doctors and nurses were the most likely participants in IPE, 89% and 83% respectively; and 4) that while IPE offered as continuing education has a more direct effect on patient care, IPE offered at the undergraduate or immediate postgraduate stage had an impact on participants’ reactions and learning. The authors note that studies of the effectiveness of IPE at various stages of an individual’s education may not be comparable, specifically that the studies are designed to measure different outcomes. Most studies (58%) exclusively explored the learner’s perspectives, and an additional 20% of the studies explored the learner’s perspective and at least one other group’s (e.g. patients, staff, or clinical audit). Only four studies included data from staff; the definition
of “staff” included clinical facilitators and higher education teachers (i.e. faculty). The authors of the review noted that this deficiency of staff perspective in the literature was striking (Barr et al., 2005; and Koppel et al., 2000).

Recommendations derived from the evidence generated by the JET review pointed to the need for five developments; two focus on the pre-licensure health professions student. The relevant recommendations press for: 1) the integration of IPE more closely into the culture and curricula of pre-licensure professional programs; and 2) the development of competency-based models in pre-licensure education designed to change behavior, in addition to attitudes and knowledge (Barr et al., 2006).

Updates of both the Cochrane Collaborative and JET Reviews have been conducted. The JET Review suggested four themes, two of which are relevant to pre-licensure students. These are: 1) undergraduate health professions students come with prior perceptions and attitudes about IPE and collaborative working that are shaped by a variety of factors including age, prior work experience, and gender; and 2) a key mechanism in well-received IPE is the utilization of adult learning principles, with a focus on authentic learning experiences that translate well into the real practice environment (e.g. simulated patients and problem-based learning) (Hammick, Freeth, Koppel, Reeves, & Barr, 2007). The update of the Cochrane Collaborative review used the same inclusion criteria for this review as for the first search. Although this review generated 6 studies that met the criteria in contrast to the first review, which generated no studies, the investigators stated they were unable to draw any inferences that could be generalized due to the small number of studies and the heterogeneity of IPE interventions. It was noted, however, that the studies reported a range of generally positive outcomes (Reeves, et al., 2008).

Several systematic reviews have been conducted in addition to the two pivotal and parallel Cochrane and JET reviews. One review affirmed that a number of benefits were evident across a wide range of measures, but that the greatest effects of IPE for pre-licensure students were related to students’ learning, specifically knowledge, attitudes,
skills, and beliefs. In particular, a positive effect on understanding professional roles and team working was identified. It was also noted that early learning experiences were the most beneficial in the development of healthy interprofessional attitudes, that approaches to IPE generally involved principles of adult education, problem based learning, case studies, and experiential learning. It also revealed that few interventions demonstrated principles of reinforcement and facilitation, or evidence of summative assessment (Cooper, Carlisle, Gibbs, & Watkins, 2001).

More recently, a literature review and synthesis was conducted as a part of the WHO initiative on IPE. At the outset of the review, the investigators identified and proposed three frameworks for classifying learning outcomes, based on their reading of the literature. The first was profession specific outcomes, the second was generic outcomes that should be achieved by two or more professions, and the third generic outcomes that should be met by all professions. The third classification was the focus of the literature review. A thematic analysis produced 6 themes and a number of sub-themes synthesizing outcomes. Major themes included teamwork, roles/responsibilities, communication, learning/reflection, the patient, and ethics/attitudes (Thistlethwaite & Moran on behalf of the World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2010).

Two other reviews on the effects of IPE on specific health professions populations have been undertaken. One review focused solely on mental health care staff, and demonstrated changes in organizational practice as an outcome (Reeves, 2001). A second review, confined to the medical education literature, described the breadth of literature on the success of IPE learning initiatives (Mattick & Bligh, 2003). These reviews are worthy of note in that they provide evidence of additional attempts to evaluate the IPE literature, however, they are of limited value because of their solitary foci on a particular professional group and the limited nature of the findings.

The systematic reviews and summary recommendations consistently reveal a number of factors which are relevant to this study. First, the most studied
interprofessional dyad is the nurse and physician (Barr, et al., 1999; and Koppel, et al., 2001); this fact affirms the wisdom of confining this research to the two most prevalent and studied groups of professionals. Second, the evidence reveals that the presence of IPE in pre-licensure programs results in learner-focused outcomes, primarily changes in knowledge and attitudes (Barr, et al., 1999; Koppel, et al., 2001; and Barr et al., 2006), and to a lesser degree, changes in skills (Cooper, et al., 2000; and Coster et al., 2008), some of which are focused on cultivating collaboration (Barr et al., 2005; Barr et al., 2006; and Hammick et al., 2007). Further, IPE interventions must be authentic, that is, realistically applicable to practice settings, in order to be received positively by participants (Hamamick, et al., 2007). The fact that only 4 studies in the JET review included data from staff, which the authors defined as clinical facilitators and higher education teachers (Barr et al., 2005; and Koppel et al., 2001) demonstrates a striking omission of potential data from the individuals who are responsible for designing and implementing curricula, pedagogy and learning environments for pre-licensure health professions students, although some literature on faculty perceptions of IPE has been published since the systematic reviews were completed (Bennett et al., 2011). Also, the evidence demonstrates that IPE is not typically embedded into the culture and curricula of programs in academic health centers (Barr, et al., 2006).

Finally, the focus on the type of IPE studied is noted. Of eight systematic reviews of interdisciplinary education and interprofessional collaboration reported in the literature between 1996 and 2001, only two focused solely on pre-licensure education interventions and outcomes, with one in addition reporting that 25% of the review was devoted to pre-licensure education (Zwarenstein, Reeves, & Perrier, 2005). The authors note that pre-licensure IPE effectiveness is difficult to evaluate, and would require longitudinal, randomized studies over a long enough period of time to identify whether changes were sustainable into post-licensure professional life. Also, the small numbers of studies that met inclusion criteria is indicative that the quality of future research should be methodologically robust. Cooper and colleagues note in particular that qualitative studies were found to be more methodologically sound, but that few studies used qualitative
methods; these authors noted the predominance of quantitative research in health care arenas, and encouraged future researchers to embrace other research philosophies.

In summary, reviews of interprofessional education research reveal that collaboration has been studied to a greater degree in formats involving the continuing education of licensed and practicing health professionals rather than in pre-licensure academic health professions programs. Also, structures that promote collaboration have been studied more so than processes and lived experiences of participating students or responsible faculty. Additionally, authors conducting systematic literature reviews have noted that insight from “staff”, which includes academic faculty, is relatively thin in the literature. Finally, reference to guiding theory in the health professions literature related to collaboration was not found.

**Collaborative learning.** The use of collaborative learning methods is gaining strength in interprofessional education. Collaborative learning has been defined as “...two or more students laboring together and sharing the workload equitably as they progress toward intended learning outcomes” (Barkley, Cross, & Major, 2005, p. 5), “…a situation in which two or more people learn or attempt to learn something together” (Dillenbourg, 1999, p. 1), and as “…an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together” (Smith & MacGregor, 1992, p. 10).

The term collaborative learning is used more often in higher education and is more appropriate to college students. Its features include an intentional design in which group learning experiences are structured, and a requirement that all participants engage in working together to achieve the stated objectives. The objective is for meaningful learning to occur that increases the students’ knowledge or depth of understanding of the course curriculum. Collaborative learning assumes that conversation between peer group members produces a level of consensus, and from this agreement emerges production of knowledge (Barkley, Cross, & Major, 2005; and Bruffee, 1995). In addition, students who work collaboratively in teams have been shown to retain information longer and
score higher on critical thinking tests than students who study individually (Gokhale, 1995).

Collaborative learning as pedagogy is consistent with conversational learning, an emerging theoretical framework for “. . . a process whereby learners construct meaning and transform experience into knowledge through conversations” (Kolb, Baker, & Jensen, 2002, p. 51). This meaning-making process suggests that group understanding is reached through the interplay of opposites and contradictions. A process of expressing and questioning different points of view and contradictions eventually leads to a level of consensual agreement, which is in turn subject to the same kind of analytical discussion and decision making. It is suggested that the more divergent the points of view, the more likely are the chances of encompassing the whole situation (Kolb, et al., 2002).

Conversational learning is grounded in experiential learning theory (Kolb, 1984), which suggests that reality is grasped through two distinct but integrated ways of knowing, concrete knowing (called apprehension) and abstract knowing (called comprehension). Once reality is grasped, it is transformed, also through two dialectically related modes – one is intension (called reflective observation), and the other extension (called active experimentation). Individuals demonstrate learning preferences based on their tendency to use particular combinations of these dialectically related modes more so than others. Research suggests that collaborative learning may be improved by grouping students in specific ways according to their learning preferences (Alfonseca et al., 2005).

A wide range of collaborative learning approaches and goals exists. Approaches used include guided design, case study, problem-centered instruction, simulations, writing groups, peer teaching, and discussion groups and seminars (Smith & MacGregor, 1992). Several approaches that are consistent with collaborative learning pedagogy and seen frequently in the health professions education literature include the following: 1) case study, a format for which there is faculty support through nursing and medical text publishers and educational websites; 2) problem-centered instruction, a format which has been used in medical education for decades and which is seeing more interest in nursing
education, (Achike & Nain, 2005; Donner & Bickley, 1993; Neville, 2009; Smits, Berbeek, & de Buisonje 2002; Tiwari et al., 2006; and Wood, 2003); and 3) clinical simulation, which has become virtually an expectation in quality health professions education (Baker et al, 2008; Eder-VanHook, 2004; Jeffries & McNelis, 2008; McLaughlin et al., 2008; Medley & Horne, 2005; and National League for Nursing, 2007). These authors agree that these approaches provide a format in which students are able to learn content, and also are able to practice collaborative conversation and decision making in a facilitated environment.

**Summary of the Strengths and Limitations of the Health Care Literature Related to Interprofessional Collaboration and Cooperation.**

A good deal of attention has been devoted in the literature to comparisons between health care and other kinds of performance teams, notably aviation. Suggestions that cockpit resource management principles can be applied to health care team performance improvement incorporate both a degree of logic and an appropriate amount of caution, since the environments and personnel characteristics are unique to the professions and environments. The limitation in the literature is that these applications have been used more extensively with seasoned, licensed health care providers, and less so with students. Questions that remain include whether current strategies or pedagogies that demonstrate success in the licensed population are also successful with students. In addition, it is not known what other faculty-implemented strategies are successful in student achievement of competence in interprofessional teamwork and collaboration.

These are timely questions; national reports, private institutions, government agencies, and accreditation bodies are all moving in the same direction to bring this kind of focused education into prelicensure medical and nursing education. As understanding of IPE has grown, so has the cadre of methods to improve the acquisition of teamwork and collaboration knowledge, skills, and attitudes, as well as projects devoted to achieving these outcomes. It still remains, though, that faculty perceptions of the success or limitations of various methods have been virtually unexplored.
Medical and Nursing Education: Differences Relevant to Collaboration

This section will briefly describe the structure of typical academic programs that prepare beginning nurses and physicians for entry into their respective professions. Differences in educational pathways are described as a means to provide a foundation for understanding interactions and working relationships between the two professions. Nursing and medical education pathways in the U.S. demonstrate a number of differences, but also share some core elements.

Nursing Education

There are four academic pathways to prepare individuals for initial licensure as a registered nurse (RN). The three most common routes include the associate degree, granted by a community college, the diploma, granted by a hospital-based nursing education program, and the bachelor of science in nursing (BSN) degree, granted by a college or university. The fourth pathway has emerged in the past 20 years, and is an accelerated, graduate entry/second-degree option for individuals who hold baccalaureate degrees in other fields. This pathway may culminate in either a bachelor’s degree or graduate degree in nursing. The diploma pathway has all but phased out. Graduates of all four program types sit for the same national registered nurse licensure examination.

It should be noted that BSN “completion” programs have become more prevalent; these programs provide a route to the bachelor of science in nursing degree for registered nurses who hold diplomas or associate degrees in nursing. These are not pre-licensure programs, but are mentioned because they do provide a method for RNs with diploma or associate degrees in nursing to earn a baccalaureate degree in nursing; this population is not included in this study.

Differences in end-points between the various nursing education pathways are the most important elements relative to understanding issues of collaboration between nurses and physicians. Associate degree and diploma nursing education prepares the graduate for a variety of roles, although many practice in acute care settings (i.e. hospitals), or in
other settings where patient problems are more predictable and nursing care is more standardized. Baccalaureate prepared nurses are prepared to practice in multiple settings, both within and beyond hospitals, to participate more independently in clinical decision making of greater complexity, including case management and care planning, they are also better prepared for leadership and management roles in health care systems. In addition, patient guidance related to navigating the health care system, treatment choices, and reimbursement systems is an integral part of baccalaureate education. Baccalaureate nurses are also prepared in community-based primary health care and the care of aggregate populations, with an emphasis on health promotion, maintenance, and coordination of care. These nurses have a more extensive foundation in scientific principles, liberal learning, and a global perspective of health care (American Association of Colleges of Nursing [AACN], 2000 & 2008). Although all registered nurses carry licensure that allows them to practice nursing independently, the preparation and role of the baccalaureate prepared nurse is more expansive than that of the associate degree or diploma prepared nurse.

Discussion as to the wisdom of moving to a single pathway for beginning professional nursing practice began in 1965 with the American Nurses’ Association (1965) Position Paper on the baccalaureate degree as entry level; the debate continues to be politically charged. There is national pressure toward an increased proportion of baccalaureate and higher degree prepared nurses in the workforce. The National Advisory Council on Nurse Education and Practice, an advisory body to the U.S. Department of Health and Human Services, urged that a minimum of two-thirds of the registered nurse workforce hold a baccalaureate or higher degree in nursing by 2010 (National Advisory Council on Nurse Education and Practice, 2010). The Council on Physician and Nurse Supply (2007) and The American Organization of Nurse Executives (2005) also agree that the emphasis for funding in nursing education should focus on baccalaureate level nursing programs. As of 2000, approximately 40 percent of registered nurses held a BSN (AACN, 2000).
The thrust for higher education in nursing stems from the increasingly complex clinical and administrative roles filled by nurses. An expanding body of research demonstrates a relationship between the level of nursing education and the quality and safety of nursing care (AACN, 2008). In an important interdisciplinary study, researchers confirmed a significant association between the educational levels of hospital nurses and patient mortality, concluding that surgical patients experienced lower mortality and failure to-rescue-rates in hospitals that employed a greater proportion of baccalaureate and higher degree prepared nurses. (Aiken, Clarke, Cheung, Soane, & Silber, 2003). In response to the data and national advisories, the National Organization for Associate Degree Nursing published position statements clarifying the role and value of the associate degree-prepared nurse, and purporting that pursuit of additional nursing education should remain a choice of the graduate (National Organization for Associate Degree Nursing, 2006 & 2008).

Medical Education

Medical education is singularly straightforward compared to nursing education in that there are two consistent and comparable routes to licensure as a medical doctor (MD) or as a doctor of osteopathy (DO). Physician education is universally at the graduate level, and culminates in a terminal clinical doctoral degree. Graduates become MDs by attending a medical education program accredited by the Liaison Committee on Medical Education and subsequently obtaining licensure, as a medical doctor, or DOs by graduating from a program accredited by the American Osteopathic Association and subsequently obtaining licensure as an osteopathic physician. Medical education programs are four years in length. Typically, during the first two years students learn in the classroom and laboratory environments, engaging in the study of physical sciences, disease, and treatment. Patient contact usually begins in the second year. Third and fourth year students engage in clinically-based educational experiences, and move through rotations in the various major medical specialties (e.g. cardiology, endocrinology, oncology, etc.).
Prospective physicians take three progressive and complementary examinations. New physicians are generally eligible for state licensure following graduation from an accredited medical or osteopathic medical school, and completion of the step 1 and step 2 United States Medical Licensing Examination (USMLE) (Federation of State Medical Boards of the United States, Inc., & National Board of Medical Examiners, 2008), or similarly, level 1 and level 2 of the Comprehensive Osteopathic Medical Licensing Examinations (National Board of Osteopathic Medical Examiners, 2009).

Summary of Commonalities and Differences between Nursing and Medical Education

Differences and commonalities between nursing and medical education are apparent. Nursing and medicine are two different but complementary professions. The most notable difference in education and licensure is that there are a number of different types of academic routes that prepare registered nurses for a single level of licensure, compared to the more comparable academic routes for becoming a physician. This makes it challenging to compare nursing to other learned health professions that are educated consistently in higher degree-granting colleges and universities and at the post-baccalaureate level. Medicine, pharmacy, and a variety of allied health professions, for example physical therapy, prepare beginning practitioners at the masters or doctoral level (Accreditation Council for Pharmacy Education, 2007; Commission on Accreditation in Physical Therapy Education, 2008; and Liaison Committee on Medical Education [LCME], 2008). While nursing education for advanced practice roles and newer generalist roles is provided at the master’s or doctoral levels, the nursing profession continues to prepare most new graduates at the associate degree, diploma, and baccalaureate, levels.

Nursing education and medical education commonalities are evident in that they share similar foundational course content as well as core competencies. Shared foundational content includes anatomy, physiology, and other biological sciences, biomedical ethics, and pharmacology. Course rigor may be dependent on the type of
academic institution, and whether the course is taught at the undergraduate or graduate level. Shared core competencies have been established by the IOM; these include the use of communication, knowledge, technical skills, and clinical reasoning in the provision of patient-centered care, collaboration in interdisciplinary teams, employment of evidence-based practice, application of quality improvement, and utilization of informatics (Greiner & Knebel, 2003). In addition, health care professionals are being called upon to acquire the knowledge, skills, and attitudes required for safety and systems improvement, complexity and uncertainty, patient-centered practice, and teamwork, (Ladden, Bednash, Stevens, & Moore, 2006; and O’Halloran, Hean, Humphris, & Macleod-Clark, 2006). Many of the competencies described directly or indirectly relate to interprofessional collaboration.

**Summary of the Literature and Next Steps**

Collaboration between nurses and physicians is considered an essential factor in the safety and efficacy of patient care in a complex health care environment. There is an enlarging body of research in the interprofessional education literature describing the benefits of collaboration between nursing, medicine, and other professions. There is also a parallel body of literature describing theories of collaboration and cooperation in teams. Little research on interprofessional collaboration is grounded in these frameworks, although a number of models and theoretical frameworks refer to collaboration as a foundational element. Only one author suggested considering cooperation as part of an IPE theoretical framework. Most of the literature on interprofessional collaboration is focused on the post-licensure continuing education of seasoned professionals. Little empirical work focuses on learning environments that promote achievement of outcomes related to collaboration and cooperation between nursing and medical students while they are still in their pre-licensure programs, although the body of work is emerging. Also, very little research comes from the perspective of faculty charged with designing the curricula and pedagogies to facilitate student acquisition of the knowledge, skills and abilities to work collaboratively in nurse-physician teams.
Therefore, the proposed research utilizes collaboration and cooperation theories to guide the process of exploring the perceptions of faculty about the design of curricula and pedagogies to foster the acquisition of knowledge, skills, and attitudes that promote interprofessional collaboration and cooperation in pre-licensure nursing and medical students. Exploration of faculty perceptions about achievement of student outcomes consistent with directions in medical and nursing education accreditation, and factors that support or hinder development of these competencies, should provide illumination for future directions in interprofessional education.
CHAPTER 3

METHODOLOGY

Introduction

The purpose of the methodology chapter is twofold. First, it describes the methodology that guided the research, and second, it explains the criteria and justification for its selection. This chapter consists of four key elements. First, the epistemological assumptions used to inform theoretical assumptions will be addressed. The theoretical perspectives will provide a philosophical stance, context, and foundation. This is followed by a detailed research methodology. Soundness and limitations of the study are also addressed.

Study Design

The purpose of this study was to explore faculty perceptions of the preparation of medical and nursing students for interprofessional teamwork and collaboration with one another. It seeks to understand the effects of pedagogy, learning strategies, and other factors on student outcome achievement from the faculty perspective.

Research Questions

Questions which guide this inquiry include:

Research Question 1: How do medical school and nursing school faculty describe the experiences that enable medical and nursing students to learn how to work collaboratively in interprofessional teams?
Research Question 2: To what degree do faculty perceive that students are achieving outcomes related to interprofessional teamwork and collaboration, based on current relevant accreditation standards/competencies?

Research Question 3: What factors do faculty perceive as hindering the development of these competencies?

Research Question 4: How could hindering factors be overcome to remove barriers to collaboration?

Epistemology: Constructionism

Epistemology is “. . . a way of looking at the world and making sense of it” and frames “how we know what we know” (Crotty, 1998, p. 8). Epistemology provides a philosophical grounding about the nature of knowledge, its possibilities, and its scope. The epistemology that grounds this research is constructionism. The constructionist viewpoint holds that meaning is constructed rather than discovered, that human beings construct their own perceptions of the world, and that no one perception is more real, or right, than another. Constructionism seeks understanding of the social condition through interpretation and translation. Its emphasis is on the socially constructed nature of reality, which distinguishes the study of human beings from the study of other natural phenomena (Crotty, 1998; Glesne, 2006; Jones, Torres, & Arminio, 2006; and Patton, 2002).

Crotty (1998) further describes constructionism in these terms: “There is no objective truth waiting for us to discover it. . . Meaning is not discovered, but constructed. . . In this understanding of knowledge, it is clear that different people may construct meaning in different ways, even in relation to the same phenomenon” (pp. 8-9). From the perspective of this worldview, individuals seek understanding of the world in which they live and work. Subjective meanings of experiences are varied and multiple; the researcher looks for complexity of views, relying on the participants’ views of the
situations that is the subject of the inquiry. The product of research from a constructionist worldview is the generation of patterns of meaning (Creswell, 2007).

An approach that assumes differences in perspectives of meaning-making and knowledge construction is appropriate to this research in several ways. First, participants came from two complementary but different professions, nursing and medicine. The processes of interaction within and between members of the two professions is a component essential to the understanding of interprofessional collaboration; acknowledging and addressing processes of interaction among individuals is common practice in constructionist research (Creswell, 2007). Second, little research has been conducted on the development of collaboration and cooperation in pre-licensure nursing and medical students from the faculty point of view.

From an ontological standpoint, which considers the study of existence (Jones et al., 2006), constructionism embraces relativism. Crotty (1998) states that social constructionism should be accepted as relativist; in other words, constructionism acknowledges that different people come from different perspectives, thus have different ways of knowing, different ways of creating meaning, and separate realities. Denzin & Lincoln (2003) agree that the constructivist paradigm assumes a relativist ontology, which acknowledges multiple realities. The relativist perspective on constructionist ontology is applicable to this research; the subjects of this study live and work in a socially constructed reality, however that reality may look very different depending on the point of view of the individual and the profession they represent.

Theoretical Perspective: Interpretivism

The theoretical perspective is the philosophical stance which informs the methodology, provides a context for the inquiry process, and grounds the methodological logic and associated criteria. The theoretical perspective essentially provides explanation for assumptions upon which the methodology is based (Crotty, 1998; and Jones et al., 2006). The theoretical perspective chosen for this research is interpretivism, which seeks
to understand and explain a human and social reality that is culturally derived and historically situated (Crotty, 1998). Social constructionism and interpretivism are often combined (Creswell, 2007). Interpretivist epistemologies may be characterized as hermeneutic in that there is an emphasis on the grasping of the situation in which human actions either make or acquire meaning as necessary to the understanding of the particular action (Schwandt, 2003).

This research study involved semi-structured interviews with participants from two different professional domains who share the broad practice environment. Interviews permitted me the opportunity to explore individual participant voice, and also to compare the perspectives of participants within and between professions. Analysis of participant perspectives informed my interpretation and understanding of the research questions.

**Methodology: Thematic Analysis**

The methodology used in research refers to the design that shapes the choices and use of research methods, and links them to the desired or expected outcomes (Crotty, 1998). It is a strategy that guides the research plan and provides direction for procedural design (Jones et al., 2006). The methodology used in this research is thematic analysis, which is consistent with the epistemological assumptions of constructionism (Braun & Clarke, 2006).

Thematic analysis is a strategy for data reduction and analysis whereby “qualitative data are segmented, categorized, summarized, and reconstructed in a way that captures the important concepts within the data set” (Ayres, 2008, para 1.). Thematic analysis is primarily a descriptive tool; it allows the researcher to search for patterns of experience within the qualitative data corpus. It also allows the researcher to produce a description of those patterns and a comprehensive design that unites them (Ayres, 2008).

Reflecting on essential themes is of vital importance in a qualitative study. Arminio and Hultgren explain that thematic analysis is an “unloosening” that transpires when the researcher devotes an extensive amount of time in an effort to understand the
text (as cited in Jones et al., 2006, p. 50). The use of thematic analysis allows the researcher to identify “. . . common themes in the interviews and extract(s) sufficient interview excerpts to present evidence to the reader of the theme” (Benner, 1999, p. 310). Through the central processes of reflection and writing, the researcher is able to develop insight into the lived experience, and present common meanings. This strategy is a method of inductive analysis and creative synthesis, which involves “. . . immersion in the details and specifics of the data to discover important patterns, themes, and relationships . . . (that) begins by exploring, then confirming . . . (is) guided by analytic principles rather than rules . . . (and) ends with a creative synthesis” (Patton, 2002, p. 41).

The lived experience, or life-world, can refer to the breadth of experience in which an individual engages during a period of time, but it can also refer to the lived experience for an individual within a specific context. An understanding of the experiences and perspectives of nursing and medical program faculty is consistent with the notion of understanding common or shared experiences. The researcher’s task is to produce an analysis of themes of the faculty’s lived experiences. This product takes both patterns of commonality and contextual aspects that describe differences among participants into account. The thematic analysis includes “. . . both the important concepts and processes identified in the study and the overarching patterns of experience by which those concepts and processes are manifested” (Ayres, 2008, para 5).

In qualitative methodology, the researcher is often guided by a deep interest in and questions about a certain phenomenon. When this is the case, bracketing is an essential part of this process of “turning to the question.” Bracketing describes how the researcher must defer their own presuppositions about the phenomenon, as much as possible, to gain a fresh perspective on the phenomenon under investigation. However, while “bracketing out” is important, it is also suggested that the researcher should be forthcoming about one’s own assumptions, beliefs, biases, presuppositions, and theories, as a way of honestly exposing possible influence on the study (Creswell, 2007; and Jones et al., 2006).
The participants in this study were faculty who directly teach either nursing or medical students. Medical and nursing education programs have much in common, but produce different professionals with distinctive scopes of practice. The focus of the study on the levels of educational programs preparing these professionals necessarily differed; the focus of study on nursing education is on undergraduate level education while the focus of study on medical education will is graduate level education. However, both professional programs are pre-licensure, meaning that student exposure to the nature of their chosen profession is fresh, and both share the goals of safe and effective patient care. In addition, their places of practice, for example hospital settings or community practice, are often common. Using thematic analysis as the study methodology will allow the different experiences of faculty in two seemingly divergent programs to be analyzed for their commonalities, and for the contextual aspects of the lived experience to emerge.

Research Methods

Data Collection Method

The primary method for conducting this research was semi-structured interviews. Weiss (1995) states that research aims should guide the methods that are used, and identifies seven reasons that a researcher should conduct a qualitative interview study. These include: 1) to develop detailed descriptions, to learn as much as possible about the event or development that the researcher was unable to see; 2) to integrate multiple perspectives, which is to describe an organization, development, or event that no single person could have experienced in its totality; 3) to describe process, which may reveal how events occur or what is produced as the result of an event; 4) to develop holistic description, which is about how processes inter-relate; 5) to learn how events are interpreted, or responses and meanings from the point of view of the participants or onlookers; 6) to bridge intersubjectivities, referring to an “insider” grasp of the situation; and finally 7) to identify variables and framing hypotheses for quantitative research. With the exception of the last reason, these apply to this research proposal. In this study, it was important to analyze detailed description from the participants, who brought multiple
perspectives to the table. Responses from academic professionals representing two professions known to have differing perspectives was revealing, and informed the study through the lens of two different groups of “insiders.”

Qualitative interviewing is especially useful for capturing the perspectives of the participants. It is based on conversation, with the emphasis on the researcher asking broad questions and listening and the participant providing answers. Qualitative interviewing is unlike survey interviewing in that the qualitative method is more constructivist than positivist; its purpose is to derive interpretation, and participants are viewed as meaning makers rather than passive conduits of information. This is in contrast to the positivist epistemology, which tends to seek facts or laws as a result of respondent conversation (Warren, 2002). Interviewing allows the participant to describe their behaviors, thoughts, feelings, and observations; through their story, meaning is constructed. Patton (2002) summarizes the purpose of interviewing, which he states “. . . is to allow us to enter into the other person’s perspective. Qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit. We interview to find out what is in and on someone else’s mind, to gather their stories” (p. 341).

The semi-structured interview is the model used for data collection in this study, and is one of three types of open-ended questioning that allows for individual variation. The three types of qualitative interviewing are: 1) informal, conversational interviews; 2) semi-structured interviews; and 3) standardized, open-ended interviews (Patton as cited in Hoepfl, 1997, para 25). The choice of method depends on a variety of factors; in this research the choice was guided by the fact that this method is applicable if the researcher is beginning the investigation with a fairly clear focus in mind rather than a general broad topic. In this study, questions focus on the perceptions of medical and nursing faculty regarding the achievement of student outcomes related to interprofessional collaboration and cooperation; a body of literature, and two theories/conceptual frameworks are used to focus the interview questions.
Another reason the semi-structured interview method was chosen for this study is because it is a flexible process, with the emphasis on what the interview participant views as important in explaining and understanding issues, events, and forms of behavior. Semi-structured interviews allow the interviewee a degree of freedom to explain their thoughts and highlight areas of particular interest. They also enable the interviewer to probe and explore when responses call for greater depth to assure understanding of meaning and to resolve any apparent contradictions (Hoepfl, 1997; and Horton, Macve & Struven, 2004).

While semi-structured interviews offer a degree of flexibility, the use of an interview guide is strongly suggested and offers certain advantages. The interview guide includes a list of questions or topics to be covered. Interview guides ensure judicious use of limited time with the participant, help to keep interactions between the interviewer and interviewee focused by providing the topics or subject areas that ensure the line of inquiry is pursued consistently with each participant, and assures a more systematic and comprehensive process when interviewing multiple participants (Horton et al., 2004; and Patton, 2002).

Procedurally, all the questions are generally asked of each participant using the same degree of detail. The degree of detail provided in an interview guide is dependent on two factors. First, it is dependent on the extent to which the researcher is able to identify important questions in advance, and second, on the importance of asking questions in the same order to all participants (Patton, 2002). In this study, the most important questions have been identified, and are guided by the body of literature on interprofessional education, and theory and conceptual frameworks related to interprofessional collaboration and cooperation. However, the purpose of this research is to construct meaning based on faculty perceptions, so it was necessary to allow themes to emerge freely from the data during analysis. Warren (2002) cautions that “. . . the design of qualitative interview research necessarily places limits on standardization and the
working relevance of existing literature . . . this is not to say that (it is) unimportant . . .
but its relevance for the design of interviewing is confined to the first steps . . . “ (p.86).

Topics apart from the interview guide emerged during the interview; these were
explored with each participant who was interviewed (Patton, 2002). Patton warns that
when multiple interviewers participate in a study, flexibility in wording and sequencing
of questions may result in different responses from participants, and reduce the
comparability of data during analysis. In this study, I served as the sole interviewer,
avoiding this potential weakness in the process.

**Sampling Procedures**

**Site selection.** Participants were selected from 3 large Midwestern institutions
with academic health centers that included both medical and nursing programs. The three
institutions selected have national reputations in medical and nursing education as well as
in research. The selected institutions had a number of other similarities and some
differences; two were Carnegie classified as Comprehensive Doctoral with
medical/veterinary, and the third as Doctoral/Professional: Professional dominant. All 3
had “very high research activity” or “high research activity.” The smallest campus
enrollment was 10,000, and the largest campus enrollment was 40,000 students. Two
universities were public and one was private. The most important similarities were that
they all had medical and nursing schools on the same academic medical center campus,
in close proximity to one another, and were affiliated with university medical centers.
Also, the medical and nursing schools were of generally comparable size. Institutional
profiles are found in Table 2, *Institutional Profiles*, on page 89.

**Participant selection.** In qualitative research, sampling is “. . . distinguished by
*purposeful* sampling, that is, sampling for *information-rich* cases that hold the greatest
potential for generating insight about the phenomenon of interest” (Jones et al., 2006).
This study used theoretical, or purposive sampling. In purposive sampling, participants
are chosen because of their relevance to the research question, rather than their
representativeness of some wider population as in empirical sampling. Relevance may be a matter of choosing participants because they are engaged in an area that is critical to understanding some process or concept, because they are in a position to offer insight into the issues under study, or because their inclusion may likely “... yield predictable contrasts in understanding the definition of social action or because they are likely to show the same or similar definition of social action” (Schwandt, 2001, p. 233.)

Because this study sought to understand and explain the human and social realities of nursing and medical program faculty, the sample was necessarily drawn from the two groups. In this study, the two populations from which the participants were invited to participate consisted of faculty from selected nursing and medical education programs that reside in colleges or universities that have both a pre-licensure baccalaureate in nursing education program and a medical education program.

Sample sizes in phenomenological research are generally small; in qualitative inquiry there are no rigid rules regarding sample size. However, the sample should be extensive enough such that saturation occurs; saturation refers to the point at which the researcher begins to hear or observe similar kinds of information related to the research questions. When no new information is offered by participants, the criteria of redundancy has been reached (Jones et al., 2006). Because each participant was interviewed one time, it was important to assure that the sample was large enough that there was sufficient data and a reasonable expectation that a degree of saturation was satisfied.

A total of 32 interviews were conducted. Included in these were 17 interviews with nursing school faculty, and 15 with medical school faculty. Plans called for 5 nursing and 5 medical faculty from each of the 3 institutions, however, 2 additional nursing faculty were interviewed from one institution that had a branch campus nursing program. Plans also called for one academic administrator from nursing and one academic administrator from medicine from each of the 3 institutions. The designation of “administrator” was not a pure one; for the purposes of the study, several faculty had dual
roles in administration and as faculty. Decisions about how faculty were designated are described in Chapter 4. Faculty were recruited who had a minimum of five years experience in the faculty role, and who had direct responsibility for courses in which students were engaged in classroom, simulation laboratory, or clinical experiences where interaction with students from the other health profession program was both possible and necessary. Initial and subsequent contact was by e-mail. Confirmation of acceptance to participate was also by email, and accompanied by a solicitation letter.

In qualitative research the size of the pool of participants is less important than appropriate coverage of the phenomenon and the rationale for the selection criteria (Jones et al., 2006). The size of this sample is relatively large for a qualitative study; the fact that participants were recruited from two different professional schools in each institution complicated the sampling process. This sample adequately met the goal of expected reasonable coverage of the phenomenon. There was also sound rationale for the sampling strategy. Sampling strategy, which is the way participants are secured that reflect the sampling criteria (Jones et al., 2006), is especially important in this study, due to the fact that faculty from two different professional programs were recruited, and that the research asks questions about subject matter that has been interpreted in divergent ways depending on the point of view of the profession. It was important to invite participants from higher education institutions that were likely to be open to an invitation to participate, who clearly meet inclusion criteria, and who could provide rich information. This strategy is consistent with a form of sampling called intensity sampling. Intensity sampling seeks participants, or “cases” that manifest the phenomenon intensely, but not extremely; this type of sampling emphasizes the lived experience and is consistent with a phenomenological methodology (Jones, et al., 2006). The participant profile is provided in detail in Chapter 4.

Data Collection

Data collection began following Institutional Review Board (IRB) approval, and consisted of the 32 single interviews mentioned above. All interviews were conducted in
the interviewee’s place of employment for their convenience, using their office if they had a private space, conference room, and in one case a private corner in a public space. Each interview lasted between 45 and 90 minutes.

Development of rapport with participants began during the solicitation phase. Participants were initially contacted by email. Each email included a brief overview of the purpose of the study, the extent of the participant commitment, i.e. a single interview lasting between an hour and 90 minutes, participant criteria, and information about how they had been identified and selected. Participants who agreed were then sent a follow up message that included a personalized solicitation letter and an electronic copy of the consent form. Copies of the administrator and faculty solicitation letters and consent form are found in Appendices A, B, and C, respectively. The electronic relationship developed as I worked with participants to set up an appointment for the interview.

Prior to beginning each formal interview, I spent some time in informal conversation with participants. I asked them about their professional experience and academic role, and shared information about my own experience, roles in health care, and role as a researcher in higher education. These conversations served to further establish rapport and trustworthiness. Most participants were familiar with the role of researcher, and none asked additional questions about the research, its purpose, or the interview procedure before we began the recorded interview. One faculty took issue with the necessity of signing the consent form, but did voluntarily comply.

The interviews were semi-structured, using open ended questions from an interview guide. The interview guide ensured that each participant was asked identical questions, however, participants were offered the freedom to explore areas that arose during conversation so long as they were consistent with the goals of the study. The same interview guide was used for all participants, and is found in Appendix D.

Fieldnotes were written immediately following the interviews, or as soon as reasonably possible thereafter. A research journal was used to record my impressions regarding the success and direction of the interview, the interviewee’s reactions to
questions, and my interaction and relationship with the participant. In addition, I recorded initial insights from the interview and any initial themes that arose from the conversation.

Interviews were audiotaped with the permission of the participants and were then transcribed in their entirety. I have found, during a pilot study, that it is difficult for me to take notes during the interview; I find it can be distracting. However, it was difficult to resist making notes on my copy of the interview guide as we went, and I did so. The audiotape allowed me to capture the conversation in its entirety, and was supplemented by my fieldnotes. The interviews yielded over 850 pages of data. My field notes and reflections yielded an additional 100 pages. In addition, documents verifying information discussed by participants were obtained. A total of 18 documents were collected from either participants or the university websites, e.g. strategic plans, grant documents, curriculum plans, curriculum meeting minutes, program/graduation objectives, core competencies, internal consistency documents, syllabi, and student evaluation tools.

**Data Analysis**

Analyzing, or interpreting, the data is the process by which the researcher makes sense of the data. In this study using a phenomenologic methodology, the researcher’s objective is to “. . . approach a grasp of the essential meaning of a particular phenomenon” (Jones et al., 2006). Structures for data analysis in qualitative studies generally stress an inductive analysis that is guided by the research approach, in which the researcher does not test a hypothesis. In general, Miles and Huberman (1994) suggest that analysis consists of three concurrent flows of activity. First is data reduction, which is the process of selecting, simplifying, abstracting, and transforming data from transcriptions and field notes. Some data reduction may be anticipatory, and as data collection proceeds, further data reduction may include written summaries, memo writing coding, and theme identification. The second major flow of analysis activity is data display, which is an organized assembly of information that allows for drawing some conclusion. Conclusion drawing and verification is the final stream of analysis, and may
occur both during and post data collection. These processes were followed as I analyzed the data.

The data analysis spiral is another process for guiding data collection, analysis, and report writing, which are often simultaneous processes. The steps in the spiral are guided by the research approach. The suggested analysis process for a phenomenological approach begins with managing the data, then reading through the text, making marginal notes and forming initial codes, followed by describing personal experiences and the essence of the phenomenon. Next, significant statements are developed, and statements are grouped into meaning units. A textural description of the “what” of the phenomenon is developed, as is a structural description, which is the “how” of the phenomenon. Finally, a narrative of the “essence” of the experience is offered, using data displays or discussion (Creswell, 2007). This is one process suggested for getting at thematic analysis and description.

Interviews were transcribed, in bulk, by a transcription service following completion of data collection. I read each transcript in its entirety. I first read each participant’s, transcript, then re-read them by groups. Two sets of grouping were evident. One set consists of the group of nursing faculty, and another group of medical faculty. The other set consists of groups of faculty clustered by educational institution. Interviews were analyzed for themes which carried across interviews, and within and across groups.

The mechanics of data analysis relied heavily on NVivo 9 (QSR International, 2012), a qualitative analysis software application. Data analysis and reduction was a continuous process following the initial round of coding. As coding progressed, themes emerged, and then began to merge. The software provided a data display that was essential for organization of themes and data reduction. A final coding scheme was developed through a process of reading and re-reading transcripts and notes, coding and re-coding, merging of themes, and the use of my reflective journal. The final thematic analysis is the result of having verified coding after reading through each transcript 3 times.
Trustworthiness and “Goodness”

The worthiness of qualitative research is judged through a process of dialogue, discourse, and consensus by study participants, readers, and members of the discipline; this process is quite different from the methods by which quantitative research is evaluated (Jones et al., 2006). The terms trustworthiness and validity are familiar and suggest establishment of confidence in the findings, however, several researchers suggest the use of the term goodness to indicate quality in qualitative inquiry (Arminio & Hultgren, 2002; and Jones et al., 2006). Use of the term goodness allows for the “... breaking out from the shadow” of criteria to measure the quality of quantitative research, and allows “... the qualities of qualitative work to be pursued on its own terms” (Arminio & Hultgren, 2002, p. 446).

Jones and colleagues (2006) suggest the following criteria for judging the worth of a qualitative study: 1) that epistemological consistency must exist between the research question, data collection, and analysis procedures; 2) that collection and analysis procedures must be applied correctly and with a level of competence; 3) that researchers must be knowledgeable about the background theoretical framework, as well as assumptions connecting this study to previous studies, including explanation of disconfirmation; 4) that researchers must explain choices made about embracing or discounting conclusions; and 5) that researchers describe the study in a manner accessible to a range of readers that allows for discussion and debate within the discipline. The criteria mentioned by the authors are positioned on a continuum from the general, such as general criteria for research, to the specific, such as methodological detail. Additional criteria include evidence that the research is honest, reasonable, responsive to challenges occurring during the research process, and open to the points of views of others.

Processes embedded in the elements of goodness help to assure that information obtained through the data collection process is accurate. Qualitative researchers typically use more than one procedure. One of these processes is an audit trail, which verifies meaning making. The audit trail includes exacting records of which participants said
what, when they said it, and under what conditions. Goodness also involves determining
the degree to which data collection methods and analysis interconnect (Jones et al.,
2006). Ways to augment trustworthiness or goodness include prolonged engagement,
triangulation, peer review and debriefing, negative case analysis, clarification of
researcher bias, member checking, thick description, and external audit (Creswell &
Clark, 2007; Glesne, 2006; and Jones et al., 2006).

I used several of these methods to assure soundness and trustworthiness of the
study. Soundness of the study was addressed through the process of member checks, peer
debriefing and reflexive journaling. Soundness of the data was addressed through the use
of triangulation of questions, analysis of the data from different perspectives, thick
description, and negative case analysis, or the search for disconfirming evidence. The
researcher is an instrument in the research, and brings personal biases and possible
relationships into the process (Jones et al., 2006). Clarification of researcher bias was
managed through the use of memos and a reflexive journal.

**Researcher stance.** My academic preparation is in nursing and nursing education.
I have been fortunate to have had a career that has been delightfully nontraditional with a
great deal of breadth. I have spent more than 35 years in a variety of settings, beginning
with hospital bedside critical care, staff development, and administration, then moving on
to teach nursing in a community college setting. I have held two different positions in the
state regulation of nursing education and licensure. I was privileged to be the first
director of a new graduate entry/second degree nursing program at a private university,
and now teach in a large, research intensive university college of nursing. I have also had
the opportunity to work closely with health care professionals from other fields, including
medicine, pharmacy, exercise physiology, social work, and dietetics. I bring my
experiences, perceptions, attitudes, values and beliefs to this research. The breadth and
depth of my experience in nursing and health care, and in higher education, brings both
strength and bias to this research.
My insider’s knowledge served as a strength in this study. I have worked in major hospital systems in which I have had personal experiences collaborating with physicians that were both enriching and distressing. During the years I have worked in nursing education programs as both an educator and administrator, I saw the challenges and rewards of interprofessional collaboration between nursing faculty and physicians, and nursing students and physicians or medical students first-hand, as well as the positive or negative effects that these short interactions or more long-term relationships could have on patient care and outcomes. These experiences fueled my interest in this project, and allowed me to develop a personal understanding of the interpersonal and organizational dynamics which take place in health care.

Jones and colleagues (2006) state that researchers should ask themselves what personal biases they bring with them to the study; this allows the researcher to acknowledge their pre-understandings and assumptions. Since I have had both positive and negative interactions with physicians, I feel comfortable that I can moderate my biases and be clear about them in a reflexive journal. However, I fully acknowledge that I come from a nursing perspective, therefore biased toward the nurses’ point of view. Bracketing was a crucial part of the process of “turning to the question.” Bracketing is essential in phenomenological methodology, and describes how the researcher must shelve their own presuppositions about the phenomenon, as much as possible, to gain a fresh perspective on the phenomenon under investigation. Cresswell (2007) suggests the importance of researchers bracketing out their views before proceeding with the experience of others. I come from a profession that has felt the biases and experienced the differences in perceptions between nurses and physicians described in Chapter 2. Many times in my early experience more traditional physicians expected me to carry out their orders unquestioningly and neither requested nor acknowledged collegial conversation related to patient care objectives. However, other professional experiences with physicians offered hope for a more collaborative future.
In qualitative methodology, the researcher is guided by a deep interest in and questions about a certain phenomenon. My experiences fuel my deep interest in this phenomenon. However, it was essential that this deep interest did not mask the nature of reality from the participant viewpoint. For this reason, peer debriefing and a reflective journal were essential components of the study, and helped me develop context and perspective.

**Peer debriefing and reflexivity.** Peer review or debriefing involves the engagement of an individual who provides an external check of the researcher, taking on the role of “devil’s advocate”, provides the researcher with an opportunity for catharsis, and provides reflection, feedback and input on the researcher’s work (Glesne, 2006; and Jones et al., 2006). Peer debriefing was facilitated by arranging for meetings with another doctoral candidate periodically throughout the course of the study. The individual who agreed to serve in this role is also a nurse, and a faculty member at a Midwestern university college of nursing. We had several conversations, over lunch and by email, which served the level of debriefing needed.

A reflective journal was kept that chronicled my interactions with interviewees, and reflected on my own thoughts and feelings about the process. It was also be used to structure and facilitate peer debriefing. Reflexivity:

... combines the process of reflection with self-critical analysis (and is) a means whereby social science researchers are able to explore their own subjectivity, be more aware of the impact they necessarily have on the research data they collect and increase the sensitivity of their analysis and interpretations of the data (Somekh & Lewin, 2005, p. 348).

Reflexivity stresses the importance of researcher self-awareness, political and cultural consciousness, and acknowledgement and ownership of one’s perspective (Glesne, 2006). At a minimum, to assure reflexivity, researchers must make their individuality and its effects on the process visible. In qualitative research, “...reflexivity facilitates a critical attitude towards locating the impact of the research(er) context and subjectivity on project design, data collection, data analysis, and presentation of findings” (Gough, 2003, p. 22).
Keeping a reflexive journal facilitated my efforts to explore and understand my positionality as a researcher; that is, the connection between my own socially constructed identity and those of the study participants. Jones and colleagues (2006) caution that researchers interested in creating diverse samples must be vigilant about positionality, and “... the issue of researching within and/or outside one’s own community. . . researchers may embark upon a naïve assumption that this should not or would not make a difference” (p. 81).

Reflexive journaling was done immediately following interviews, and then additional notes added later as I read through the transcripts and reflected on the themes that emerged. During this study, reflexive journaling helped me discover two things about my own socially constructed identity in relation to those of the participants. At first, I felt a sense of dichotomy between my stance as a researcher in higher education, and as a long-time professional in nursing. As I gained experience interviewing faculty and felt more comfortable with the process, I found that I increasingly came to the interview as a researcher representing higher education, rather than as a nursing professional and faculty member. I could feel my researcher stance mature. In addition, having had the experience of growing up professionally in hierarchical hospital organizational cultures, I made an early assumption that medical faculty would not respond to my requests for an interview, and that they would be less than fully cooperative during the interview. The opposite was true. The medical faculty were some of the most collegial, open, introspective and erudite individuals I interviewed. Nursing faculty met those criteria as well, but I expected nurses would treat me, and the research topic, with respect and interest. Conducting this research was transformative for me with regards to my preconceived notions about what to expect from medical and nursing faculty, and with regards to my identity as a researcher.

**Thick description.** Thick description is a method by which readers may make decisions regarding transferability of findings to other settings because they are able to identify shared characteristics (Creswell, 2007). To thickly describe is to begin to interpret actions by recording the circumstances, meanings, intentions, strategies,
motivations, and other details that are characteristic (Schwandt, 2001). Thick description also makes possible the opening up of the phenomenon to the reader through the use of rich, detailed, and concrete description such that the reader can draw their own conclusions about the phenomenon’s meaning and significance (Jones et al., 2006). In essence thick description allows decisions about transferability to rest with the reader. The data is presented in Chapters 4 and 5 in such a way that the necessity for thick description is addressed.

**Member checks.** In member checking, participants’ views of the credibility of the findings and interpretations are solicited by the researcher. This may include the sharing of interview transcripts, analytical thoughts, or drafts of the final report (Creswell, 2007; and Glesne, 2006). Member checking is one process of establishing trustworthiness and confidence in a research study, and promotes congruence by providing participants with an opportunity to review and validate or refute findings and interpretations that emerged as a result of their participation in the study. This authentication of findings by participants is “... the primary means for assuring that the researcher understood and deepened the meaning of the experiences that represented the participants” (Jones et al., 2006, p. 99).

Member checks were utilized in this study as a means of authenticating the accuracy of the transcribed data. Member checks were conducted electronically. Completed transcripts were sent to the individual participants, attached to an email that asked them to read through the transcript if they could, verify its accuracy and confirm that this was the story they wanted to tell. I also asked them if there was anything they would like to add. I would have liked to send a rough outline of the thematic analysis to participants for their feedback, however, time did not allow for this.

**Triangulation.** Triangulation is generally considered a “... process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation of interpretation” (Stake, 2003, p. 148). Triangulation serves to reduce the likelihood of misinterpretation. One of the most common procedures for assuring verification and
repeatability of an observation or interpretation is redundancy of data gathering (Stake, 2003). This may be accomplished through triangulation of interview questions. The interview guide was structured so that some of the questions are asked in such a way that they either asked the same question or approached the same topic but in a different way. Consistency or inconsistency of responses was identified during data analysis as a method to authenticate the accuracy of my impression of the participant’s experiences.

Another method employed was document review. A review of the curricula plans and syllabi associated with courses in which the participants taught was conducted. This served as a means to verify the presence of knowledge and skills content and teaching methods in the formal curriculum. A total of 18 documents were retrieved and analyzed. Documents were either made public and retrieved from university websites, or were offered by faculty. Documents included program outcomes and objectives, program evaluations of internal consistency, program curriculum plans, syllabi, clinical practicum evaluation tools, log sheets, departmental strategic plans, interprofessional grant documents, and minutes of task force meetings. All of the documents substantiated elements discussed by participants during the interviews.

**Ethical Considerations: Privacy and Confidentiality**

Issues of power and control are important to consider in the conduct of qualitative research. In qualitative research, researchers are encouraged to build relationship and reciprocity with participants in the co-construction of knowledge; however the use of an interview method places a measure of control with the interviewer. The tension between maintaining the integrity of the research and protecting the participant is reconciled by paying attention to ethical imperatives. These ethical imperatives are protected by the principles of confidentiality, anonymity, informed consent, avoidance of deception, respect, privacy, and “do no harm” (Jones et al., 2006).

In this study, confidentiality was protected by several means. The names and precise locations of the academic institutions are not revealed in the written report.
Participants were assigned codes according to their de-identified institution name, their membership as nursing or medical faculty, and a number which represents the order in which they were interviewed. For example, the first nursing faculty interviewed at Midwest South is coded as MSN1. Audio recordings of interviews, written records, and handwritten notes and journals have been labeled by code and are kept in a secure file. All electronic files will be archived by code to CD-ROM; these will also be labeled by code and kept in a secure file. All personal information and identifiers from participants, including e-mail addresses, will be deleted upon completion of the research project.

An important consideration is whether there may be a circumstance in which the researcher would be unable to honor a participant’s request for confidentiality. Generally, circumstances in which this might be an issue are those in which a participant might come to harm or may have potential to harm others (Jones et al., 2006). In this research, “others” could be deemed to include the academic setting in which the participant is employed. This seems an unlikely possibility in this research. However, if this situation would arise, I would use my best judgment to manage this ethical dilemma. To reiterate, no academic institution or participant was named or identified.

**Limitations of the Study**

Glesne (2006) states that “Limitations are consistent with the always partial state of knowing in social research, and elucidating your limitations helps readers know how they should read and interpret your work” (p. 169). Several limitations were anticipated in this research.

The sample itself presented limitations to the study. The sample is representative of nursing and medical faculty in large, research-intensive academic health centers that have both medical and nursing programs. However, the sample size and selection criteria were not broad enough to assure diversity with regards to race, ethnicity, gender, or age. Also, the transferability of findings to academic settings that do not have both medical and nursing programs, or to academic settings in which the medical program is
osteopathic, or to nursing schools/colleges that include programs in addition to or different from traditional baccalaureate of nursing program, may be questionable. Additionally, transferability to smaller, less research-intensive or private institutions may be inappropriate. And, since the sample is limited to faculty from nursing and medical programs, transferability to other health professions programs will be limited.

Finally, Denzin and Lincoln (2003) describe the role of the qualitative researcher as *bricoleur*, a maker of quilts. The product is a bricolage, “... a pieced-together set of representations that are fitted to the specifics of a complex situation” (p. 5). A limitation of this research is related to the complexity of the relationships between the nursing and medical professionals; this level of complexity is disproportionate to the boundaries and limitations of the study. This was acknowledged and addressed; however, the product of this research seeks to understand relevant dynamics and provide a contribution to the literature.

**Generalizability**

This study focused on two types of health professions education programs, in a limited number of academic institutions in the Midwest region. It will be difficult to generalize beyond those boundaries; while quantitative research seeks to test hypotheses for the purpose of generalizing, qualitative research seeks to provide sufficiently thick description so the reader can determine whether the findings may be transferred. There is little research available on faculty perspectives related to interprofessional collaboration outcomes between medical and nursing students. As a result, this study is considered to be exploratory research and is intended to generate findings that may serve as the basis for further research.

**Participant Sample**

A full sample participated in this study. However, the insights of the participants reflect only the experiences of those interviewees, and are shaped by experiences in their particular academic institutions, particular professional programs and affiliated clinical
facilities. A different group of participants from other settings, health professions programs, or affiliated with other clinical facilities may produce different results.

**Researcher Bias**

The potential for bias based on positioning of the researcher was possible. However, safeguards were included to assure that these were addressed; those safeguards are considered elsewhere and include reflexivity, peer debriefing, member checks, and triangulation. It was especially important to be mindful that the voices of the participants that were represented, and to avoid limitations resulting from researcher portrayal as the expert of others’ experiences. This is an essential part of goodness, and is related to bias (Arminio & Hultgren, 2002). As previously discussed, my own experiences, history, values, beliefs, and attitudes necessarily have an influence on this study. However, I believe that my rich background enhanced this study in a number of ways. I brought an insider’s knowledge of the academic structure and the practice environment to the study. I have made every effort to bracket my views to the extent possible. The processes of reflexive journaling and peer debriefing have assisted me in recognizing and reflecting on my own biases, and have helped to neutralize the subjectivity of my perspective to the extent possible.
CHAPTER 4
DATA ANALYSIS

THEMES THAT DESCRIBE ENVIRONMENTS AND CULTURES

Introduction

This chapter begins the data analysis, which is separated into two topic areas. The first topic includes themes describing environments and cultures that had an influence on the teaching of interprofessional collaboration to medical and nursing students. Within the first topic 4 themes emerged. This first set of themes includes: the clinical environment; educational program structures and culture; faculty resources engagement, and competency; and external drivers. The second topic consists of themes that were student centered; these include curricular methods and pedagogy, and student roles and role understanding. Themes from the second topic area are addressed in Chapter 5.

Faculty from 3 institutions participated in this study; Midwest South, Midwest West, and Midwest North. Fifteen participants were from colleges/schools of medicine, and 17 were from colleges/schools of nursing. Five faculty participated from each of the 3 colleges/schools of medicine, and five from each of the 3 colleges/schools of nursing. There was one exception; 7 nursing faculty were interviewed from one of the colleges/schools of nursing, Midwest South. Two nursing faculty taught at a branch campus; the remaining 5 were housed at the main campus. At least one person from each of the six cohorts of faculty was an administrator. The 32 faculty participated in single interviews lasting between 45 and 90 minutes, that were conducted between October 2010 and May 2011. Faculty representing both nursing and medicine were courteous, friendly, and enthusiastic about their participation. Afterward, every participant
mentioned that they enjoyed the process, and several cheerfully indicated they were not usually asked to pontificate on this kind of subject matter. Only one participant was challenging at the beginning of the interview, and had issues with the need for a consent form considering his adult, voluntary status as a participant. After a few minutes of conversation, he warmed to the topic, and at the end of the interview went on the record indicating that the interview had been the best part of his day.

**Institutions and Participants**

The 3 institutions were located in the Midwestern U.S. Two of the institutions were public, Midwest South and Midwest West; Midwest North was a private not-for-profit institution. Total enrollments were much larger in the public institutions, 40,000 and 30,000 respectively; the total enrollment at Midwest North was 10,000. Enrollments in the medical and nursing programs differed between institutions. The smallest and largest enrollments were both in nursing programs; the smallest enrollment was 800, at Midwest North, and the largest enrollment was 2,700, at Midwest South. All three institutions were classified as having either high or very high research activity. At every institution, nursing and medical programs were in close proximity to one another. The schools at Midwest South were separated by 2 city blocks. At Midwest West, the nursing program, and the main medical school building were next door to one another, although the medical program campus had expanded and a few buildings were driving distance from the academic medical center area. Information about institutional control and Carnegie classification was obtained from the Carnegie Foundation website (Carnegie Foundation, 2012). Student enrollment data for Midwest West was also obtained from the Carnegie Foundation, although the enrollment data for Midwest South and Midwest North was obtained directly from the institutions’ websites. Medical and nursing program enrollments were obtained either from institution websites, or from telephone calls placed to admissions offices. Enrollment numbers are presented as approximations to assist in protecting the institutions’ identities. The institutional profiles are presented in Table 2, *Institutional Profiles*, found on page 89.
Table 2

Institutional Profiles

<table>
<thead>
<tr>
<th>Institution</th>
<th>Control</th>
<th>Carnegie Classification</th>
<th>Total Enrollment</th>
<th>Medical School Enrollment</th>
<th>Nursing School Enrollment</th>
<th>Distance between Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>MW South</td>
<td>Public</td>
<td>Very High Research Activity</td>
<td>40,000</td>
<td>700</td>
<td>2,700</td>
<td>Approx 2 city blocks</td>
</tr>
<tr>
<td>MW West</td>
<td>Public</td>
<td>High Research Activity</td>
<td>30,000</td>
<td>1,200</td>
<td>900</td>
<td>Next door; some buildings driving distance</td>
</tr>
<tr>
<td>MW North</td>
<td>Private</td>
<td>Very High Research Activity</td>
<td>10,000</td>
<td>900</td>
<td>800</td>
<td>Next door</td>
</tr>
</tbody>
</table>

There were 21 females and 11 males in the group; 100 percent of the nursing faculty were female, and of the medical faculty 27 percent were female and 73 percent were male. All of the nursing faculty were licensed RNs. All but 2 of the medical faculty were MDs. The remaining two medical faculty held PhDs, were educators, and were considered to be regular faculty at the medical school; one of those was a sociologist. The two non-physicians met participant criteria, and were fully qualified to respond to the interview questions. The participant criteria called for one administrator from each program; this was for the purpose of understanding the lived experience of those in leadership positions. This goal was accomplished, however the administrator designation was never a pure one. A number of faculty held director level or higher positions in specialty areas in their program, but maintained a teaching load. The decision to categorize a faculty member as “administrator”, or “dual” was based on a judgment about their administrative role in the prelicensure medical or nursing program. Participants who held primary responsibility for those programs were categorized as “administrator,” and those with less than primary responsibility, or with a director position in a related or specialized area, were categorized as “dual.” Those with no titled administrative responsibilities for the program were categorized as “faculty.” Individuals referred to within the text of this chapter are often referred to as “faculty” for the sake of convenience, regardless of their title or responsibilities, unless the conversation was
related to a topic or perspective that was administrator-specific. Transparency between administrative ranks and faculty was apparent in all 3 institutions, so faculty often spoke about administrative nuances with ease, and administrators, who also taught, readily responded to questions about curriculum and pedagogy.

The mean age of participants was 51.3 years of age, and the mean years teaching was 22 years. The mean ages calculated for faculty in the 3 nursing programs was comparable across programs, with a high mean of 56.2 years and a low mean of 55 years. The youngest nursing faculty member was 43 years old, and the oldest was 65 years old. Mean years teaching in nursing was also comparable. The mean years teaching was 20.35 years, with a high institutional mean of 22.8 years and a low institutional mean of 17.4 years. Two nursing faculty had taught for only 5 years; both of these individuals were experienced nurses, one in her 40’s and the other in her 50’s, but were new to the teaching role. The nursing faculty who had been teaching the longest was an administrator; she had been teaching for 33 years.

The mean ages calculated for faculty in the 3 medical programs was also comparable, with a mean of 54.47 years. The high mean was 55.8 years, and the low mean was 52 years. The 2 youngest faculty members were 43 years old, and the oldest was 65 years old. Mean years teaching was also comparable in medicine. The mean years teaching was 23.63 years, with an institutional high mean of 26.4 years and a low institutional mean of 21 years. The medical faculty who had been teaching the least amount of time had been teaching for 14 years, and the faculty teaching the longest had been teaching for 38 years. Brief profiles on each of the participants follow.

**Introduction to Participants**

**Nursing participants from Midwest South.** Seven faculty volunteered as participants. Five of them taught on the main campus, and two were from a branch campus situated about 30 miles away. MSN1 is a full professor, and executive director of the undergraduate program. She had been teaching for 33 years, and offered a comprehensive perspective on the administrative aspects of the program. She also had a
rich history of teaching both undergraduate and graduate students. MSN2 is an assistant professor, and the director of the graduate entry second-degree undergraduate program; as such she has dual administrative and faculty roles. She had been teaching a total of 21 years in a variety of nursing programs. MSN3 is the director of the bachelor of science in nursing (BSN) program at the branch campus, and also holds dual administrative and faculty roles. She has been in the academic world for 5 years, but has an extensive clinical and administrative background, and brings that wealth of knowledge to her role. MSN4 is an associate professor, specializes in pediatric nursing, and has been teaching for 20 years. MSN5 is also fairly new to education and has been teaching for 5 years, but has a strong clinical background. She is a clinical instructor at the branch campus. MSN6 is a clinical assistant professor, and has been teaching for 20 years. Her clinical background is also strong; she teaches leadership and management, among other subjects. MSN7 is also a clinical assistant professor, has been teaching for 16 years, and has taught in several nursing programs.

**Medical participants from Midwest South.** Five faculty volunteered as participants. MSM1 is a professor, and interim chair of one of the academic medicine departments. His role is primarily administrative, however he continues to be involved in teaching. His background is in family medicine, and he has been teaching for 21 years. MSM2 is an associate clinical professor and emergency medicine physician. He has been teaching for 18 years. He is involved in the curricular reform committee at Midwest South. MSM3 is an adjunct associate professor, and also has a background in family medicine. He has been teaching for 24 years. He and MSM1 are both involved in international student clinical experiences. MSM4 is an associate clinical professor, and also a family physician. He has been teaching for 15 years. MSM5 is a full professor, and is a geriatrician. He is involved in geriatric and community based medicine, and has been teaching for 27 years.
**Nursing participants from Midwest West.** Five faculty volunteered as participants. MWN1 is a clinical assistant professor and has been teaching for 15 years. She collaborates closely with MWM2 to operationalize simulation experiences for nursing and medical students. MWN2 is a full professor and administrator; undergraduate faculty report to her. She is a family nurse practitioner, and has a strong teaching and clinical background. She has taught nursing for 28 years. MWN3 is a clinical assistant professor, has been teaching for 23 years, and is very involved in collaborative experiences in her courses. MWN4 is a clinical assistant professor as well, and has been teaching for 30 years. MWN5 is a clinical assistant professor, has been teaching for 18 years, and has a strong critical care background; she also participates in simulation experiences.

**Medical participants from Midwest West.** Five faculty volunteered as participants. MWM1 is a professor of medicine, and is a sociologist with interests in health services research and development. He has taught medical students for 15 years. He is one of the two non-physicians representing Midwest West. MWM2 is an associate professor of surgery, specializing in pediatrics. He has been teaching for 15 years. He is a leader in interprofessional simulation, and is a frequent collaborator with nursing faculty from Midwest West. MWM3 is a professor of medicine, and an associate dean for a research division. In terms of his role with medical students, he was classified as “faculty.” He has a wealth of experience in the practice of medicine in a variety of settings, including the community, and has been teaching for 38 years. MWM4 is the interim associate dean of undergraduate medical education, is an educator by education and profession, and teaches medical students. As such she serves in a dual role. She has been teaching for 16 years. She was the second non-physician participant from this university. MWM5 is the associate dean for medical student affairs; his role is primarily administrative. However, he continues to teach medical students, and has been teaching for 28 years.
**Nursing participants from Midwest North.** Five faculty volunteered as participants. MNN1 is the assistant director of the BSN program, and holds dual roles as both administrator and faculty. She has been teaching for 14 years, and has a strong clinical and leadership background. MNN2 is an assistant professor and has been teaching for 18 years. She has a strong relationship with medical faculty and is involved in a collaborative interprofessional education (IPE) grant shared by medicine and nursing. MNN3 has been an adjunct faculty for over 20 years, but recently joined the faculty full time in a clinical instructor position; she leads a nursing program initiative in perioperative nursing. She brings great depth of clinical and leadership experience to her teaching. MNN4 is an associate professor, and is the program director for the BSN program; as such her role is primarily administrative, however she continues to be involved in teaching. She has been in nursing education for 32 years. MNN5 is an assistant professor, and program director for the graduate entry/second degree program. She has dual administrative and faculty roles, and has provided leadership for the IPE grant. She has been in nursing education for 22 years.

**Medical participants from Midwest North.** Five faculty volunteered as participants. MNM1 has a leadership role in the public health program as well as an appointment in the department of family medicine. As such he has a dual role. He teaches medical students in community settings, and has been involved in a number of interprofessional collaborative initiatives. He has been teaching for 29 years. MNM2 is a family medicine physician, and holds a leadership position in urban health. She also has a dual role, and teaches medical students. She did not provide the numbers of years teaching. MNM3 has a dual role as well; she is the associate dean for curricular affairs, but actively practices and teaches rheumatology. She is closely involved in the IPE grant shared with the nursing program. She has been teaching for 19 years. MNM4 is a professor of medicine, epidemiology, and biostatistics, teaches medical students, and also holds a leadership position at an affiliate hospital. For the purposes of this study, he was classified as faculty. He has been teaching for 32 years. MNM5 is an assistant professor, and practices and teaches general internal medicine. She has been teaching for 14 years.
Participant characteristics including the institution they represented, their coded identifier, gender, role, age, and years teaching is found in Table 3, *Participant Characteristics*, found on page 95.
Table 3

**Participant Characteristics**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Code</th>
<th>Gender</th>
<th>Role</th>
<th>Age</th>
<th>Years Teaching</th>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing (Mean)</td>
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<td></td>
<td></td>
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<td>MSN1</td>
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<td>MSN3</td>
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<tr>
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<td>20</td>
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<tr>
<td>MSN5</td>
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<td>Medicine (Mean)</td>
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<td>Faculty</td>
<td>53</td>
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<td>Faculty</td>
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<td></td>
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<tr>
<td>Nursing (Mean)</td>
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<td>MWN1</td>
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<td>Faculty</td>
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<tr>
<td>MWN4</td>
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<td>Faculty</td>
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<tr>
<td>MWN5</td>
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<td>Faculty</td>
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<td>18</td>
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<tr>
<td>Medicine (Mean)</td>
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<td></td>
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<tr>
<td>MWM1</td>
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<td>38</td>
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<td>Dual N/P*</td>
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<td>MWM5</td>
<td>Male</td>
<td>Administrator</td>
<td>54</td>
<td>28</td>
<td></td>
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<tr>
<td><strong>Midwest North</strong></td>
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<td></td>
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<tr>
<td>Nursing (Mean)</td>
<td>MN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MNN1</td>
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<td>Faculty</td>
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<td>14</td>
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<tr>
<td>MNN2</td>
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<tr>
<td>MNN3</td>
<td>Female</td>
<td>Faculty</td>
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<td>MNN4</td>
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<td>Administrator</td>
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<td>Medicine (Mean)</td>
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<td>MNN1</td>
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<td>MNN2</td>
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<td>Dual</td>
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<td>MNN3</td>
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<td>MNN4</td>
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<td>Faculty</td>
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<tr>
<td>MNN5</td>
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<td>Faculty</td>
<td>42</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

*N/P Non-physician
Description of Themes

The purpose of phenomenological research was kept in mind as thematic data analysis unfolded. Themes are understood to be frequently recurring elements that both describe unique experience, and capture the spirit and meaning of the phenomenon of inquiry (Jones, Torres, & Arminio, 2006). I found it essential to stay true to the data and resist the influence of theoretical constructs and data culled from the literature review. During data analysis themes emerged naturally and repetitively from the transcripts. A process of data reduction consistent with the method suggested by Miles and Huberman (1994) was employed, including selecting, focusing, simplifying, abstracting, and transforming the data. As the data analysis process unfolded, themes and subthemes continued to merge. The major themes and subthemes revealed elements of faculty members’ lived experiences preparing medical and nursing students for interprofessional collaborative practice.

The data analysis yielded 6 major themes, The themes are presented in order of the strength of their presence in the data and are displayed in Table 4, Themes Ordered by Frequencies, found on pages 99 and 100. Each major theme revealed a number of subthemes. The relative strengths of the major themes and subthemes in the data were determined as a function of the number of participants (sources) who mentioned the subtheme, the number of times the subtheme was referenced (references), and the totals for both of those numbers.

The strongest major theme was curricular methods and pedagogy; this theme was categorized as a student centered theme and is addressed in Chapter 5. Faculty shared a wealth of experiences about the successful use of curricular methods and pedagogical strategies, both planned and spontaneous. This theme included 10 subthemes. They are as follows, in order of their relative strengths: authentic experiential learning; mentoring and role modeling; evaluating student competency; student debriefing; collaboration around common ground; simulated learning experiences; teaching communication as content; peer learning; engaging the other profession in teaching students; and narrative reflection.
The subthemes within this theme clustered into 4 subthemes; authentic experiential learning; faculty facilitated pedagogies; structured methods; and collaborative methods.

The second major theme was the clinical environment, and the influence it had on student perceptions of interprofessional relationships. This theme was categorized as one that describes environments and cultures, and is addressed in Chapter 4. The subthemes in this theme split naturally into 2 clusters, the way the clinical environment positively influences student perceptions, and the way the clinical environment negatively influences student perceptions. Subthemes related to positive influences included quality and safety driven environments, organizational culture that values and supports collaboration, specialized stable teams, and shared values related to excellent patient care. Subthemes related to negative influences included enculturation, civility issues and conflict, poor role examples, and student fear of, or intimidation by, other professions.

The third major theme was the influence of educational program structures and culture which are experienced as limitations or challenges. This major theme was also categorized as one that describes environments and cultures, and is addressed in Chapter 4. This theme included 12 subthemes: programs are in silos; curriculum and pedagogical design challenges and opportunities; interprofessional content in the curriculum; organizational culture and inertia; minimal opportunity for interprofessional student connections; scheduling, matching mastery level; competition for scarce resources; matching student maturity level; saturated or rigid curriculum; the perceived value of “soft” content; and expansive class size. Subthemes in this major theme grouped as 3 subtheme clusters: academic medical center structures and logistics; structural curriculum design challenges; and the organizational culture of the academic medical center.

The fourth major theme was the effect of faculty, engagement, competency, and development on facilitating student development as interprofessional collaborators. This was the third major theme to be categorized as one that describes environments and cultures, and is addressed in Chapter 4. The theme included 5 subthemes: building inter-faculty communication and relationships; faculty engagement and development; faculty perceptions of the value of interprofessional education; faculty workload and
reimbursement; and creating faculty incentives that promote engagement. This theme yielded 2 clusters, which are faculty engagement in the development and implementation of an interprofessional curriculum, and resources essential to support faculty participation in interprofessional collaboration endeavors.

The fifth theme was the influence of external drivers. This was the fourth and final theme to be categorized as one that describes environments and cultures, and is addressed in Chapter 4. This theme includes 5 subthemes: accreditation as a support and driver of curricular change, funding as a vehicle for collaboration, external press as driver, curricular reform, and the use of national models. The theme contained a small enough number of subthemes that they were not grouped into clusters.

The sixth and final theme was the influence of student roles and role understanding. This major theme was categorized as one that is student centered, and is addressed in Chapter 5. This theme includes 3 subthemes: student role identity and comfort, student understanding and expectations of the others’ health profession role, and team building in medical and nursing students.

As indicated, the data analysis is divided and presented in two chapters. Chapter 4 focuses on the 4 major themes that describe environments and cultures that have an effect on the teaching of interprofessional collaboration. These include: influence of the clinical environment; influence of educational program structures and culture; the importance of faculty resources, engagement, and competency; and the influence of external drivers. Table 5, Themes, Clusters, and Subthemes that Describe Environments and Cultures, is found on page 101. Chapter 5 describes student-centered themes. It includes enabling curricular methods and pedagogy, and influence of student roles and role understanding. Table 6, Student Centered Themes, Clusters, and Subthemes, is found on pages 102.
### Table 4

**Themes Ordered by Frequencies**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subthemes</th>
<th>Sources</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curricular Methods &amp; Pedagogy</td>
<td>Authentic experiential learning</td>
<td>29</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>Mentoring and role modeling</td>
<td>29</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Evaluating student competency</td>
<td>25</td>
<td>76</td>
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<tr>
<td></td>
<td>Student debriefing</td>
<td>23</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Collaboration around common ground</td>
<td>22</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Simulated learning experiences</td>
<td>21</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Teaching communication as content</td>
<td>14</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Peer learning</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Engaging other profession in teaching students</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Narrative reflection</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td><strong>Total Sources and References</strong></td>
<td>162</td>
<td>423</td>
</tr>
</tbody>
</table>

**Clinical Environment: Student Perceptions of Interprofessional Collaboration and Relationships**

- **Positively influences student perceptions**
  - Quality and safety outcome driven environments | 24 | 59 |
  - Organizational culture values and supports collaboration | 20 | 62 |
  - Specialized, stable teams | 22 | 73 |
  - Shared values related to excellence in patient care | 23 | 45 |

  **Subtotal Sources and References** | 89 | 240 |

- **Negatively influences student perceptions**
  - Enculturation | 19 | 62 |
  - Civility issues and conflict | 16 | 42 |
  - Poor role examples | 10 | 24 |
  - Students fearful of or intimidated by other profession | 6 | 7 |

  **Subtotal Sources and References** | 51 | 135 |

**Total Sources and References** | 140 | 375 |

**Educational Program Structures and Culture**

- Programs in silos | 22 | 50 |
- Curriculum and pedagogical design challenges and opportunities | 21 | 51 |
- Interprofessional content in the formal curriculum | 26 | 44 |
- Organizational culture and inertia | 18 | 47 |
- Minimal opportunity for interprofessional student connections | 20 | 26 |

Continued
Table 4 continued

<table>
<thead>
<tr>
<th>Factor</th>
<th>Relevance 1</th>
<th>Relevance 2</th>
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**Faculty Engagement, Competency, and Development**

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<td>Faculty engagement and development</td>
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<tr>
<td>Faculty perceptions of value of interprofessional education</td>
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<td>Faculty workload and reimbursement</td>
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<td>Funding as a vehicle for collaboration</td>
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<td>Curricular reform</td>
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**Student Roles and Role Understanding**

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<tr>
<td>Student understanding and expectations of other health professions roles</td>
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<td>Team building in medical and nursing students</td>
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Table 5

Themes, Clusters, and Subthemes that Describe Environments and Cultures

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<thead>
<tr>
<th>Theme</th>
<th>Clusters</th>
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<tr>
<td>Clinical Environment: Student Perceptions of Interprofessional Collaboration and Relationships</td>
<td>Positively influences student perceptions</td>
<td>Quality &amp; safety driven environment&lt;br&gt;Organizational culture values &amp; supports collaboration&lt;br&gt;Specialized, stable teams&lt;br&gt;Shared values related to excellent patient care</td>
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<td></td>
<td>Negatively influences student perceptions</td>
<td>Enculturation&lt;br&gt;Civility issues/conflict&lt;br&gt;Poor role examples&lt;br&gt;Students fearful of or intimidated by other profession</td>
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<tr>
<td>Educational Program Structures &amp; Cultures</td>
<td>Academic medical center structures &amp; logistics</td>
<td>Programs in silos&lt;br&gt;Minimal opportunity for student connection&lt;br&gt;Scheduling&lt;br&gt;Competition for scarce resources&lt;br&gt;Saturated curriculum&lt;br&gt;Expansive class size</td>
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<td>Organizational culture &amp; inertia&lt;br&gt;Perceived value of “soft” content</td>
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</tr>
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<td>Resources</td>
<td>Faculty workload &amp; reimbursement&lt;br&gt;Creating faculty incentives</td>
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<td>External Drivers</td>
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<td>Accreditation supports &amp; drives curricular change&lt;br&gt;Funding as vehicle for collaboration&lt;br&gt;External press as driver&lt;br&gt;Curricular reform&lt;br&gt;Use of national models</td>
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Table 6

*Student Centered Themes, Clusters, and Subthemes*

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<td>Mentoring &amp; role modeling</td>
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<td>Collaboration around common ground</td>
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<td>Engaging other profession in teaching</td>
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<td>Student roles and role understanding</td>
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<td>Team building in medical and nursing students</td>
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**Themes that Describe Environments and Cultures**

**Clinical Environment: Student Perceptions of Interprofessional Collaboration and Relationships**

Faculty experiences with regards to the influence of the clinical environment on student perceptions of interprofessional collaboration and relationships emerged as the second strongest major theme. Two key subthemes surfaced: clinical environments that positively influenced student perceptions; and clinical environments that had a negative effect on student perceptions. Positive environments influencing student perceptions of collaboration were those in which excellence in quality, safe patient care was valued and expressed, and through the modeling of productive interprofessional relationships.
Environments negatively influencing student perceptions demonstrated characteristics consistent with historically hierarchical organizational cultures, including incivility and conflict, poor role modeling, and student intimidation.

Although faculty mentioned positive environments that served as exemplars for students more often than negative environments, students were still exposed to negative environments to the extent that most faculty had made an effort to process with students to neutralize damaging effects.

A medical faculty from Midwest West discussed the importance of the way that students take in and process both positive and negative experiences. I asked about whether medical students had been either a witness to or party to the extremes of excellent or poor interprofessional communication. He responded:

MWM2: Yeah, I think the obvious answer is both, but and you've got to realize students are around during all of these events. The question is whether they're listening. I mean, yeah, they can be standing there, but they could be in Hawaii in their brain while they're standing there. Just because a student is present in a room doesn't mean that they're always paying enough attention that they draw value from that episode, or that they're at the intellectual level that they're even understanding the conversation that's occurring.

**Positively influences student perceptions.** This cluster consisted of 4 subthemes: a quality and safety outcome driven environment; organizational cultures that valued and supported collaboration; specialized, stable teams that were amenable to interprofessional team performance; and shared values related to excellence in patient care.

**Quality and safety outcome driven environment.** Faculty described environments that attend to quality and safety as those where the end goal is optimal patient care. These were environments in which the traditional, hierarchical culture had been replaced by a culture that enthusiastically embraces the philosophy that safe patient care trumps individual position and status. In those environments, health care providers from all professions felt safe raising critical questions about care, stopping actions that might
harm a patient, and engaging in respectful and productive debate about care. In these workplaces, health care professionals understood the importance of collaboration and teamwork and the impact it made on patient care. A medical faculty from Midwest South talked about such an environment, and emphasized the contribution of the physician to team functioning.

MSM1: You realize as a physician your personality can shape and influence just the demeanor or the milieu of the room and the care of the patient and everybody's walking on edge. It still happens, but I think in some nursing environments some nurses, maybe this is just us in general as individuals, is that some people will put themselves ahead of all that in the care of the patient, put them first and say, I'm willing to take it on the chin. You can chew me out. You can do whatever because this is what I know is correct for this patient. We can talk about this. I'm happy to talk about it in a civil way, but if you're not going to be civil you still need to know this information.

A medical faculty from Midwest West told a story about the development of interprofessional rounds in the academic medical center. He and his colleagues found that a number of patient care details were missed prior to the institution of this team approach. The scenario he offered as an exemplar follows:

MWM5: The core reason that we came up with (rounds) was that we were not doing multi-disciplinary care rounds on a regular basis so all the participants could make sure that the care was going properly and that all the issues were addressed before the patient went home. The pharmacists raise their hand and they said, “Well you know, when we reviewed the discharge medications for these patients who have been readmitted, in retrospect they were either missing medications or there were medication interactions or certain medications made them nauseated and then they vomited and got dehydrated and got readmitted, and so if you had talked to us before they were discharged, maybe that wouldn’t have happened.” Right, you think? Because the nurses were assuming the doctors were doing this, and the doctors were sort of assuming the nurses were educating the patients about their medications, but neither side was really doing a good job of it. The best ones to it were the pharmacists.

This scenario occurred in a clinical environment that places a high value on patient care quality and safety. The pharmacist was comfortable having this conversation with the physicians and nurses, which speaks to the positive aspects of this organizational culture.
Another medical faculty from the same institution raised issues relative to the complexity of quality and safety-driven teamwork. In his musings about teamwork, he brought a number of important points to light. One was that patient safety depends on teamwork, another was that the dynamics of patient care are so complex that it becomes what he called, a “ballet.” He also noted that every team member must be fully engaged, all the time:

MWM3: So a patient’s safety hangs on teamwork . . . A lot of it is everyone taking care to let everybody else know what they need to know when they need to know it. To do their work in a coherent way in a kind of a ballet with everyone else. So as frenzied as we are, sometimes I think we feel as though that kind of anticipatory management and information sharing is not my job. Instead we’re all supposed to know our roles and carry out our tasks as fast as possible to—let’s use one example—get this patient to the operating room. Or get this patient out the door on the discharge day. Or get this drug to this patient when they need it for their chemotherapy. Well, yeah, we all have to know we have rules, but almost nothing in these institutions proceeds according to script. You may think that’s an exaggeration, but I don’t. It’s improv all the way.

One key element he pointed out was that teamwork may appear to be procedurally consistent, but in fact it is not. He talked about the necessity for professional judgment, clinical thinking, and as he points out, informed improvisation. He clarified what he meant by “improv”:

MWM3: We’re always in these departures from standard operating procedures . . . nothing is according to script . . . We call it patient preferences or we call it staffing differences or we call it hey, I was up all night last night in the OR (operating room), give me a break today. Or we don’t have full staffing today or I can’t remember the answer to that question.

So it’s never really on script. If it’s not on script, how do we handle the variations from the script? Well, we do that through anticipatory management of variations and information sharing and checking with one another to a okay, a point of—milestone or a point of achievement.

A number of faculty talked about student exposure to clinical environments that have adopted quality and safety values. One nursing faculty from Midwest West summarized how organizational attentiveness to quality and safety can affect student
awareness and influence student perceptions about how teams work to keep patients safe. She talked about a devastating medication error that had been made at the academic medical center some time ago, and how nursing faculty have continued to use the situation as an example of how errors can happen. The error involved a number of different professionals and departments, and as a result, procedural changes were made and the safety environment improved. She talked about that kind of cultural history and its usefulness for teaching students:

MWN3: That was an eye opener of how . . . did that happen. Part of it is communication, dialoguing. It’s not anyone’s fault. It’s like that Swiss cheese effect, the cheese effect where it should have stopped it with the holes in it. Those are teachable moments. I think our students coming in our culture now, they’re kind of aware of the safety issues that we’re trying to deal with.

A medical faculty from Midwest South provided a somewhat different perspective on the quality and safety outcome driven environment and its influence on students. He reflected on the safety procedures that are both policy and part of the cultural norm in the operating room. The safety procedure he talked about is referred to as “time out,” a point at which activity stops so safety checks can be accomplished. He offered a disconfirming point of view about the mechanization of these time outs and the risk that the procedure becomes meaningless.

MSM2: One of them (communication technique), I think, that's come about that are good are the time outs, the checklist mentality, whether it's from day surgery all the way through recovery where there are components that require a certain checklist which is a form of communication. They have been good as a whole, and at least the data seems to show that they certainly have their benefits.

However, when implemented globally, they also, it's almost like a cry wolf mentality where when you're doing multiple time outs a day and it's for the most simplistic of possible events, sometimes they can lose the impact that they initially had. I've seen the good parts of it and a timeout where it works well, and you may actually catch something and deviate, and then you've got the part where people are fatigued by it and it doesn't seem to have the usefulness for maybe that specific case, and then there is a lack of attention by all of us . . . It becomes very mechanical and almost just something you have to get through in order to move on rather than the impact it was probably set out to have, if that makes sense.
This medical faculty member questioned the value of establishing procedure rather than creating a culture in which it is safe for the nurse to call attention to potential safety issues. He also noted that his point of view may not be shared by other physicians:

MSM2: But are you gonna go and change the whole system's timeouts based upon one surgeon's issue? You see what I mean? All of a sudden, it's what really has the – or can you just educate nursing staff to say – but the problem is if you don't make that part of the anesthesia's culture, then really will it ever change?

Organizational culture values and supports collaboration. Faculty talked about their observations working and teaching in organizations that supported collaboration. Organizational cultures that supported conversations about patient safety, and employed methods such as continuous quality improvement (CQI), were mentioned several times. Faculty also mentioned that support for collaboration was sometimes driven by economics; one collaborative patient care team was able to engender support by demonstrating reduction in the length and cost of hospitalization.

A nursing faculty from Midwest South talked about an affiliate hospital as an exemplar for collaboration. She said, “. . . in our community, we have (name of specialized hospital), which is a benchmarking institution for that kind of behavior, and they're living it and breathing it at a very high level.” A medical faculty, also from Midwest South, described his experiences at two other affiliating hospitals. His conversation highlights the differences organizational culture made in collaborative work between nurses and physicians. About the first hospital, he shared:

MSM1: I don’t know if it’s completely just a generation thing, but nursing staff there basically hid from the doctors . . . because they were so mistreated at times by some doctors. . . And they kind of played to the part and it was very challenging at times. You had occasionally, not all them by the way, but in general it was culturally an institution that was so different.

He compared that organizational culture to the culture in the hospital where he currently practices palliative care. In that organization, nurses have voice and are supported in
advocating for patients. The norm is for nurses to engage in conversation with physicians to achieve excellent patient care. He said:

MSM1: Contrast that to (name of hospital where he currently works and teaches medical students) when they came there, they teach their nurses to be real patient advocates and it’s okay to go toe to toe with a physician if that’s going to be in the best interest of the patient . . . I’ve seen some of the most amazing interactions occur where they’re willing to put themselves out there for the benefit of the patient and not—they come looking for you when you hit the floor.

They will come up to you and say, . . . here is what your patient did last night. Here are the issues that active today. Here are the questions that the family has for you. That hasn’t happened for me in any other hospital. . . If people are feeling they’re gonna be—if there's any retribution or if there's gonna be some fall out for you standing up for somebody it's going to squelch any kind of conversation of getting those things. You want to try to promote and foster really that open dialogue you can have with all your medical team.

Another medical faculty from the same institution shared his experiences working and teaching in a culture in an organization that similarly creates a safe environment for nurse-physician conversation. He also talked about how he has integrated elements of this cultural norm into medical student clinical education. He said:

MSM2:. . . it’s trying to build the culture of question asking, because there’s, and again, you know, people get kind of defensive, so when—if a nurse comes up, and I tell this to the students. If a nurse comes up to you and questions your order, you have to understand there could be one of a couple different things, and they’re all good. One is, you know, we all make mistakes. If the nurse says, “I think you’ve ordered the wrong dose here,” go back and check. If you look it up and say, “No, really, this is the prescribed dose,” that’s a good thing, because now the nurse has learned something.

A medical faculty from Midwest West talked about how development of a philosophy of collaborative education has helped to change the organizational culture in the academic medical center hospital. He said:

MWM2: So there you have, using a common platform, a common framework for teaching, and you have true interprofessional education with physicians giving feedback to the nurses, the nurses giving feedback to the physicians, and working from a common perspective . . . Staff satisfaction has gone way up, and it's because there is a true interprofessional spirit.
A medical faculty from Midwest West talked about the intersections between the academic medical center educational environment, and the affiliating clinical environment. She mentioned that those two structures are typically collaborative in most institutions, but may be culturally different, even if both are part of the same academic system. She addressed the relevance of this intersection with regards to the importance and challenges of system-wide culture change:

MWM4: But I would hope that the introduction and emphasis on interprofessional education would change our current system. So it’s not about getting our students up to the point where they can function in what we’ve got now. It’s about making the whole system better, and we haven’t made that leap yet, but I think we’re on that road, but we’re just not there. In an evolutionary way, we’ll get there.

Faculty said institutional CQI teams were integral components of collaborative clinical organizational cultures. One nurse faculty from Midwest South described her work on the institutional CQI team as “a very collaborative effort” that “was just part of the culture. Everybody comes together as a team to work on the initiative and what strategies can we plan so that the activity can take place; planning together as well as move those things out.”

Finally, faculty mentioned that financial drivers can encourage organizational change in favor of a collaborative culture in the clinical settings. A medical faculty from Midwest South had first-hand experience demonstrating that the palliative care team had made a difference in length of hospital stay and cost of care. In this environment, collaborative care also made a difference in nurse turnover; turnover resulted in high costs related to unit coverage and the orientation of replacement nurses.

MSM3: They (the organization) have a financial incentive to allow us (inpatient palliative care) to function as a team . . . From day one they recognized it and so every hospital says alright, what do we need to do to save money? They don’t say it that crassly, but that’s what they’re thinking. That’s what the administrators are thinking.
What do we do to get our ICU days down? . . . What do we do to help the intensive care nurses who keep quitting? We don’t want them to quit anymore. We don’t want them to be burned out anymore ‘cuz that costs us money.

A nursing faculty from Midwest West summarized the essence of a clinical organizational culture that values and supports collaboration. She spoke about her experiences in a clinic setting that exemplified collaboration. I asked her whether she could point to any factor in particular that made the dynamic work so successfully. She said:

MWN4: Good leadership from medicine. Good leadership at the top. The physicians set the pace for that clinic. They made you feel like there was no question that was stupid. There was no contribution that you could make of your own knowledge level that was stupid. There was just very comfortable, except the atmosphere was one of true educational acceptance.

**Specialized, stable teams.** More than half of the nursing and medical faculty mentioned specific specialized teams and units that served as models for interprofessional team performance. Faculty noted that experiences working alongside these teams provided students with rich perspectives on collaboration. Specialized stable teams were found working in dedicated units, e.g. solid organ transplant units, specialized pediatric units, operating rooms, and emergency departments. They were also found in community-based care departments or clinics serving vulnerable populations as well as in palliative care.

A medical faculty from Midwest West talked about his experiences as a member of a truly collaborative team in broad terms, noting in particular the effect this kind of team has on leveling hierarchy with regards to relationships and behavior:

MWM3: Well, if you’re, it seems to me, learning together and doing such things and getting clearer on your questions and the relevance of your questions and your need to know as a group. Then figuring out how you can divide and conquer and bring back what you need to know and network out to find the knowledge that you needed to find and the advice on the resources and materials and so on. Then you’re—there’s different terminology, but you are a learning team. You are a work team. If you’re a work team then that levels—working in an area that
challenges everybody. That pretty much levels any hierarchy, that sense of hierarchy you might have imported.

Faculty in highly specialized fields shared a variety of perspectives on what creates the milieu for collaboration. A medical faculty from Midwest West noted that teams working on specialized organ transplant units have little turnover compared to other units; this stability allows for the formation of strong relationships over time. These teams collaborate to develop care protocols and educate incoming team members. He also compared the differences in team identity between specialized units and a more generalized medical/surgical units, where teams are often fluid and patients present with a broad range of problems. He attributed a portion of the specialized team’s cohesive identity to the complexity of care common to these patients:

MWM5: . . . it’s very difficult to pull off in these more complicated disciplines . . . . There are some teams that work together better naturally because they’re with each other all the time and they’re developing the protocols for care. They worry about how they’re gonna educate their trainees that are coming through, and they tend to be more of these closed units, very sub-specialized . . . bone marrow transplants, solid organ transplants.

We seem to do better oddly at this very, very specialized stuff, whereas the general patient, the woman with a broken hip, the man with pneumonia or the guy with pneumonia, right, that’s more difficult for us to pull off because it involves folks who don’t normally work together very closely getting together and figuring out the care for that patient, and the 20 other patients they gotta take care of that day.

Two nursing faculty from Midwest South shared their experiences working in highly specialized pediatric settings, which included a burn unit and a neonatal intensive care unit. These settings required extraordinary depth of understanding of patient problems and nursing expertise. One nursing faculty talked about the hospital organizational culture and how it supported nurses in one of these settings:

MSN4: What I admire is that the nurses at that location are so highly specialized in their knowledge that when a physician—a resident comes through, or an intern who—I mean he’s already a doctor and he’s getting this as part of his training. It is quickly explained to him that if the nurse says this needs to be done you will
listen to her. . . The organization culture says our nurses have that expertise, cuz it is something where that is all they do.

I asked how physicians and residents responded to nurses taking the lead, and she responded “wonderfully.” Physicians typically ask the nurses on this unit what they think about diagnostic tests or laboratory blood values, because they think of the nurses as experts. The nature of the care itself sets up an environment that both supports and requires collaboration. Another nurse from Midwest South described how the nurses set up a teaching environment around the patient’s care:

MSN7: Well, in the NICU (neonatal intensive care unit) environment, for example, nurses who would grab the resident and say, "Come here. I need to teach you how to do this." "Come here. Let me help you with this." And it was more of a collegial relationship, where the residents—there was no hierarchy, so the residents were free to consult with the nurses. There were nurses, physician fellows, physician residents, nurse practitioner fellows, nurse practitioner residents and then attending, all in the same environment.

The absence of hierarchy and close teamwork as characteristics of specialized stable teams was mentioned regularly by both nursing and medical faculty who were familiar with these environments. A medical faculty from Midwest South had this to say about the emergency department:

MSM2: I’ve always had this bias we probably have a better team working in the emergency department than some other areas, because we’re truly working side-by-side throughout the shift. I mean kind of the old school traditional model in the hospital is the physician team comes in, rounds on the patient, they go to the, you know, the nursing station area, write some orders, flip the flag, and walk out. Then the nurses have to implement the physicians that the orders that the physicians just gave. It’s like this edict from above, and it’s not truly a collaboration. . .

A nursing faculty from the same institution confirmed that the emergency department demonstrated characteristics common to specialized stable teams, and created a positive clinical environment. I asked her about whether spontaneous opportunities for nursing and medical students to learn together ever arose in this type of clinical setting. She responded:
MSN2: Have spontaneous opportunities for nursing and medical students to learn from each other or work together arisen? I think my students see that quite a bit with their preceptors, especially if they are in a critical care setting or in the Emergency Department. . . I think that because they are all learning together and so they kind of come together in patient care and ask questions and learn about patients together and all contribute to say, rounds or something like that. . . .I think not so much on the Med/Surg Units and that’s just by virtue of the nature of the work there.

She also talked about the distinctive nature of the work in specialized settings.

The nursing faculty who spoke about these settings talked about the differences in the nurse/patient ratio, which is much higher than on general units. In specialized units this ratio allows the nurse more time to focus on an individual patient, to engage in conversation with the physician, or to focus on student’s learning needs.

A nursing faculty from Midwest North talked about the operating theatre, another specialized environment. She described it as a positive environment that allows the surgical team to build relationships, and is structurally amenable to interactions between the surgical team and students:

MNN3: I’m thinking, I mean, again, in the OR environment, it is a much more relaxed environment, so students do have conversations with the physicians. I think the physicians engage in that very freely and I think enjoy it ‘cause they have more time there. . . I mean, the physicians are multitasking, so as they’re operating, literally, and some are more skillful than others as far as being able to dissect tissue or stitch or cut or whatever it is they’re doing and still have the conversation with the team that’s up at the field or the team that’s in the room.

Community based departments or clinics that focused on the care of underserved populations also demonstrated characteristics of specialized team performance. Faculty talked about a variety of community-based programs, including inner-city projects and rural gerontology programs. Several of these involved service learning. The common thread in community teams was that most health professionals involved in this kind of work were mission driven. Also, most students who sought out these clinical experiences, which are often offered as electives, shared that mission. A medical faculty from
Midwest South talked about a unique community-based student project that demonstrates this thread:

MSM3: . . . one of our faculties started a free clinic for the backstretch workers at the racetrack of all places. You might only have six people that want to see you, so you’re there with a nursing student and a medical student, and a physician. You look at those six people and you ask the same questions. How can we help these six people, and who wants to learn something about that? Right?

Palliative care teams were also mentioned; faculty described palliative care as an extraordinary model for interprofessional collaboration. A medical faculty from Midwest South affirmed what others had to say about specialized care and applied those perspectives to palliative care and hospice teams:

MSM3: I think are actually rare models of true inter-professional teamwork in medicine. I can’t, at least in terms, I know there are pockets of really good inter-professional teams in hospitals and ICU’s (intensive care units) and geriatrics, there are pockets here and there in the country, but if you ask the question ‘are there inter-professional teams that are functioning at a high level in a systematic, in some systematic way, throughout the healthcare system or non-system depending on politics, in the U.S.?’ I think you’d be hard pressed to come up with anything other than, anything better than or more wide spread than hospice as a model. . . Palliative care it’s really by definition what we do.

In response to my question about why palliative care is a team by definition, he replied:

MSM3: Why is it a team? Well, I think it starts with two things. It starts with the needs; the kind of patient and family needs that we are trying to meet. That’s number one . . . The patient and family needs in palliative care are complex and include physical, medical, bio-medical, physical and chemical treatment needs, psycho-social needs, spiritual needs, planning needs and for in terms of discharge planning and support at home or in the nursing home or wherever the patient’s gonna go.

Number two that starts with a definition of the philosophy of care. Those are the two drivers. I don’t think you can force an inter-professional team unless you have those two things in place.

Finally, specialized teams that stayed together shared a common characteristic, and that was mutual respect between the professions. Both nursing and medical faculty
reflected on experiences as members of interprofessional teams in which every member’s contribution was respected and appreciated. A medical faculty from Midwest North talked about his experiences with students in a community-based public health outreach program where the mutual respect held by staff triggered student reflection on collaborative behavior:

MWM3: So what they learned then was if you’re engaged in health development, what needs to—the expertise doesn’t live in a single discipline . . . I think they acquire a respect for the capacity of the other. To discover, invent, to improvise, evaluate, to adjust. . . . They acquired some understanding of how their differences actually create capacity rather than their similarities. So their differences mean that they have certain built in propensities that you can play to in teamwork circumstances . . .

At first it’s just doing away with all stereotypes in the face of challenge. Then it’s working together. Then it’s—along the way, there’s usually some friction and disagreements. Then it’s really discovering capacity.

This faculty noted that mutual respect is neither automatic nor simultaneous. Rather, it is built out of continued exposure to one another, and is a process of mutual discovery about what the other can bring to the table.

A medical faculty from Midwest South who is a member of a palliative care team talked about the importance of mutual respect as a team value. He affirmed that mutual respect develops over time. He also pointed out that mutual respect neutralizes the effect of culturally learned status and hierarchy. He said:

MSM1: What we have really, I think, accomplished on the scene over this first year is that everybody respects everybody’s skill sets. We’re able then to have very open discussions about what this patient/family needs . . . There are no egos on this team. It’s just you’re able then to really accomplish, I think, far more because you know your own strengths and weaknesses and what you’re comfortable with and you can apply that . . . I think one of the fundamental values that’s there is just that in this group is that we value each others’ skills, and we recognize those.

It doesn’t have to do with what your prior background was, what your pedigree is. It has nothing to do with what position you play on the team necessarily and so those types of attitudinal things are gone.
Faculty said a climate of mutual respect helps to shape a clinical setting into one that is a positive learning environment for students. Mutual respect, particularly physician respect for nurses, is more prevalent now than in the past. A nursing faculty from Midwest West noted that physicians’ respect for nurses as knowledgeable members of the healthcare team is growing, and that she has seen this change in attitude demonstrated in the clinical environment. She said:

MSN4: I think medicine is seeing that the nurses really, they're pretty knowledgeable in what they do. They've done it maybe for – some of our nurses are very experienced and they've done it for a while, so when they say this patient's not doing well, you know, physicians are saying, "Wow, I'd better respond to that."

In summary, faculty found that specialized stable teams created a milieu in which interprofessional collaboration is modeled, and promoted a natural development of collaborative skills in students. Characteristics of these environments included strong team relationships and mutual respect, a common mission, and an intensity around the complexity of patient care that promoted a depth of expertise. Although these characteristics were described using stable teams as exemplars, several faculty talked about another kind of team that shared the same characteristics; these were the teams that came together for time-limited mission-driven projects, such as international immersions. International immersion experiences are addressed in Chapter 5, in the subtheme describing authentic experience.

Regardless of the nature of the specialization or circumstances, these teams provided rich opportunities. One medical faculty from Midwest South summed up the importance this holds for student learning:

MSM3: I'll come back to my original comment; one of my first comments is that I think the best kind of education is driven by a practice model that’s in place; where the learners simply come alongside the practice model that’s in place.
Shared values related to excellence in patient care. The final subtheme in the patient-care focused environment cluster is about settings where common values were lived out by the health professionals in that setting. Faculty who had had experiences in workplaces that prioritized excellence in patient care talked about the difference this made in interprofessional collaboration. Common elements included development of positive, strong relationships with the other profession, responsiveness to one another’s needs relative to patient care, and patient-focused teamwork. The more complex the environment, the greater was the need for teams to share patient-goal oriented values.

One medical faculty from Midwest South said, “I cannot imagine taking good care of all those needs for these complex patients without a team.” A nursing faculty from the same institution affirmed that philosophy, and related those values to the student experience:

MSN5: I just feel like we all need to work for the patient . . . I think we need to gear our nursing students to realizing their place as a team member is really vital but you’ve got to know what your place is by the patient bedside so you can be a good team member; a good unit team.

A medical faculty from Midwest West also noted that awareness of shared core values is one means by which the status hierarchy can be neutralized. I asked him if he thought there was a way to overcome status hierarchy in the academic medical center. He responded:

MWM5: Oh yeah, yeah, yeah. If you remind people that these are people that take care of patients and they have the same core values. They want to do a good job and take care of patients and feel valued for the work that they do. If you just keep reminding people of the values and the mission of the two groups (they say) oh, they’re kind of the same aren’t they?

I found his mention of reminding people about the values and mission curious. I followed up by asking whether he thought the two groups understood that they have the same core values and the same mission. He responded:

MWM5: Oh, absolutely not; absolutely not. I think . . . if you sat them down and made them think about it and made them list—if you ask the doctors what do you think the nurses’ core values are, I bet they’d list these things. I don’t know what
the nurses would say about the doctors but I bet eventually they’d finally conclude that most of their doctors want to take good care of the patients and are hard-working, that sort of thing. They don’t think they consciously think about that that much.

Another aspect related to shared values was discussed by a medical faculty from Midwest North who practices in the affiliated Veteran’s Administration (VA) facility. She talked about the common core VA mission as a driver for patient care and interprofessional collaboration, although she noted that there is some variability depending on individual practitioner personality and style. Our conversation about this follows:

JL: You’re talking about physicians at the VA are sort of used to this because this is how you do it here.

MNM4: To a much greater extent.

JL: What is it about the VA that sets up such an environment that allows for team to be accepted, important, work better here?

MNM4: I want to be clear that there is tremendous variability. There is one thing about the VA; we are a social mission driven place . . . Many people here come because they know it has a critical social mission . . . The easiest way to get people to cooperate is to focus on the patient.

Faculty mentioned that goal-driven communication demonstrated characteristics of shared values. Faculty noted that nurses and physicians who valued interprofessional relationships tended to communicate with each other in such a way that patient outcomes were paramount. That kind of communication was visible to other staff as well as students, and contributed to a positive clinical environment. A nursing faculty from Midwest West described such an environment:

MWN4: . . . I see it every day here, downtown, and also in outlying healthcare settings, where the nurses are concerned about something that's going on with a patient and they bring that to the physician's attention. I think for the most part the physicians are very open and are willing to listen to the nursing staff about what their concerns might be. I think that's especially amplified during what they call rounding on the units.
I think there's – and I think that's why we do rounding because I've noticed that the nurses are encouraged to be present when a physician's, the various services come around to check out the patients for the day, that there is discussion back and forth. The doctors will ask the nurses, "What's happening with this patient? Can you give us a little synopsis of what's gone on today?" The nurses do that, and then the physicians kind of incorporate that information into their discussion. I think that there's excellent communication.

Her description showcased the fact that effective interprofessional communication was reciprocal. The nursing staff is with the hospitalized patient 24 hours a day; medical staff see the patient less frequently, often only once or twice a day. Physicians need current information about the patient’s status from the nurse, and nurses are equally dependent upon the physician to update the medical plan of care. Their patient care goals are the same, but without the acknowledgement of interdependency through collaborative communication, the goals could be left unmet.

A medical faculty from Midwest South talked about how much he appreciated nurses who communicate effectively. Physicians often see patients in a number of different facilities, and must be available for consultation all hours of the day and night. An efficient and competent communication style helps the nurse succinctly convey vital information to the physician, who can in turn prescribe appropriate medical interventions. Medical faculty in particular appreciated excellent and considerate communication with nurses, and said that it fostered the development of a trusting professional relationship.

He shared this example from his experience:

MSM5: When there's a good nurse, and frequently there is a good nurse on call in the afternoon shift, because that's when we get most of the calls between 6:00 and midnight, it's just when we get calls. We don't get too many calls after midnight. Between 6:00 and midnight, the effective nurses are able to not only organize each call, like you said, and have very specific requests, but also they pool them together.

Instead of calling every 15 minutes, they'll collect five or six questions and they call once and get it all done at once. It's just such a pleasure. Then there's another facility . . . that has really high level nursing. Those nurses, they're just always right—they know exactly what's going on and it's really helpful.
A nursing faculty from Midwest South told a compelling story from her experience involving a staff nurse, the student nurse, and a surgical resident. Both the staff nurse and student were relentless in assuring the physician had the information needed, and that he listened to what they had to say:

MSN2: I had a student who was taking care of a patient . . . on the Telemetry Step-down Unit. The patient developed really bad pain in his back and it didn’t go away with pain medication. It didn’t go away with repositioning or anything like that. She was doing her assessment and she heard an abdominal bruit and went to her backup nurse and the backup nurse listened. We knew that there was something going on. We thought it was an aneurysm. They paged the intern or resident and he didn’t want to come right up right then.

They were persistent and my student was persistent. Something wasn’t right and finally he did come up and was like, “Huh?” When he listened, he was like, “Oh my God.” So, fortunately, they sent the patient off for an MRI real quick and he went off for emergency surgery and it was a good outcome, but it was one of those where you really had to be persistent because the guy wanted to just sort of, eh, poo poo it. It’s just a nursing student sort of thing.

(The staff nurse and the student were) Relentless, absolutely relentless because ultimately the surgeon said that if it had been ignored, it would have ruptured . . . I use that story when I talk about aneurysms in class to reinforce to my current students how important it is to be persistent sometimes.

In this scenario, the fact that the staff nurses were persistent demonstrated that goal-driven communication was modeled in that clinical environment. Faculty mentioned that this kind of situation may not have been as powerful for the student if the faculty had been the one doing the role modeling; students often perceive that faculty express the ideal rather than the reality of the health care environment.

Although faculty mentioned a number of incidences that model strong, goal-driven communication, most agreed that there was room for improvement in the clinical environment. Students were often witness to interprofessional dynamics where goal-driven communication was poor, ignored, or the conversation was rudely aborted by one of the parties.
Negatively influences student perceptions. Environments that negatively influenced student perceptions clustered together. Four subthemes emerged. These are: enculturation; civility issues including conflict; poor role examples; and situations in which students are intimidated by the other professional.

Enculturation. In this context, enculturation referred to the process by which physicians and nurses are emotionally embedded and invested in the historically hierarchical paternalistic culture, practices, and values of health care. Faculty shared a number of situations that they personally, or their students, had been exposed to that were representative of this kind of culture. Faculty said that nurses, depending on their generation and history, were generally more sensitized to the negative valence of the traditional hierarchical medical culture than physicians. Nursing faculty noted how nurses often participated in the perpetuation of these cultural norms. However, many of the medical faculty participants in this study referenced this kind of enculturation, and talked about being a part of the solution.

In this context, a medical faculty from Midwest South referred to physicians as the “weak link” in the interprofessional team. I asked him to explain what that he meant:

MSM5: I think by tradition physicians have been thought of as being the leader of the team or the dictator of the team. . . . I hear this from other professions all the time. I hear from nursing. There are plenty of nurses that will tell me, don't tell me the doctor's not the leader of the team. I can't do anything without his order or her order. They're the ones that write the orders. I hear that from nurses.

They're predisposed to thinking of the physician as sort of being the leader. The physicians are kind of predisposed to thinking they are the leader. If the personalities are right, they can work fine or it can be very counterproductive. I'm not interested in working on a team with a nurse that's too passive. Most nurses are not interested in working on a team when the physician is so authoritarian that they can't get any opinions in or use their professional skills.

Another medical faculty and administrator from Midwest South is engaged in active medical practice and also holds a leadership role at an affiliating hospital. He talked about the stories he has been privy to in his position on the medical executive
committee that exemplify traditional hierarchical cultures. He shared some stories, and speculated on the possibilities for change in organizations where this kind of attitude is entrenched:

MSM1: I've heard stories. I sit on the Medical Executive Committee at (hospital). We hear stories about nurses and we review cases. We hear stories about nurses who are hesitant to call this one physician late at night because he's always going to ream 'em out. If that's the pattern of behavior that's there then it's not—the patient's the one that gets really caught. We're trying to avoid that I think in this system as much as possible so you know, this is what we have to do . . . Well, you know, you wonder about attitudes too. I’ve been here long enough that I realize that yes we’ve clearly had some attitudinal shifts that were more open to team based care models and things like that where it’s being talked about heavily.

I think still, you know I can’t help but wonder, if there are still these attitudinal barriers that are still going to hinder what you’re after in terms of collaborative and inter-professional.

A medical faculty from Midwest North talked about the culture of hierarchy and power in the academic medical center. He added the idea that competition within the medical and healthcare team contributes to the perpetuation of traditional cultures in health care. I asked for clarification, and whether he was aware of competition between teams having an impact on patient care outcomes. He talked about this in terms of a struggle for control:

MNM1: I think that they tend towards more negative patient outcomes than positive. When they—there is this more competitive hierarchical thing, it’s not competing to see who gets the best patient care done. We’re competing to see who’s in control and who has to do the most work. That’s an unfortunate thing about inpatient medical training and part of why then part of the group that campaigns towards more ambulatory training as well. Particularly since it’s only a minority of physicians that spend most of their career in hospital settings . . . The physicians believe that they’re in a hierarchically more important position than the nurses and therefore, they’re in charge. The rules of the hospital tend to support that physicians issue orders and nurses need to ask permission to do virtually anything in many hospital settings.

Medical and nursing faculty both talked about the historically dependent position of nurses that is gradually changing in most organizations. A nursing faculty from
Midwest South talked about this in terms of associated nursing behaviors. She also talked about her experiences in the faculty role in an enculturated organization. She observed that her relationships with physicians were substantively different and more collegial than the relationships between physicians and nurses employed by the hospital. She reflected on that dynamic, and attributed the difference in physician behavior to the way in which she engaged them on behalf of students and in the context of creating a learning environment. Our conversation follows:

MSN7: A lot of the communication between physicians and nurses in practice were not positive. It was a very hierarchical organization and it had not even been that long since nurses would vacate their chairs when a physician came on a unit. I mean, there were still nurses there who would wait on physicians hand and foot. So it was a very strange environment from that perspective, that the nurses who were working had this very—and the physicians would round with only the charge nurses. But whenever I had students there, there was a very open environment for teaching.

JL: Do you have any thoughts about how to account for that?

MSN7: I think it was probably more related to faculty being very assertive about making sure students had experience and faculty being proactive with that collaborative communication that maybe didn't necessarily transition to the staff nurse.

Faculty said they had seen an evolution in medical centers toward healthier cultural norms. A medical faculty from Midwest North talked about her own experiences noticing the culture shift, first as a medical student, and then during her years of practice and finally as faculty. She described a professional culture that is as difficult and complex to navigate for physicians as it is for nurses, and talked about its emotional subtext. She shared and reflected on the story of her experience with a great deal of humility and emotion:

MNM2: . . . there's one other thing that I didn't touch on that I was about to say about nursing and medicine. Because I was talking about what I noticed in the wards. First of all, I knew about the denigration of nursing by doctors, culturally. . . You could see how much anger there was in the nursing profession towards medicine and you saw how commonly it was taken out on medical students who
were at this to use the child parent metaphor, at a very vulnerable stage. It's that culturally because medicine is such a strong culture, nursing too. You are as if you are a child at those early stages because everything that you eat and drink you're dependant on that. The models that you see are in the way that it is when you're an infant. Socially, culturally, it's such a rigid and defined culture that you're suckling and wanting to do a good job.

The nurse is doing those, I've seen it this critical hostile kind of stuff, and the medical student is, she's mad because that attending just treated her with disrespect. Not everyone okay, but I saw that dynamic. It's understandable, it flows over time. That's an interesting theme. We have to acknowledge this cultural evolution. We talked about how it's a little better in medicine in some. We have to acknowledge this cultural evolution.

Later in the same conversation, she talked about underpinnings of cultural norms in medicine, noting that it “. . . emphasizes knowledge to the exclusion sometimes of other things. Both in terms of the care we give to patients and also in terms of our perspective about ourselves as providers. They are reciprocally and neutrally reinforced.” She added that scientific knowledge is the gold standard point of view in medicine, and talked about the consequences of that trajectory of cultural thinking in terms of what it does to physicians; it creates a personal and isolated sense of responsibility. She talked about the meaning of this framework in terms of interprofessional collaboration:

MNM2: As a consequence of that overemphasis on what you know and another aspect of this it goes on with a maternal, paternal. This notion of fixing it, solving the problem, doing something instrumental. The unfolding and elaboration of our science over the years with our discovery gives the sense that there's something that can be done to fix it and if we're not doing that something we just haven't discovered it yet.

. . . Most of this is about doing a good job. One of the consequences of that is that you feel like it's all up to you. Up to you as an individual, like you're the one that has to fix it, you're the one that has to solve it. If you don't do it, you're not a good doctor. You cannot ask for help.

A medical faculty from Midwest West shared a story about a medical student who saw the value of the gaining an insider perspective of nursing, and received the support of his faculty to voluntarily shadow a nurse. This is an anecdote, told to the faculty by the student. His lived experience provides a moving exemplar of the cultural divide between
nursing and medicine, and a testimony to the level of enculturation that still exists in academic medical centers:

MWM4: We had a student who was . . . very interested in shadowing nurses and trying to make that shadowing experience a required part of the first or second year Introduction to Medicine course. So he did this. It was his own initiative, and he connected with a nurse. He reported back to our committee where there was—it was a committee on lifelong learning. He was telling us that he shadowed as a—he was a medical student, and he shadowed a nurse.

The nurses at first didn’t really know what to do with him, like why does this student want to do this? Then they were pretty welcoming and they helped him. He said it was very interesting because he was in a hospital where there were other medical students, right?

The medical students knew him, but when he was with the nurses in that shadowing experience like doing the same thing the nurses do, which he was surprised at the amount of work that they have. He was just totally shocked at the amount of work.

The medical students didn’t even talk to him. He said they didn’t make eye contact with him. Nobody asked him what they were doing. It was like these two separate worlds, and he had never lived that before.

He thought it was just amazing, and that every medical student should have that opportunity, and really pushed for it. So now . . . it’s not required, but students can do that if they choose.

Faculty talked about the visibility of the clinical culture to students who are attentive. Faculty said both medical and nursing students were aware of hierarchical archetypes. A nursing faculty from Midwest North described the notice taken by a team of medical and nursing students during a discussion in an interprofessional course. She said:

MNN2: It was interesting because we did in the course of the summer at the end a kind of debriefing, not debriefing but it was a discussion section where the students identified this. They identified that medicine was more paternal in that archetypal way.
I asked for clarification, not being sure whether she was talking about only the medical students, or the team of students representing both medicine and nursing. She affirmed that the team, including both medical and nursing students, had taken notice. In addition, faculty said nursing and medical students also noticed the disparity between existing hierarchical cultures in the clinical settings, and collegial cultural norms being created within the academic environment by faculty committed to collaboration. A medical faculty from Midwest West spoke about this dynamic within the context of the press for curricular reform, and mentioned that part of the press for change actually originated from the student body:

MWM4: I think our students may quickly get to the point where they go, we’re creating an interprofessional culture here that’s not mirrored in the clinical years, so what’s up? So our students are actually pushing us to make changes in the competencies, and I’m hopeful that our students would push us to make changes in culture, although I guess I would hope we would be proactive enough to be mindful of that, but I think our students will demand it if we don’t.

Another medical faculty from Midwest West emphasized the importance of the clinical environment in cementing student attitudes about interprofessional collaboration. Our conversation follows:

MWM1: What I would say is that although a focus on medical and nursing students is valuable, an equally if not more valuable focus is on how physicians and nurses, practicing physicians and nurses, interact with one another. It’s the lived experience that the students observe in the clinical context, or even in the academic context, that is going to set the stage for what they do with one another.

JL: So they see their role models and they mirror that behavior.

In the experience of the faculty participants, traditional hierarchical cultures still exist, in at least some form, in academic medical centers and affiliating health care organizations. Faculty from both professions and their students frequently experience, or are witness to, behaviors and attitudes representative of traditional enculturation. Faculty agreed that the clinical environment is an essential part of the students’ formation of identity, role, and sense of interprofessional collaboration.
**Civility issues and conflict.** Incivility and open conflict in the clinical setting influenced students, and concerned faculty. A number of faculty said students were either witness to, or a victim of, incivility. Half of the faculty in this study talked about situations that had occurred in clinical settings in which students were involved, either directly or as a spectator. Most of the faculty who reported instances of incivility noted that they occurred in clinical settings where enculturation in the traditional hierarchical norms continued to exist. Faculty mentioned that their experiences with incivility and conflict included open hostility that was either directed toward nurses by physicians, or intraprofessional, e.g. nurse-to-nurse. Faculty did not share any experiences involving physician-to-physician hostility, or hostility directed toward physicians by nurses. Several faculty mentioned that a number of clinical facilities have developed zero tolerance for incivility policies as a result of this kind of behavior.

Most commonly mentioned were behaviors faculty often referred to as “old school” or “old guard.” Typically, stories involved physicians yelling and screaming at nurses, or throwing objects. A medical faculty from Midwest South described this kind of behavior, making note of the fact that, in the past, these behaviors were tolerated and almost expected:

> MSM1: There’s still some physicians who have, you know, I think the whole professionalism is kind of sweeping, all the medical executive committees and credentialing. Now you have . . . core competencies for medical staff; professionalism is one of them. They're moving toward kind of zero tolerance for physician's disruptive behavior. There's still some old guard, out there. This is what you do as a physician in this specialty. You throw things and you just get upset. You blow up and you know you have nurses that are going to call 'em on it.

Medical faculty participants who mentioned these behaviors often did so with a sense of incredulity and chagrin, but acknowledged that some of the “old guard” still tended to behave this way. This faculty noted the movement to zero tolerance for disruptive behavior, a theme that was addressed repeatedly by other faculty as well. The second kind of incivility was intraprofessional. One nursing faculty said that her students had witnessed nurses fighting on a clinical unit. This nursing faculty used the
situation as a learning opportunity, and talked with her students about appropriate professional conduct. She also said that students had witnessed disruptive behavior between a nurse and physician in a public venue. She said:

MWN1: Whereas I think some situations, our students have experienced—I know one was two nurses fighting on the unit, and screaming at each other, which was a great post-conference discussion for us about professionalism, and doing that in front of family.

Also, I know that they’ve seen struggles between nurses and physicians actually fighting it out in the hospital setting in front of other people, instead of carrying it out (outside). Where they came back and told a story that why didn’t they go—the physician takes the nurse into a separate room to discuss it instead of screaming at her on the floor and in front of family, patient, other staff members. So we looked at it in two different ways, and they each went around the room and gave their opinion of what could be done in this situation.

Nursing faculty also talked about nurses who avoided uncivil physicians, by either finding creative alternatives to calling the physician, or leaving patient care needs unmet. The following conversation is with a nursing faculty from Midwest South. She described a scenario in which nurses chose not to call the physician for a pain medication order as a way to avoid conflict, talked about the consequences for the patient, and how she processed this incident with students who took part in the aftermath:

MSN7: I think more of the negative experiences were not directly between the students and physicians or nurses, but interactions that the students observed between nurses and physicians. So for example, the nurse, post-surgical unit where patients would always be in excruciating pain when we came in at 7:00 in the morning because the night nurses refused to call physicians for pain management in the middle of the night.

JL: And why were the nurses refusing to call?

MSN7: Because they'd been berated for making 2:00 a.m. phone calls.

JL: Were you able to process that with students?

MSN7: Um-hum. (affirmative)
JL: What were those conversations like?

MSN7: Well, we talked about, okay, what is the effect on the patient? What is the nurse's role? Who is the nurse the advocate for? And what is your responsibility ethically, legally, standards of care. I actually used that scenario and I teach a law and ethics class here and I use that scenario in that course. And we do some role-playing about how do you call the physician at 2:00 in the morning, when they're angry and they—or how can you be proactive? How can you, as the person who's here in the evenings, address and maybe protect the night shift from having to make that 2:00 a.m. phone call?

This nursing faculty took advantage of the scenario as an opportunity for teaching students about how to deal with incivility. This particular situation was so useful that she incorporated the story into her classroom teaching, using role playing as a pedagogical method to enhance student confidence in their communication skills when engaging with physicians.

Finally, another nursing faculty from Midwest South told a story about a particular physician who exhibited uncivil behavior as his norm. In this story, the nursing faculty, who knew and had worked with the physician, was “ready” for him. Her story follows:

MSN5: Now that same physician and I had actually one or two kind of negative conversations. This particular physician was in the frame of mind if he didn’t want to be interrupted he didn’t want you to interrupt him. I had something very important I needed to discuss with him and he started yelling at me and actually threw something at me. I said, “I am not going to stand here and take this kind of abuse. When you are in a mindset to talk to me rationally and civilly I will return.” I turned around and walked away.

JL: Is there a rest of the story?

MSN5: The rest of the story has to do with not too long after that the institution actually looked into the civility, I guess, within the work place maybe a year later. I did report it within my department and that person took it on up the scale or chain of command. There were some repercussions.

JL: How did the physician react to your statement and your actions walking away?
MSN5: At first I think he was shocked by it, but then actually later that physician actually thanked me for doing what I did.

This story had two positive messages. First, although students could be exposed to incivility and conflict in the clinical setting, experienced faculty had the wherewithal to help students put the experiences into context and develop coping skills. Secondly, faculty said this kind of behavior has sparked organizations to create policies to deal with incivility.

**Poor role examples.** Uncivil behavior by physicians and nurses served as exemplars of poor role modeling, however faculty shared a number of stories about nurses or physicians serving as poor role examples for students in other ways. Poor role models encouraged perpetuation of the tension between medicine and nursing, undermined the other profession in the presence of students, and modeled unprofessional behavior, some of which had possible patient care consequences. In this first conversation, a medical faculty from Midwest North talked about outdated attitudes some physicians hold about nurses’ scope of practice. He also mentioned that some nurses hold on to these same attitudes. Our conversation follows:

MWM1: There’s another cohort (of physicians) who were taught that they were supposed to treat nurses in certain ways and that taught a more restrictive role for nurses then is being taught today. Those people are often in attending roles and have no motivation or desire to change their attitudes.

JL: And they are modeling for the incoming (medical students)?

MWM1: Exactly. That sort of tension between medicine and nursing is sometimes also role modeled by senior nurses who are angry or bitter about the way they’ve been treated and the opportunities that they’ve had. You do run into that with faculty people sometimes.

A nursing faculty from Midwest West also talked these attitudes and behaviors. She shared that some of her faculty colleagues used the classroom as an opportunity to vent their anger and bitterness toward physicians. She said:
MWN1: I think that is a big problem with the faculty. I could say definitely at this school. That we tend to say negative things about physicians in the classroom, and I don’t because I have a very—I don’t think that that helps.

Students witnessed physicians and nurses who modeled unprofessional behavior. When students saw it happen, it had an impact on them even if it was an isolated incident. In this story from a Midwest West medical faculty’s experience, the medical student who was witness to the behavior wrote about it in his narrative reflections.

MWM1: There's a story from last week which I find really upsetting. A third-year student found himself in the midst of a . . . $20 bet between two residents, on whose patient would die first. . . And so the conversation, the student who wrote it, who is anonymous unless they step up to the plate and say, "I wrote that story," the question is where would you draw the line? Where would you say, "This is inappropriate. We are not about betting on death."

JL: What was that tone of that conversation? Could the students figure out where there was a line?

MWM1: Yeah, I think several of them said, "I don't care if I get a bad evaluation. This is just inappropriate."

The medical program at Midwest West uses narrative reflection with faculty-led group debriefing as a pedagogical method. This method allowed students to reflect and process with other students, and provided faculty with an opportunity to discuss what constitutes appropriate professional behavior.

A medical faculty, also from Midwest West, talked about factors that might contribute to or account for poor role modeling. He did this from his point of view as a busy faculty member and practicing surgeon, and suggested that even excellent role models have moments of fatigue or frustration when they are not at their best. He said:

MWM2: I think medicine is different in the sense that the, between call responsibility, sleep deprivation, everything else, you've got days when you're undulating. You've got three cases that are deeply involved and are very – but at the same time, you've been triple booked.

Another medical faculty from the same institution took that explanation a bit further. He explained that he saw a conundrum with regards to the kinds of clinical experiences required to prepare medical students as generalists. From his experience, he
saw the most exemplary teamwork occurring on highly specialized units, e.g. solid organ transplant units. On those units, physicians and nurses work together in teams, developed relationships, and have a firm handle on what constitutes evidence based practice for their unique patient population. They are some of the best role models for collaborative practice in the clinical environment. However, he explained that it would be inappropriate for students in the early part of their learning, essentially any time during their pre-licensure phase of education, to spend a bulk of their time on specialized, rather than general, units. His discussion about these factors offered some explanation about the kind of role modeling students see on the general units:

MWM5: Here’s the rub, the medical students and I think the nursing students, too, train in general discipline because you don’t want them too specialized when they’re starting out. You don’t want them to know the details of bone marrow transplantation or neurosurgery. You want them to know principals of surgery and obstetrics, pediatrics and adult medicine and that sort of thing.

We put them on the general inpatient units where the care may or may not be as coordinated and where the nurses, you know, there may be a six to one nursing ratio, so the nurse is racing around much of the shift, passing meds, putting out fires, taking care of crises and the doctors have 20 patients a piece and they’re racing around the hospital all day and then going off to clinic. They’re hoping that the medical students and nursing students learn the right way to interact based on that. Well, guess what, maybe they’re not, maybe they’re not.

It is clear from these stories that students are exposed to poor role modeling and are influenced by what they see in the clinical setting. Also, that the best environments for role modeling may be the clinical areas to which students have little or no exposure because of their specialized nature. However, most of the faculty who talked about poor role modeling used strategies to help students process the experiences.
Students fearful of or intimidated by other profession. A final subtheme related to negative influences was fear of, or intimidation by, the other profession. Six faculty mentioned this as a problem, however, the weight of the effect of intimidation was emphasized by the faculty who spoke about it.

Faculty noted a range of student perceptions with regard to intimidation. A nursing faculty from Midwest South talked about the most simple and least destructive example of students intimidated by physicians. She said, “I have seen that where a nursing student maybe was timid about sharing information with the physician or timid about asking questions of the physician.” One of her colleagues shared those experiences, and said, “I see students very intimidated by the physicians.” Another nursing faculty, from Midwest West, talked about intimidation by staff nurses rather than physicians; she has witnessed staff nurses bullying medical students:

MNN2: I found interesting too that medical students feel that the nurses bully them when they’re in their first year—when they're residents on the floors that the long term older nurses. They won't let them in their lounge; they won't let them drink their coffee. I find that interesting that everybody's feeling this. Couldn't we all just work more collaboratively?

A medical faculty from the same institution talked about her perceptions of the way both medical and nursing students are sometimes mistreated on the clinical units. She noted both the way staff nurses treat medical students, and the reluctance of nursing students to approach physicians. She said:

MNM5: In some ways sometimes I unfortunately see that people are surprised, med students are surprised when the nurses are very nice to them. Yeah. They are like oh she was really nice. There is this sort of like – you have to mention it because it’s no longer an expectation. That’s unfortunate I think because it shouldn’t be – it should be sort of like well that’s expected that people are nice to each other. They’re like oh she was very helpful and that tone of surprise in the voice is like that’s kind of bittersweet.

It’s very interesting. Just an example that I would give . . . we did the root cause analysis things with the med students and the nursing students we started talking about some stuff and things that came up. What was interesting was the med students said they were petrified of the nurses on the wards.
The nursing students were like we hate approaching the doctors. They’re like are you kidding me? It was like one of those moments where the nursing students were shocked to hear that the med students were actually scared of the nurses. They were like you know when we go to the nurses they sort of look at us like don’t waste my time. . . . It’s one of those things where I think the nursing students were sort of surprised to hear that the med students were actually scared of people and vice versa.

I think the exact example was something like we went into the room – the nursing student started talking about how all the docs went into the room and they shut the door behind them and they didn’t want anybody in on the conversation. The med students were like no, we shut the door because by HIPAA you can’t talk with the door opens. It was just one of those moments like oh, it wasn’t as personal as I thought it was.

This medical faculty made several surprising points. First, that the medical and nursing students shared common perceptions about the other profession, and second, that both medical and nursing students were surprised by knowing they had that in common. An additional revelation was the fact that physician compliance with privacy regulations was misunderstood by nursing students; knowing this helped the students to understand that the physician’s behavior was protective rather than exclusionary.

A nursing faculty from Midwest West talked about her experience in the simulation laboratory setting with nursing and medical students. She said students shared that their exposure to intimidating or uncooperative behavior in the clinical settings caused anxiety, and that they anticipated the same kind of behavior would occur during simulation. She said:

MWN1: Also, I think in our simulations what we’ll often do is our nursing students—when they first start the interprofessional simulation with the medical students. They’ll start out and the debriefing thing, I was really scared because I thought you were going to really be threatening to me and be mean basically. They saw the collaboration. So they’ll talk a little bit about how doctors expect nurses just to do what they want, and they yell. Then, but they said it wasn’t like that.

However, I also have the medical students then speak up as to how they’re treated on the units when they’re trying to get information on a patient, and how nurses
are not very nice to them. How they are often afraid to speak up to the nurses because they know they’re not going to be helpful, and be actually nasty to them. So I like to bring up that conversation sometimes.

This faculty works to make the simulation laboratory debriefing room a safe place for open discussion. Other faculty also talked about helping students process and learn skills to help them become more stress-hardy in the clinical environment.

**Educational Program Structures and Culture**

The influence of educational program structures and culture was the third strongest major theme. The subthemes formed three clusters: academic medical center structures and logistics; structural curriculum design challenges; and organizational culture of the academic environment.

A medical faculty from Midwest West talked generally about academic medical center structures, logistics, and challenges associated with incorporating IPE. He said that teaching collaboration comes down to modeling and changing behavior, and that repetition is vital to behavior change. He felt the structure of the typical academic medical or nursing program did not allow for the time or opportunity to do this justice, to the extent that student behavior change occurs. He said:

MWM3: What to put in, how to make it successful. How to make it work. Then I think—and we talked about this at our school a lot, is in the end changing behavior is really hard and it’s all about repetition. It is really about repetition. It is just so much about having enough—doing it again and again. It’s really difficult, at least I think, to set up enough opportunities to really think we are changing behavior. I think we are making—hopefully we are getting med students and nursing students to be more aware of each other’s professions and more respectful of each other’s training. But is this going to change when they get into the ward settings or the office setting and will the behavior—I don’t know. I don’t know if that’s going to change.
Academic medical center structures and logistics. Subthemes in this cluster included: that medical and nursing programs are structured into silos; that students had minimal opportunity for student interprofessional connection; scheduling; competition for scarce resources; a saturated curriculum; and expansive class size.

Programs in silos. Most faculty mentioned that educating students for collaboration presents a number of challenges related to the distinct separations between nursing and medical programs. Although faculty felt as though they were geographically separated, nursing and medical programs were in close proximity to one another on all three campuses, generally within a block or two. One institution, Midwest West, had some physical spread between buildings; part of the medical school was located next door to the nursing school, but other medical school buildings were driving distance away from the main academic medical center area. Perhaps more importantly, the curricula were totally separate, except for the few planned interprofessional experiences. In the case of Midwest North, the curriculum elements that were interprofessional were integral to the joint IPE grant. One medical faculty at Midwest South noted the silo’d structure, and the implications for opportunities to create organizational change:

MSM1: I think well, there's probably a couple things that I think are still there. One if you're asking for a cultural change and you have to create the opportunities to get the people together to discuss these things. Right now our education is silo’d and until you start to be intentional about it I don't know how far we're going to get. It's still probably going to be haphazard in terms of whether we hit the mark or not, but the siloing of the educational experience I would say, is probably the biggest one right now.

Another medical faculty from the same institution talked about silos in response to my question about factors that hinder collaboration. He said:

MSM2: Well, I think the initial barriers are the fact that we teach in silos. I’m sure that’s not news to you. That’s actually one of the things we’re trying to do with our new—this is just an aside. With the new curriculum, you know, we don’t—and we’re not the first people to do this by any means. We’re behind the game. You know, traditionally, it’s like you learn pathology in the pathology course. You learn physiology in the physiology course. Now, we’re just going to move to organ blocks. It’s not the domain of one person or one department. It’s just
everybody is getting together to teach the subject matter at hand. You know, so here it’s like, you know, you’re in the College of Medicine, so you’re learning medicine. Medical students expect to learn it from physicians. Then over across the street, you have the College of Nursing. Soon to be nurses are learning from the nurses. They don’t communicate or interact that much really hardly at all.

You know, the hurdle to overcome is, you know, we need to start doing more things collaborating in an organized fashion. One of the biggest impediments is just time.

The effect of physical and curricular separation was also noted by a medical faculty from Midwest South. He talked about his experience with a year-long faculty scholars program involving students from multiple health professions programs on the Midwest South campus. He noted that, “. . . so many people had never been to the other schools, even on the same campus and didn't know where the other buildings were.” A nursing faculty from the same institution also discussed the physical separation, although on this campus the medical and nursing programs were separated by only two blocks:

MSN1: . . . they are a couple of blocks away. There had been conversation at one point that the pharmacy students, the medical students, and the nursing students would all be in the same building. Like with different entrances so that there would be a common library. There would be common shared labs, like simulation labs.

I asked her whether that separation translated at the curriculum level, and she replied, “I guess it would be that we’re an independent college. That there is no crossover of any type.”

Other challenges around the silo’d structure included allowing faculty time for collaborative work, scheduling of collaborative experiences, and logistics. The issue of scheduling will be addressed separately, but this medical faculty from Midwest West included mention of scheduling in his comprehensive discussion of the problems related to silos. She also noted that these challenges are seen across the country:

MWM4: One of the things that I’ve heard that is that it was very challenging at first to just create these experiences. It was challenging in part because we have different schedules, different systems. You think that smart people could work out logistics, but it really is a challenge. I was at a national meeting, just this past
week, and that was the biggest issue for everyone in the room, all the medical schools that were there. . .

It seems too silly, but the structures are very different. At least here, nursing is set up on a semester basis, whereas for us, rotations are monthly.

The silo’d structure extends beyond the walls of the academic institution, and is replicated in the academic medical center and affiliating hospitals where students have their clinical experiences. A medical faculty from Midwest North described the extent of the physical separation between nursing and medicine that occurs in the clinical setting as well:

MNM3: Then I think the challenge in the clinical setting, patient care at the hospital is I think—as long as nursing has their room, and they do their sign out in their spot; and medicine has their room and do their sign outs in their spot, nothing is ever going to happen. So somebody needs to break down these buildings.

I found this very curious, and asked her to verify that I understood her to say that nurses and physicians have separate work spaces to do their charting. She replied:

MNM3: Oh, yeah absolutely. Yeah until we have a combined room where everybody is together, I think we are going to have problems. So there you go.

**Minimal opportunity for student interprofessional connection.** Faculty talked about the minimal opportunities nursing and medical students have to learn together, either in the classroom or in the clinical setting. Although this was related to the fact that the academic programs were in silos, most faculty focused on the minimal opportunities students have to connect in the clinical environments rather than on the academic campus. The only environment faculty said was regularly used for interprofessional learning was the simulation laboratory. However, in one institution, Midwest North, nursing and medical faculty were engaged in a grant-funded IPE project, so the opportunities there were more plentiful and varied. Even at Midwest North, however, students had minimal interaction unless it was structured within the grant project.
Nursing faculty noted that differences in the ways nursing student and medical student clinical experiences were structured had an impact on how the two interact. A nursing faculty from Midwest South said that medical students and nursing students might be in the same patient room at the same time, but that their different purposes and approaches formed an invisible barrier to collaboration. The medical student will often come into the room to take a history, perform a physical examination, or to ask the patient a question; the nursing student is focused on the skills-oriented nursing care. She noted that those moments are more parallel than intersecting. She said:

MNN2: For the most part, the (nursing) students don’t have a whole lot of interaction with them (medical students), except to maybe get what they need done so that the medical student can go in and do what they need to do. They don’t seem to have a whole lot of interaction.

Nursing faculty also talked about occasions when medical students are present on the unit. Medical students typically round with their physician faculty. During rounds their role is more observer than participant. A nursing faculty from Midwest South said:

MSN5: I don’t recall that many direct (interactions) between the medical students and the nurses that I’ve seen . . . I think they often—the medical students are kind of standing back and the nursing students are sometimes are kind of standing back so they might look at each other . . .

Another nursing faculty from the same institution offered a similar scenario from her experience. Our conversation follows:

MSN7: Usually if there's a faculty around, it's a group of medical students and they may be doing patient care conference or rounding on their patients. If I see them individually, it seems like they're there either collecting patient data or doing some kind of task.

JL: Okay. So if you see a medical faculty with a group of medical students, is there ever an opportunity to bring the student nurses into that or is it usually very separate?

MSN7: My experience has been that it's been very separate.
Other nursing faculty comments confirmed that this was the norm. A nursing faculty from Midwest West said that even when nursing and medical students do have a conversation in the clinical setting, the exchange is usually short, and focused on meeting their separate needs for information. This faculty said:

MWN1: Maybe with medical students, but I don’t see, on the hospital units, I don’t see—sometimes I see the nursing student and the medical student talking together, but I usually don’t. It’s unusual I would say, and I’ve done clinicals for a long time. The medical student—we were talking about this in the conference—the interchange might be, “Where’s the chart?” That’s all that you ever hear them. That’s all that was being exchanged.

Two nursing faculty from Midwest West proposed explanations for the lack of opportunity for nursing and medical students to interact. The first faculty reflected that the structure of their experiences is very different, and suggested that:

MWN2: I think there are other things that hinder them. I think for them it’s more about time, when they are, and where they are. Typically, a nursing student is on a unit, the same unit, for X number of hours, taking care of some number of patients. Now they can do, of course, go off the unit and do other things, but by and large, when they’re there, that’s what they’re doing.

A medical student is going to only occasionally encounter a nursing student in that situation because they’re making rounds with somebody. When they are doing a clerkship, they’re in a clinic maybe part of the time. So they are never in one spot for very long. That is a hindrance to them crossing each other’s paths.

A second nursing faculty from Midwest West independently offered a similar explanation. In essence, student nurses are in one place, with one patient or a set of patients, for the whole clinical day, whereas medical students are mobile and follow their physician faculty on rounds. She explained:

MWN4: I think that the nursing students are pretty focused in what they're doing, and then the doctors, the medical students kind of are tagging along with the various teams, and very honestly the medical students probably don't have the opportunity ‘cause they're with a team of people that are coming around and they're expected to keep moving with their team, and the nursing students are stationary.
I guess what I should say is the nursing students are stationary on a unit following their patient care assignment, and the medical students are kind of moving around with their service.

The same nursing faculty reported that she occasionally witnessed patient-centered discussion between medical and nursing students. She offered an example:

MWN4: I've seen nursing and medical students interact. Like the nursing students will ask the medical student, "I'm listening to, trying to hear breath sounds. Would you mind listening and then tell me what you hear?" They try to help each other out.

A medical faculty from Midwest North who is involved in the interprofessional grant-funded project affirmed that the current clinical education structure is very traditional, but offered insight into the grant team’s plans to change that. In response to my request that she describe typical medical student clinical experiences, she responded:

MNM3: . . . they are very traditional. That is very traditional. I think we are trying to break into the rounding in the hospitals a bit. Part of this grant, which hasn’t come yet, is going to be on the inpatient service and there is going to be a med student and a nursing student paired together. I don’t know who’s gonna be whether it will be nursing and a physician supervisor, but they will have a few shared patients so they will round together on those patients, and they will be asked to do some reflective narrative on the interactions.

Faculty talked about the influence of collaborative relationships between nursing and medical faculty as a factor that influences student opportunity for interprofessional collaboration in the clinical setting. A medical faculty from Midwest South mentioned that he had had a long-standing professional relationship with a nursing faculty member who has retired. Since then, no one else on the nursing faculty has stepped in to fill that gap, so his relationship with the nursing program has ebbed. Our conversation about this follows:

JL: Do you know if student nurses ever come together with those teams when they’re rounding or? What kind of interaction have you seen?
Well, over the years it’s typically more—there hasn’t been, up until very recently, I’ll get to this, but up until very recently we have not had kind of a formal invite to the nursing staff to participate in our teaching service.

A nursing faculty from Midwest North went a step further in suggesting that opportunities for nursing and medical students to collaborate must be strategically planned and faculty-created. She said those opportunities do not occur naturally in the clinical setting. She explained:

They had—I mean I think in general in this setting they are not often—not often on the floor together. They're not often in a situation where they are communicating. We're trying to create situations for them to begin to communicate with each other.

In summary, faculty shared that nursing and medical students had little opportunity to interact with one another in the clinical environment. When they did interact, it was often for the purpose of asking quick and pointed questions, e.g. “where is the chart.” Spontaneous, substantive and purposeful interactions between the two were uncommon, but faculty who intentionally and strategically brought them together said they could make that happen. Finally, collegial relationships between nursing and medical faculty with an interest in encouraging student interaction was important for creating intentional collaborative learning situations.

**Scheduling.** Faculty in both nursing and medicine, from all three institutions, talked about the logistical difficulty involved in scheduling joint experiences for medical and nursing students. A number of factors contributed to this difficulty. One is that nursing and medical programs do not follow the same academic calendar. Nursing programs follow the academic calendar that is common to the university, but medical programs follow their own calendar, usually based on “rotations” or “blocks.” A nursing faculty from Midwest West described this difference, saying that, “They have different rotations. We’re on the semesters. They have different rotations. They have different breaks. Their spring break is different from our spring break. Their fall break is different from our fall. . . So, they run through the summer.” A medical faculty from Midwest
South described the same issue in that institution, and said the schedule was a barrier. He said, “Well, I think the—one thing has always been . . . (the) schedule. Even though we're going to semesters, we still won't be on the same schedule. Medical school is always going to be on a different schedule.” One of his colleagues noted the logistics problem this presents, and talked about the potential impact on interprofessional experiences if some connection between the schedules could be formed:

MSM3: How do you even find one half day when they can be in the same room together? It's tough. Putting lock step schedules in place somehow so that there are common times would be, at least on our campus, would be a huge barrier that would come down.

Medical faculty from Midwest South had found a way to cope with this problem by scheduling interprofessional experiences on Friday afternoons and Saturday mornings. Those were the only time slots that both students and faculty from the two programs were not already committed to classroom or clinical experiences. Faculty spoke to the level of commitment necessary to engage people during those time frames; it requires that both faculty and students give up their weekends.

Nursing faculty also identified scheduling as a major hindering factor. One nursing faculty from Midwest North talked about the importance of her relationships with medical faculty to collaboratively solve this problem. As a result of conversation with her medical faculty colleagues, an interprofessional experience in psychiatric mental health experience was developed that solved a clinical placement issue for the medical program, provided an IPE opportunities for nursing and medical students, and further cemented the relationship between the medical and nursing programs. She talked about this creative solution; our conversation follows:

JL: Structurally, are the medical students and the nursing students on the same kind of a schedule or are the medical students on blocks?

MNN1: No, they're on different kinds of schedules.

JL: Okay. So does that make it more difficult?
MNN1: Um-hum. . . It makes it more difficult . . . because they don't have—they educate more like—they have mentors and they have preceptors that are working . . . we have educators that come in and do that. And . . . these are the kinds of things that just come up, they've had trouble getting their med students in psychiatric mental health experiences and I'm not really sure why. But, you know, we said, "Hey, well maybe what we should do is embed them with our nursing students," you know?

We wouldn't have known what issues they had until we started meeting together. So to me, that's really the key, is that you have to really desire to do something about this. You have to believe that it's going to make a difference for patient outcomes down the road.

This solution also served a need for the medical program to build relationships with the psychiatric mental health clinical facility leadership.

Another nursing faculty from Midwest North described the complexity of scheduling logistics, as well as the importance of both commitment and collaborative problem solving. She said:

MNN5: We try to say look around you, who can you tap into; who can you work with. We did a little exercise when we spoke to this other medical school and I blocked out on a piece of paper take 15 minutes and find someone, it’s a dinner meeting (and we are around the) table. Who could you work with? What do you share in common that your students, what do you teach? Write one objective, one strategy, how would you evaluate, just real quick.

I think you just, you have to be committed. You have to be committed and if you believe in it strongly enough, you’ll overcome the logistics which is the biggest challenge. Scheduling, we’re finding that even though we’re doing pilots and some voluntary things eventually it’s gonna have to be required or especially for the med students. You just have to say to them this is really important.

A very practical method for coping with scheduling issues was offered by a medical faculty from Midwest South. When he writes grants for interprofessional experiences, he hires a coordinator to execute the logistics. He said:

MSM5: I would say, again, to get down to the nitty gritty, a lot of interprofessional training activities are just enormous scheduling nightmares.
When I write a grant to create a new piece of curriculum, I put most of the money into the person who's going to coordinate everybody's schedules. I don't pay the faculty much, (Laughter) but I pay the coordinator a lot, and I put a lot of her time into it. Because from my experience, it's just a laborious communication, endless communication.

While faculty from every institution agreed that scheduling was a problem, there was also agreement that solutions were difficult to institute. A medical faculty from Midwest West summarized this, and said, with a touch of humor, “You think that smart people could work out logistics, but it really is a challenge.”

**Competition for scarce resources.** Another factor that influences growth of interprofessional collaboration between medical and nursing programs is the academic business model. The common budget model is revenue based, and further segregates schools or colleges into silos. This makes collaboration across programs financially challenging and forms an environment ripe for competition rather than collaboration. A nursing faculty from Midwest South, also a program administrator, shared her experiences with budget issues:

*MSN3: There are always resource issues, time issues, equipment issues, who pays for what, how much time do you spend do you spend down there, how much time do I spend up here? While I think people all want to be collaborative you still have to be cognizant of resources and how these resources are being utilized because we’re not one—we’re all one (university), but we’re not all one revenue stream. We’re not all—these things go into different accounting pools and how money comes out and who pays for what. I won’t say it’s a barrier, but it’s a consideration.*

Even more complex than business models is the philosophical stance of academic medicine with regards to financial drivers. A medical faculty from Midwest North talked about how the focus on research and access to large financial pockets drives the direction of medical education. Combined with this is the notion that the program controlling the most abundant funding maintains its position at the top of the hierarchy in the institution. The best funded programs in the academic medical center were invariably housed in medicine, rather than nursing or other health professions. He said:
MNM4: I think the primary impediment to improving quality in healthcare, which includes interprofessional practice and training for same in academic medicine. I don’t think it’s the only impediment by any means. Big pharma. Insurance companies. The fact that healthcare’s not really designed to provide healthcare but to move money around from one set of pockets to another set of pockets. Those are all important but it’s academic medicine and it’s academic medicine because of the mindset of academic medicine which still in research intensive medical schools in particular, pushes research over everything. Medicine is a science as opposed to an art or as opposed to both and that the physician is on top. It’s still very much physicians rule.

The fact that medical schools are usually the best funded in the academic medical center did not go unnoticed by nursing faculty. A nursing faculty from Midwest West expressed exasperation and a degree of professional jealousy, noting the importance resources make in terms of motivation to change current practices. She said:

MWN2: The School of Medicine has never seen a reason to change their own practices, and why should they? They’re in charge. They have the money, they have the facilities. Any new building you see going up around here is a result of the School of Medicine’s reach financially.

Faculty representing programs in public institutions talked about the competition to obtain revenue in the current economic climate. This was even more important at Midwest North, the private institution that exists without the benefit of state subsidy. Because of competition for resources, faculty said much of the interprofessional collaboration that did exist between nursing and medical programs was voluntary. These efforts were often spearheaded by a small group of committed faculty. A nursing faculty from Midwest North said funding that compensates faculty time was virtually nonexistent, even when external grant funding was involved. Faculty compensation was not written into the interprofessional grant in which she is currently involved. She mentioned, however, that as interest grew, faculty who had to that point been uninvolved began to see the press to integrate interprofessional collaboration into the curriculum. She also mentioned that academic leaders keep watch on the budget regardless of the source of income. She captured this dynamic, and summarized by saying:
MNN3: Yeah, so that is kind of exciting to me, and my only reason in saying this is nobody is going to say no to this now. I think we can—and we will be looking for volunteer faculty to facilitate the groups. If there was a cost involved, it would be a different story.

In addition, a nursing faculty from the same institution spoke to the way the survival-focused competitive dynamic plays out in the grander scheme. She shared her experiences in this regard:

MNN4: Well one barrier and it seems odd that it would interfere with interdisciplinary function and particularly the students but I think everything filters down and one is that the schools, this is a private institution. There is no state funding. It's not like administration gets money and doles it out to the schools. Every school earns its own money . . . With tuition, research, donations and so on. So what we live on is what we earn. It means—it promotes, I think, the existence of these silos because we are all independently getting our own money. It promotes some isolation so we are very silo’d.

Another nursing faculty from Midwest North speculated on the advantage of military models in which everyone is organizationally under the same umbrella, therefore structurally moving in the same direction.

In summary, faculty who talked about resources said the silo’d business model structure undermined faculty motivation to collaborate and that it set up a competitive environment. The faculty who have worked collaboratively in spite of this structure have generally done so by cooperatively obtaining external funding, or because organizational leaders have promoted collaboration despite university business structures and rules.

**Saturated or rigid curriculum.** A number of faculty specifically spoke to issues associated with their efforts to include interprofessional collaboration content or experiences into an already full curriculum. Faculty described their curriculum as “full,” “saturated,” “overloaded,” and “dense.” A medical faculty from Midwest South described this succinctly, noting that, “One of the biggest impediments is just time. You know, it’s like we’d love to add new things to the curriculum, but, you know, how much can you add?” A nursing faculty from Midwest West had much the same perspective, and
offered, “Of course you have those problems with what I would call the additive curriculum. Nothing ever comes out, but we keep packing stuff in.”

Faculty talked about their experiences with colleagues who are attached to the importance of their own content and specialty areas. A nursing faculty and administrator from Midwest South talked about her own experiences with faculty attitudes and priorities, and how that affects prioritization of new or added content in an overloaded curriculum. She said that the college of nursing where she is employed is very open, but that prioritization still had an effect on the curriculum structure. She also noted that prioritization of new or added content is influenced by organizational champions. She said:

MSN3: I think you always have faculty attitudes and priorities. Where would this fit on everybody’s agenda of the things that they would like to see? Where would the faculty attitude be related to this in order to move it forward? Otherwise, if it’s not seen as a priority and you don’t—maybe a champion doesn’t emerge or the champion can’t perhaps get people rounded up and following in behind it, that can certainly be a barrier . . . Of course your content is always as important, or certainly as mine.

A different thought on saturated curriculum was raised by another nursing faculty from Midwest South. She talked about the difficulty in finding balance between the value of collaborative experiences and traditionally taught nursing care. Faculty who ascribed to a nursing skills-focused curriculum were unlikely to embrace an approach that integrated interprofessional collaboration:

MSN7: I think another thing is probably just oversaturation of the curriculum and time, faculty time. How do we do everything that we do and then add more; even faculty valuing the collaborative experiences when what has so traditionally been valued is the skills and the patient contact. We've gotten so focused on patient contact that we've forgotten that there's a whole other piece to it.

An innovative way to approach the challenge of the saturated curriculum was offered by a medical faculty from Midwest West. Many of the faculty interviewed described the curriculum as a collection of content elements, but some also talked about the efforts toward curriculum reform. This medical faculty described his ideas about
balancing the teaching of science and evidence with the teaching of systems and processes:

MWM3: (Clinical medicine) . . . It’s a stochastic representation. So I really think that science should be taught as principles instead of as facts. There are relatively few secure facts. We ought to surface the secure facts at a high enough level so that they are secure, but teach it as a set of principles, and even as errors that have been made, and how people will change their minds. Then the students will know that today’s science is just temporary knowledge . . . I would like us to actually have the students understand that everything is a complex responsive system, which if you tweak it here, changes there. So all organizational performance and unit performance and team performance is similarly a complex responsive system of interaction and that the question is not whether we get it right because we have the right ideas.

Well, half the world works very well as a linear cause and effect environment. It’s very well understood. The other half of the world, the other half of everything that is real doesn’t— isn’t well understood in that way, but you have to kind of get in the midst of it and get messy to really see that.

His description of the way in which clinical medicine is taught is consistent with the way the teaching of nursing was described. The rigidity with regards to the teaching of facts was described by faculty as one of the factors that contributes to a saturated curriculum – the notion that everything must be taught to the students. His point of view, that knowledge is temporary, and that everything is a part of a complex responsive system, suggested there is a way to overcome the saturation and rigidity of the curriculum through innovative thinking.

*Expansive class size.* Faculty said the large numbers of students in medical and nursing programs contributed to scheduling and logistics challenges. Faculty who mentioned the influence of student numbers on their ability to engage students in interprofessional collaboration experiences were from the 2 public institutions, Midwest South and Midwest West. Although only 6 of the 32 faculty talked about coping with large numbers of students, the weight of the burden to solve the problem of making experiences reliably available to all the students was significant enough to mention.
One medical faculty from Midwest South described a creative way he managed to expose a large number of second-year medical students to other professions in a way that offered an introductory understanding of others’ roles on the health care team. He and his colleagues scheduled an interprofessional training day for medical students who were about to enter the clinical part of their education. He invited faculty and students from 9 different health professions for an afternoon. They set up booths, and held what he called a “team fair.” Students were able to engage in conversations with the participants, and learn about what each profession could do for patients. The size of the class was the challenge. He said the volunteer response was fantastic. He talked about this experience:

MSM5: Yeah. There was no—I didn't have any money to pay them. This was all volunteer stuff. I had nine disciplines participate, and great faculty came. They really had a good time. I said, we did it in two parts because the class—the medical school class is 170 people, so we did it in two hour blocks with half the class. I said, I'm going to ask you to do this 18 times in the afternoon. Only a crazy person would accept something like that. I've been to conferences where somebody asked me to do something twice or three times, but 18 times.

In both public institutions, faculty coped with the large numbers by making some, if not all of the interprofessional experiences elective. Midwest West’s medical program integrated an informal elective in which medical students shadowed nurses. There had been discussion among medical faculty in that institution about expanding the elective to include professions other than nursing, for example pharmacy, physical therapy, and others. The numbers simply made it impossible. A faculty from that institution said:

MSM3: Anyhow, so we’re systematizing what was kind of an informal elective for shadowing . . . it would be lovely if there ways to get other disciplines into this, but on a large scale basis, we just can’t. We have more than 300 medical students and so it’s not a trivial matter to get them in the first year. In one year. We have about 1,100 medical students overall.

Another issue associated with the size of the student population relates to the clinical affiliates. Clinical sites were reluctant to take on more students, or expand the hours and units available to current students. Clinical site representatives in charge of scheduling students talked about being “saturated” much the same way faculty talked
about the curriculum. Specialized hospitals, such as children’s hospitals, draw students from their own state and often neighboring states. This nursing faculty discussed her experiences with those factors, but suggested that one way to overcome the issue of student numbers is to be convincing about the potential benefits for the clinical site. She said:

**MSN7:** And I think that also goes along with partnering with the clinical agencies too and having them see that that's a valuable experience for students, because one of the issues that you see with so many students trying to find clinical placements for so many students is that the clinical agencies are saying, "No, you're not going to do those extra things. You need to stay on your unit, because we can't control all of this—there are so many students." We need kind of a paradigm shift, I think, in how we conduct clinical, not just in nursing.

**Structural curriculum design challenges and opportunities.** Subthemes in this cluster include: curriculum and pedagogical design challenges; the appearance of interprofessional collaboration in the formal curriculum; the matching of mastery level in mixed groups of medical and nursing students; and the matching of student maturity levels in mixed groups of medical and nursing students.

**Curriculum and pedagogical design challenges.** Faculty faced a variety of challenges related to curriculum and pedagogy design. Some of the challenges were associated with means to advance the interprofessional curriculum agenda. These included aligning the inclusion of IPE with the department strategic plan, and coping with the complexities of curricular reform and redesign. Other challenges were related to creating a collaboration-friendly learning environment for students, and designing pedagogy to bridge the gap from theory to practice. In addition, the rationale, advantages, and disadvantages of timing interprofessional experiences early or late in the students’ education were discussed.

The idea of organizational culture and inertia will be addressed in a later section, however it has implications here in terms of curriculum design. Faculty who participated in this research were enthusiastically involved in creating an interprofessional climate between the nursing and medical programs. However, they often described their position as curriculum design change agents as “on the edge” or “fringe.”
At Midwest South, both the nursing and medical programs were undergoing major curriculum revisions, so had the support of their colleges to approach curriculum redesign creatively, and in a way that aligned with the national press for interprofessional collaboration. A nursing faculty and administrator from Midwest North shared a similar experience, and talked about the association between the nursing quality and safety initiative, which integrates interprofessional collaboration, and the departmental and university strategic plans. Alignment with the university strategic plan was used as leverage for curriculum redesign. She said:

MNN5: One element of our strategic plan was that we would integrate quality and safety throughout all programs over the next five years of the strategic plan. As things rolled out, my program was one of the ones that we started kind of with the pre-licensure.

Also, in the strategic planning, kind of in that same section because it had to do with education, was a goal that we would enhance our interdisciplinary interprofessional education. That reflected an overall goal of the university, strategic plan, to promote more collaboration among different disciplines. We had kind of mirrored that, so we had those two things in there.

Medical faculty from Midwest West also approached curricular redesign strategically, basing the new model on a set of competencies that are aligned with their accreditation requirements. This faculty member and administrator talked about the process they used to involve faculty as partners; the competency requirements were instituted into the medical school curriculum first, then into graduate medical education and lastly continuing medical education. This created a critical mass resistant faculty could no longer ignore. She also discussed the method they are using to manage curricular redesign in a large public institution which includes a number of branch campuses. Our conversation follows:

JL: So, those competencies are now embedded in the curriculum all the way through the four years?

MWM4: They are. We’re going through a new curricular reform process now. What we did was we adopted a willing partners model because our system is so complex. When we first started looking at the competencies (for medical
students), there was a significant group of faculty who said, “That’s just a fad. Those competencies—that fad will fade away.” When the ACGME, which is the residency program, when they adopted the competencies and now continuing medical education is adopted competencies for board recertification, they’re sort of here to stay, and people recognize that. . . Now we’ve realized that the system we created was a—we had a traditional curriculum, and we overlaid the competencies on that traditional curriculum using a willing partners model. That’s no longer sufficient. We need to be more intentional about embedding and integrating the competencies.

The same medical faculty member, who is one of the two non-physicians from Midwest West, also felt that collaboration between medicine and nursing on the curriculum redesign team is necessary if IPE is to become a part of the fabric of the curriculum. She said:

MWM4: So we have someone from the School of Nursing. We have education folks like me, and we have clinicians . . . We couldn’t meet the interprofessional—one of our guiding principles, without having folks on our teams.

Faculty also talked about the challenges of creating a learning environment that is truly collaborative. At Midwest North, the medical and nursing faculty have jointly designed and cooperatively facilitated classroom experiences. A medical faculty from Midwest North talked about her observations of this learning environment:

MNM2: . . . They really have a learning environment now. This is different from, this is beyond the scope of what we're talking about with interprofessional education, but I love what she has done and what colleagues are doing. They have small group learning where the vessel for the learning is among the students. They identify stuff they don't know and go out and find the answers and bring it back and share that with each other, with faculty guides. That truly is getting at that same thing . . .

By definition you get this notion that no we don't know it all. That's the whole point of learning. To shift it back to interprofessional education because you were asking the question of two things. You said well when does it start? I say right from the beginning because who I am doesn't match what it feels like I'm supposed to learn.
Two additional aspects of her observation are noteworthy. First, she made the point that this kind of collaboratively created learning environment is not usual in medicine. A separate observation was that these experiences are scheduled early in the curriculum; she felt this was essential.

Another curriculum and pedagogy design challenge was around bridging the gap between theory and practice. A nursing faculty from Midwest West who participates in interprofessional simulation experiences talked about the difficulties involved in helping students make the cognitive and behavioral transition from the simulation laboratory into clinical practice. During our discussion, she raised a number of cogent questions to which she had no immediate answers. Our conversation follows:

MWN2: So I think a huge challenge is—see, and it’s tempting for people to say, “Well, look at all this interdisciplinary education.” Yeah, I’m looking at it. How many students do you process through there? How does that touch them to the extent that they actually learn what you think they should be learning?

JL: So they’re hitting the tip of the iceberg, but they don’t have the depth because they don’t have the consistent exposure? Is that what you’re saying?

MWN2: Yeah, you can’t. Right. So if they have a simulation here, and maybe they have another simulation over here, what happens in the middle? I mean what’s connecting these two experiences, if anything? If you’re not identifying, yeah, it’s interesting to talk to physicians. They have a different point of view about what’s going on with a patient. I find that interesting. Blank.

How do you—if we can’t figure out a way to build on that, all the simulation in the world isn’t gonna help us because no one student will ever get enough of it to make that transition from “That’s interesting” to “Oh, I know how to do that.” That’s the huge challenge.

Faculty mentioned strategies that create collaboration-friendly learning environments and served as means to bridge the theory-to-practice gap. These included immersions, such as international experiences, peer learning, and modeling interprofessional collaboration during students’ clinical rotations.

Several faculty were involved in international immersion experiences. They said
it was common practice to integrate the principles and practice of collaboration into this experience by encouraging peer learning. A medical faculty and administrator from Midwest South talked about his experiences with students on these trips, which came early in the medical students’ education. He said:

MSM1: They’re asking questions and they’re kind of more at a peer to peer experience so you get ‘em early and hopefully, that translates into breaking down communication barriers down the line by having them work collaboratively during their formative years they get appreciation for the different roles and what each person actually brings to the care of the patient.

I asked for clarification about what he meant by peer to peer learning in this context. He replied:

MSM1: Well, let’s say that you’re checking blood pressure and things like that. You’re trying to verify things or verify physical signs and there’s the intake and she’s wondering if she did it right, if I did it right. A student will come in with it and say, no you got it right. There’s some of that that goes on. Certainly around just verifying clinical findings and things like that.

This medical faculty served as a facilitator and mentor during this experience. Part of his role was to create a safe environment in which students could test out their knowledge about how to take care of patients, and their growing relationships with one another.

Another medical faculty from Midwest South talked about overcoming curricular and pedagogical challenges by using modeled clinical experiences. Students paired with him during their clinical rotations had an opportunity to see the link between philosophy and practice in action by watching the palliative care team, of which he is a member, function. He said:

MSM3: . . .but I just gave you a three minute spiel that was talking about why we have a team and how we strive to meet patient needs as a team, and why the philosophy is the way it is. That’s an outline for a curriculum. . . That’s an outline for a curriculum for a medical student, but if you were to write that curriculum just based on the idea of having a team and why a team is good and you give a series of lectures about why it would be good to have a team; especially, for the current generation of medical students at their age and the way
they process information, I think that goes in one ear and right out the other, but if
they see it in action. . .

That’s why I think it is so important to have a functioning team in place that does
not depend on learners for its existence and is not there because of learner’s
needs, but is there because its answering to patient needs . . . Then you have an
automatic very natural driver for building curriculum.

The timing of interprofessional experiences was a topic of discussion at every
institution. Faculty had experimented with the placing of experiences, either early in the
student’s academic program, or later, once students had an opportunity to develop a
better sense of their future professional role. Pros and cons were discussed, although most
faculty who talked about this felt that early exposure helped students to form a better
sense of the benefits of team collaboration from the beginning. A nursing faculty from
Midwest South said:

MSN2: I think that when nursing students and medical students are introduced to
each other earlier, I think that they kind of grow up with a little bit more
understanding and respect for each other. I’d like to see a little bit more of that.

A medical faculty from the same institution added another factor to consider. His
impression was that having some foundation in your own professional education added
important context:

MSM2: I think you do need a certain degree of your own education and
understanding of things before you can start to appropriately appreciate what
everybody else is doing as well. Now, that doesn’t mean that it can’t help in
medical school. It just means that it’s probably not going to happen, you know—
Well, it can’t be too much too early, but it’s a definite necessity.

Faculty mentioned that one way to get students into the same classroom early in
their education was to open classes with common core content to both professions. Some
faculty talked about the differences in the leveling and rigor of graduate education for
medical students versus undergraduate education for nurses. However, those discussions
focused on core science courses. One nursing faculty from Midwest South pointed out
that medical ethics classes, as an example, often combine students from both programs.
Another rationale for early collaborative experiences mentioned was the advantage it offers students in terms of understanding the other professions’ background and role. Some faculty limited their discussion about this aspect to student-to-student relationships. However, one medical faculty from Midwest West placed emphasis on the advantage this provides the student who must collaborate with licensed professionals practicing in the clinical setting where the student has their clinical rotation. He talked about this in terms of medical students interacting with nurses, but this scenario could be applied equally well to nursing students interacting with physicians. He said:

MWM3: So on a couple of occasions, I’ve asked the third year students early in the year, “So have any of you met a scary nurse yet?” They laugh, and usually they all have. The scary nurses are in places like the ED, in the Emergency Department, because they’re pretty much in charge. They don’t have one second to waste . . .

So we decided well, earlier on in their experience, before they get scared and before they get angry or before they—we should give them a constructive experience with the other major health profession.

Another medical faculty, this one from Midwest North, contemplated how early, constructive collaborative experiences might contribute to a sense that the interprofessional team could be a source of professional support. This dialogue unfolded as she reflected about a hypothetical medical student who encounters a person with a devastating health problem; the medical student reacts by emotionally compartmentalizing the painful experience, or is denied the opportunity to process because the attending physician to whom they are assigned to is not up to the task of discussing emotionally charged aspects of patient care. The scenario she described is from her point of view, as course faculty. She often takes on the mentor role with medical students after the fact, and felt it was important to validate the emotional valence of this kind of experience. I asked her whether she thought nurses and physicians could support one another through this kind of experience, and do this process work as partners. As she considered that question, she added the thought about “early and continuous experience” to the conversation:
MNM2: ... Seeing something that's devastating, an HIV patient. An HIV patient who doesn't have a lot of resources that's been cut off from his family. On the one hand it can be a devastating experience that's discouraging where all of that rich human content goes deep into them and they feel burdened by it. They don't wanna go there. They feel like it's too painful. They start closing themselves off from patients.

JL: They the med students?

MNM2: Yes. If you have the opportunity to say tell me what happened? Through dialog they start to talk about that and part of the conversation let's carry another dynamic into part of the conversation is the person who happened to be attending. Let's say it was on the wards and there was a person attending who cut that student off when they wanted to talk about it? Then they felt bad about what they'd experienced and they felt like there was something wrong with them that they even voiced the question and they felt stupid.

You're having this dialog, these things will come up. You validate for them how significant it is and how wonderful it is that they felt that pain of that patient. How being present in and of itself can't solve that condition but it means the world to a person in that moment . . .

JL: Do medical students, well young physicians have a sense that nurses might be able to help them process that kind of experience? Or have any of them ever gone to nursing to help them process? We work side-by-side, nurses and physicians, and we have very difficult patients and bioethical issues and codes and all that kind of thing that happens. Any sense that we can talk to one another to help ease the emotional burden or put it into context?

MNM2: What a great question. I think if you ask people in general without the benefit of some good experiences in their personal lives or in their professional ones they would be startled with that question. Do I think that it would be possible? Absolutely. That's where I think that's what's early and continuous experience.

Medical faculty in particular talked about an additional advantage of early interprofessional exposure. They mentioned students may enter medical school with pre-conditioned ideas about the superiority of their profession over other health professions. A medical faculty from Midwest North described a first-week interprofessional experience for medical students that was intentionally designed to neutralize this perspective:
MNM1: In fact I will mention one thing that the faculty interact on with us and in a very extensive way . . . It’s a tabletop exercise for pandemic flu and we do that actually within the first week of the medical student’s experience.

We bring in nurses both from the community and from the nursing school to help out with that tabletop exercise and it’s an excellent opportunity because the medical students at that point aren’t expert on anything so the people there are accepted as experts and I think that sometimes is a problem in interprofessional education of just this hierarchy of medical students feeling that their discipline is a hierarchically superior discipline than treating both faculty and students in that fashion; which of course isn’t right or accurate, but it’s part of the medical culture at this point that I think we’re trying to train out.

Finally, many faculty from both nursing and medicine talked about how little medical and nursing students understood each others’ educational process or role. A medical faculty from Midwest North talked about this issue within the context of her experience with a free clinic project for an underserved population in their area. The topic of role misunderstanding emerged, but also the level of competency demonstrated by both sets of students. The message in her story was that integrating interprofessional collaborative experiences earlier in students’ education is both possible and desirable; the students showed that they were equal to the challenge. She said:

MNM3: What’s happened is a group of medical students and nursing students have worked together to create a Saturday morning interprofessional free clinic at our free clinic. That had its first pilot recently and has gone well. Then we are creating the curriculum pieces, the medical and nursing faculty and students together. Then the great thing about this is you get ideas and then they evolve.

So one of the things that came out of this, which I loved, was as we sat down at the table together with the nursing students, what we recognized is we, as doctors, did not understand their education at all. We didn’t have any idea. We do all those different . . . and when they sat down and explained to us, we were in awe of the amount of education they had. Number one, and number two, we were just so impressed with the early clinical activities.

So what we said is oh my gosh, well why don’t we get these medical students in their first or second year, who don’t have nearly as much clinical, to watch the nurses so they could learn from the nurses. So we are creating this pilot right now where the medical students get to shadow nurses.
**Interprofessional education in the formal curriculum.** Faculty had different and sometimes inconsistent observations about whether IPE appeared in the formal, planned curriculum. Inroads had been made at every institution, but responses about the extent to which interprofessional collaboration was a part of the formal curriculum depended on the point of view of the participant. Administrators, and faculty with direct involvement in courses, simulations, or clinical rotations that included interprofessional collaboration, or who were involved in curriculum reform responded with more assurance about whether IPE was a part of the formal curriculum.

Differences between faculty experiences within the same institution were apparent in the conversations about the presence of IPE in the formal curriculum. One nursing faculty from Midwest South said, “We talked about the interdisciplinary piece . . . initial brainstorming type sessions. Planning: yes. Has anything occurred within the curriculum? No, not at this time.” Another faculty from Midwest South said very much the same thing; that collaborative education between nursing and medical students has been talked about, but that “. . . it’s not there yet.” However, an administrative faculty from the same institution talked about an elective three credit hour interdisciplinary course offered for both undergraduate and graduate credit.

Faculty from Midwest South all confirmed that interprofessional collaboration and teamwork outcomes were included as a part of the curriculum redesign discussion. Medical faculty from Midwest South were also engaged in a major curriculum reform that is driven both by accreditation revisions and organizational champions. A medical faculty with an administrative role talked about an awareness among the medical faculty that significant changes will be made to the curriculum, and said, “Well, my sense is that with this revision they’re looking at every item in the new requirements that need to be put in place.”

Another way nursing and medical faculty insight about the presence of IPE in their program’s formal, planned curriculum differed was dependant on how they interpreted my question about its inclusion. The question was intentionally open to their
interpretation, and faculty who answered in the affirmative counted any visible IPE effort as a part of the planned curriculum. As an example, my conversation with a medical faculty from Midwest West follows:

JL: Is collaborative education between medical students and nursing students a planned part of the curriculum?

MWM1: It is, yes. There is an interprofessional education committee that is, at this point, primarily planning simulations that involve nursing and medicine. The nursing school is a partner in a brand-new simulation center. It's a $12 million simulation center that has been in operation for just about a year now, and so we can simulate outpatient, we can simulate inpatient, we can simulate an emergency vehicle. It's pretty wild what can be done.

This faculty expressed excitement about the opportunities for collaboration between nursing and medical faculty and students in this simulation center. Two other faculty from Midwest West, one from medicine and one from nursing, were directly involved in the simulation center and worked collaboratively to implement the simulations. The nursing faculty talked about her experience, and replied to my question about collaborative education as a planned part of the curriculum in the affirmative.

MWN3: Yes, and we are in a journey. Where the journey started was actually in my course, and it was several years ago where one of the faculty that was here was working with one of the medical physicians and we had opportunity to meet with a (name of manufacturer) rep, and we met (brand of simulator). Actually, it all came about through a net grant—not a net grant, some kind of a grant that they had to get monies to do some collaboration.

JL: The simulation that used to be voluntary for nursing students is now a mandatory part of that course?

MWN3: Right, of our course, and now it’s being—yes, in our course. . . Every student that comes through the multi-system critical care course is involved in an interprofessional simulation with med students.

However, another nursing faculty from Midwest West had a different perspective, and raised a point about the difference between episodic collaborative experiences and
the inclusion of interprofessional collaboration as a core element of the curriculum. Our conversation follows:

JL: Is collaborative education between nursing students and medical students a planned part of the curriculum?

MWN2: No. I’m thinking of the curriculum at its most fundamental level. What we think students ought to learn and how we think they ought—to how best they ought to learn it. I don’t think that is—I think there are people who are more engaged with that than others, but I think if a curriculum is something that an entire faculty puts together, it hasn’t been high on the list yet.

I think there are people who are very engaged with it. I would have to say that I think that’s because they’ve just made it happen because they’ve been in those places where it’s possible.

Faculty talked about disconnect between what is taught in the classroom, which qualified as a presence in the formal curriculum, and practical experiential applications. A conversation with a nursing faculty from Midwest West about this began as a response to my question about inclusion of interdisciplinary education in the curriculum; my questions and her responses follow:

JL: Right now, is interdisciplinary education a planned part of the curriculum?

MWN3: Oh, yeah. It's planned. It's not implemented, but—let me put it this way. It's not implemented to the degree that we want it to be at this point in time as we speak, but it's definitely planned ‘cause we see that this is just the way it's gotta be. You have to have all the people up to the table. Because I think that the whole issue of what you're talking about, I think, very strongly links to safety issues, that as there is better communication, all the safety issues that have been very hot in the literature lately and in the public eye where there's been errors.

JL: So how is interdisciplinary education handled in the curriculum right now?

MWN3: I don't think it's really—I think it's encouraged. We would definitely encourage students, but I don't think that we, I don't think we're looking at it as strongly as we— I think we talk about it. It's theoretically strongly there, but in terms of practice, not just talking the talk, which I think we're doing very well, but walking the walk, I think that's what we're still needing to work on.
Both medical and nursing faculty at Midwest North confirmed the presence of IPE, in both the formal curriculum and in practical application. However, its inclusion is new, and flows from a grant-funded project that was collaboratively sought by a group of faculty from both nursing and medicine.

Overall, faculty within institutions and professions were generally aligned about what they believed was included in the curriculum, although the degree of their assurance that IPE was present depended on their level of involvement in either courses that included collaborative experiences, or in curriculum redesign. A summary of faculty responses to the question about the presence of interprofessional collaboration in the written curriculum is found in Table 7, *Faculty Responses about Interprofessional Education in the Formal Curriculum* on page 164.
Table 7  
**Faculty Responses about Interprofessional Education in the Formal Curriculum**

<table>
<thead>
<tr>
<th>University/Profession</th>
<th>Presence In Formal Curriculum</th>
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| Midwest South Medicine | • Working toward inclusion of IPE with curriculum reform.  
                         | • A variety of self-selected elective experiences, e.g. international interprofessional immersion and other creative opportunities, e.g. interprofessional health fair, working with vulnerable populations in the community  
                         | • Varies by rotation; some rotations require interprofessional experience, e.g. geriatrics, palliative care.  
                         | • Beginning to include rotations with other health professionals |
| Midwest South Nursing  | • Major curriculum revision in progress  
                         | • Interprofessional collaboration and teamwork outcomes included in curriculum revisions  
                         | • Collaborative education between nursing and medical students not currently a planned part of the curriculum, other than elective coursework  
                         | • Currently offer a 3 credit hour elective interdisciplinary course |
| Midwest West Medicine  | • Yes, primarily in simulation  
                         | • Interprofessional education committee including nursing and medical faculty exists  
                         | • No requirement, students self-select for IPE  
                         | • Informal elective for shadowing other professions, but difficult with 300 first year students, 1,100 total |
| Midwest West Nursing   | • Yes, primarily in simulation  
                         | • An interprofessional simulation with medical students is a required part of one course  
                         | • In other courses, interprofessional collaboration is encouraged, but not a strong element of coursework |
| Midwest North Medicine | • Not a part of the regular curriculum  
                         | • Included as a part of a grant-funded pilot project  
                         | • Elective for medical students |
| Midwest North Nursing  | • Not a part of the regular curriculum  
                         | • Included as a part of a grant-funded pilot project |

**Matching mastery level.** A number of faculty mentioned student mastery level as a factor that influences the structuring of interprofessional experiences. Two issues related to mastery were discussed. The first was that there is a disparity in level and rigor between graduate level courses for medical students and undergraduate level courses for nursing students. The second is that undergraduate nursing programs immerse students in
clinical work early in the curriculum, whereas medical students are less involved in direct patient care until later in their program.

A medical faculty from Midwest West talked about the challenges involved in attempting to combine undergraduate nursing students and graduate medical students in core classes. However, he mentioned some possibilities. He said:

MWM5: In the first two years of medical education—I think actually there’s a lot of similarity, there’s a lot of didactic classroom stuff in both disciplines . . . The trouble is that they’re disparate; they expect two different levels of education. Nursing microbiology is like a college of a micro, kind of, with a health slant, whereas med school microbiology is a graduate program. You really can’t combine those. It would be too much for the undergrad one, and that’s okay. That’s one thing that keeps this apart.

Where they really start to merge is in these courses where you teach patient care, so the principles of patient care and then actual patient care in the latter parts of nursing and medical education. We just haven’t put the time and money in the effort to sitting together to coordinate that.

A nursing faculty from the same institution offered a similar point of view, but emphasized that clinically, nursing students are advanced compared to first or second year medical students. She talked about an experience she had in the simulation setting; the medical students were less prepared and successful than the nursing students, because they had not been exposed to the portion of their curriculum that introduces clinical judgment. Those differences exhibited as practical communication problems in the simulation laboratory. She said she and the medical faculty often found it challenging to determine the right match between the medical and nursing students in simulations:

IN5: Figuring out the right match; what level of nursing student fits with what level of medical student and the dirty word, the content, that they have been exposed to, the content, because in that potassium one the nursing students all knew about, they’d been taught about potassium, and some of the medical students didn’t really know. We have to make sure they have the skill set to be successful in some of these interactions. That’s another maybe dimension of scheduling is the right match . . .
I’m saying that that simulation didn’t go as well as it could have because these last minute medical students who were recruited did not have the requisite skills to be able to make a good decision about giving potassium.

A medical faculty from Midwest North had a similar experience. The scenario he talked about involved medical students, in combination with both traditional and graduate entry/second degree undergraduate BSN students. The difference was that the graduate entry/second degree students have already earned a baccalaureate or higher degree in another field. I asked if she noticed any difference between the two types of undergraduate nursing students. She saw consistency in their preparation, but noted how the traditional nursing students brought their own clinical competency to the experience in a way that bridged the “mastery” gap. She shared this:

MNM5: If you asked me sitting from where I was sitting in some of these sessions whether I knew which student was which the only thing I admit knowing was just maturing would be the difference. I will say this. I think there was a lot of angst up front that the BSN (bachelor of science in nursing) students would feel intimidated and stuff. I did not get that at all . . .

In my opinion that was mainly because the BSN students had done a lot of clinical work ‘cause they’re like dropped in the clinical setting. I think they brought a very unique perspective to the table when they were doing small groups. The med students were talking all theory. They hadn’t been in that sort of inpatient units and stuff. The BSN students were saying you can’t do that. That’s not gonna work. Have you ever tried paging somebody in the middle of the night? This is what happens. That kind of angle. That kind of perspective. That did get the attention of the med students that were yearning to get to the clinical role and don’t have a sense of what that is. I think that sort of juxtaposition was interesting.

Another medical faculty from Midwest West talked about similar experiences with mixed groups of students, but suggested that a way to bridge differences in mastery is through excellent faculty facilitation. He shared this point of view, noting that the right teacher can level the experience for students:

MWM5: I think good teachers can sort of span that and get the nursing student experiences and knowledge they need that’s appropriate for their level as well as for the medical fellow, you know, post-graduate year seven, if you think about it.
We probably should only have the better teachers trying to do that sort of thing. Right?

A medical faculty and administrator from Midwest West mentioned that issues of mastery and maturity levels have become topics of discussion in medical programs across the country. She summarized the conversations she has heard at national meetings on both mastery and maturity levels:

MWM4: I was at a national meeting, just this past week, and that was the biggest issue for everyone in the room, all the medical schools that were there . . . What I also heard was that it was very important for you to make sure you had the right levels of learners. . . So the early nursing students, they could have been early undergraduate students who were 18 or 19 years old with medical students, who had already completed their undergraduate degree and are now in the middle of medical school.

So there are a couple of hypotheses floating around. One is perhaps that they’re not at the same maturity level in their disciplines, but another is perhaps they are just developmentally different.

If you take any group of 18 year olds and put them with a group of 25 year olds, developmentally they’re going to be different. So what we learned is that the encounters worked better if they were medical students and upper level nursing students, almost even graduate level nursing students.

Her comments provide a segue between the influence of mastery level and the influence of maturity level relative to the development of successful collaborative program structures.

Matching student maturity level. Student maturity level was often mentioned as an influence that is different from student mastery. Both nursing and medical faculty found that trying to match student maturity presented its own set of challenges. Both said that it was easier and more effective to match medical students with graduate level nurses, especially those in advanced practice/nurse practitioner programs, because they were on the same academic level. However, another factor was the age difference between typical baccalaureate nursing and medical students. Students in the graduate
entry/second degree nursing programs were found to be the better match than traditional undergraduate BSN students because they were older.

Midwest North faculty made a conscious choice to include traditional nursing students with graduate entry/second degree nursing students in their pilot project because they needed the numbers, but anticipated that the spread in maturity levels would facilitate collaboration with medical students. A medical faculty from that institution summarized that decision, saying, “You don’t want somebody from an age side discrepancy so much that that becomes a variable and not necessarily the clinical background.” A nursing faculty and administrator from Midwest North felt the same way, and talked about the decision to involve the graduate entry/second degree nursing students in the pilot project:

MNN5: we started with the idea that the focus would be on the grad entry students. The reason was the - a shared kind of age range. Many in like their mid 20s or even getting a little bit younger, 23, 24, but also some older and that parallels the medical school’s demographics, the post-baccalaureate, some diverse life experiences among some of them, Peace Corp and things like that. Not all, but some.

Another medical faculty from Midwest North noted that the younger nursing students were sometimes reluctant to engage in conversation with medical students. In response to my question about whether maturity level makes a difference in terms of communication or working collaboratively, she replied:

MNM3: Yeah. Because I am sure you are very familiar with the fact that—because we have talked about that we need to get medical students to ask nurses what they think; and we need to get nurses to tell them. They tend to pull back so I think to not have that age differential helps.

Organizational culture: This cluster included 2 subthemes. These are: organizational culture and inertia; and the perceived value of “soft” content by students, faculty, or both.
**Organizational culture and inertia.** Faculty talked about aspects of organizational culture that had an influence of the growth of IPE in their institutions. One was the separateness of the two organizational cultures in academic medicine and nursing, and that their histories run deep. Faculty saw pockets of profound resistance to change in both medicine and nursing, in both the academic and affiliating clinical environments. Also, some faculty talked about organizational inertia that begins at the administrative level, which is a disincentive for “stodgy” faculty to move forward. Some hope for change was expressed; faculty mentioned that the strength of the external press for quality and safety in health care was sufficient impetus to forward an agenda for institutional change.

A medical faculty and administrator from Midwest West talked about the complexity and depth of influence of the organizational culture in academic medicine, as well as the relationship between the academic and clinical cultures. She told a story about a medical student who decided to shadow a nurse in the hospital. He did this on his own accord, with the support of faculty. He reported that he learned as much about his own medical culture as he did about the nursing culture and role. As he worked alongside the nurse, medical students ignored him, refused to make eye contact with him, and never asked him about what he was doing. She told me he said, “it was like these two separate worlds, and he had never lived that before. He thought it was just amazing, and that every medical student should have that opportunity, and really pushed for it.” Having heard her talk about how nursing and medical faculty were working together to promote interprofessional collaboration in the curriculum, I asked her to talk about the impact of the academic and clinical cultures on that work. Our conversation follows:

JL: It seems like there are cultural differences between practicing in medicine and nursing. That that’s culturally a little bit different than academic medicine and nursing on this campus. Can you speak to that at all? Do you have any thoughts about that? Whether that’s something that needs to be overcome?

MWM4: Yeah, one thing that I worry about is that as I listen to our curricular teams. They’ve been talking about IPE from a teamwork kind of perspective, and I’m wondering if that’s deep enough. It’s more than just teamwork. It’s culture,
the things you’ve said. Yeah, culture probably is about as rich as I can think to describe it right now, but teamwork’s not enough.

She was one of several faculty in both nursing and medicine who expressed concern about the disparity between efforts to teach collaboration skills that skim the surface while the deeper, cultural underpinnings remain embedded. A nursing faculty and administrator, also from Midwest West, talked about the conservative academic medical center environment and its natural affinity for homeostasis. She also talked about her observation that change agents who come up against constant resistance eventually give up. She said:

MWN2: . . . It’s a very conservative medical community, and I say that purposefully. I think the result of that over the years is it creates also a fairly conservative nursing community because after awhile, you just stop beating your head against that wall . . .

I don’t say that with a mean spirit because I think it's just the way things are, but it’s also reflected in regulation and practice law. I came from (a western state) which I thought surely was the most conservative place on the face of the earth. Not true; (two Midwest states) turn out to be more conservative in terms of what people are willing to engage in.

The sense of inertia was profound enough in some pockets that faculty and clinicians defaulted to separatist, silo’d behavior, even when organizational leaders and champions of interprofessional collaboration offered and supported real opportunities for working together. A medical faculty and administrator from Midwest West offered this story about his attempts to bring professions from both the academic and clinical setting together around common research interests:

MWM5: About a year and a half ago (physician’s name), the other associate dean in the office here, and I decided to convene a multi-disciplinary work group just to sort of meet once a month and talk about interdisciplinary collaboration. The intent was to try to see if we could get physician investigators and nurse investigators studying topics of interest together. What struck me was that we have nursing school investigators who may have a research interest and medical school investigators have research interest. They will occasionally find each other and team up, but not anywhere near as much as you would expect.
The intent was just to get people in the room and then get them to pose questions of interest to them and then see if they could find a buddy to help do a project with. That group attracted a very interesting mix of nursing clinical leaders, more that group than nursing school faculty, some medical school clinical faculty, pharmacy help and then chaplains and some social work participation. An interesting—and that group met once a month for about a year and a half and eventually it kind of petered out. The folks stopped attending.

The same faculty also talked about resistance to change at the faculty level alone. He said there were pockets of excitement for curriculum reform within the faculty, so I asked him to talk more about his perceptions of the level of faculty enthusiasm. He replied:

MWM5: That’s a darn good question. That comes back to what medical school faculty are like and they tend to be a stodgy, difficult to change group. They are not out starting new companies largely, some are, but you know, largely. They are not out in a field or in enterprises where if you don’t hustle for your business you could be out of business in six months. They’re in these sort of universities where there’s a lot of protection. It’s not a high risk taking group.

When you think about that, if you say to ‘em oh, let’s change how you’ve been teaching nursing micro for the last 27 years. The person thinks well, I think I’ve been teaching nursing micro pretty well for the last 27 years... They kind of think what they’ve been doing is pretty good and largely they’re right. Largely these folks have been successful and they’ve done a good job and they value what they do and they have pride in what they do so if you tell them are you sure that what you’re doing is kind of the right, leading the right outcomes; they’re naturally gonna spend about seven years questioning even that basic premise.

Conversations with faculty revealed that culture was embedded at a variety of levels in the organization. The same faculty administrator from Midwest West suggested that the phenomenon of organizational culture and inertia is set and perpetuated by those in the highest leadership positions. He said those in leadership attain their positions by virtue of the skill sets that made them successful as professionals, but that those do not necessarily translate into the skill sets necessary for leadership. He talked about this dynamic:

MWM5: This administrator that’s inherited this has risen through their nursing or medical ranks by virtue of doing some research and being an administrator but none of them have risen to their ranks because they can coordinate all of these and get them to interact with each other in any way. That’s not their skill set. So it’s
It would take a tremendous effort for that person to start saying well why don’t you nurses and doctors kind of do a little bit better about interdisciplinary training. Can you imagine how that one would go well; you got a 58-year-old person that’s risen up through the nursing or medical ranks and seeing something drastically different for the last 40 years, now somebody goes, oh. It just doesn’t happen.

We get what we deserve. We select these people as leaders and they’re gonna give us exactly what you expect which is exactly what they’re careers have been. They’re not gonna suddenly go, well now I’m gonna charge that nursing school dean and that medical school dean and get together and do some better collaborative teaching and training. . . They’re not gonna change the game of what got them where they are . . . Because they don’t know anything different. These are not the innovators, the medical device equipment makers who sort of go on off on a maverick way on something new; these are very by the book folks. Otherwise, they would have been driven out as a renegade 20 years before.

A medical faculty from Midwest North offered additional thoughts about the complexity of the organizational culture that naturally resists change. She talked about the need for fundamental change brought about by discomfort with the ineffectiveness of the present reality in health professions education. In response to my question about what holds them back from integrating interprofessional collaboration into the educational system, she replied:

MNM5: What hinders us from doing that? I think I’ve answered that in terms of it’s kind of – everything from the physical structure to the conceptual structure sort of limits us from thinking outside of the box. Why do we want to – I think the real reality is that you have to sort of say you haven’t created an angst for change. If you’re gonna really want people to get to the table and say we need to do this differently, you need everybody to sort of recognize like really appreciate the fact that the current system doesn’t work.

Not everybody is on that boat. It’s one thing to sort of say we’ve got to blow up the current system and start all over again but there are a lot of people that are like there’s nothing wrong with the current system so why should I want to change that. I think you kind of have to go way back to sort of the conceptual piece and say are we serving the needs of our patients? Are those aligned with the way
we’re training our future physicians and nurses? If they don’t see that there’s a mishap or a gap why would anybody want to change something?

She raised two points that were mentioned by faculty in other institutions as well. The first was, as she said, “not everybody is on the boat.” The other was the fundamental question about whether the current system serves patient needs. A nursing faculty from Midwest West talked about ways to get people involved by constructing a subculture for change; she referred to subculture members as “deviants.” She said:

MWN5: I think there has to be a change in the organizational culture, but ironically sometimes the way you make the change in the organizational culture is to find two subversive people who might just try it anyway, and ask for forgiveness later. It’s almost as if you have to have some positive deviants there. You have to have someone who has the same circumstances as many other people in the academic world on either side who said, “You know what? I know so and so and I know so and so. I wonder if we could just try this. I wonder if this would work. I wonder if our students would learn anything from each other.” It takes someone saying “I wonder” to overcome sort of these generations of inertia.

The fundamental question about the system serving patient needs is reflected in the quality and safety movement in health care; this movement was mentioned by many of the nursing faculty. One nursing faculty from Midwest South talked about integration of the Quality and Safety Education for Nurses (QSEN) competencies into the new curriculum, and how the safety movement can serve as impetus for a cultural shift toward collaborative work. She said:

MSN7: Well, one of the things we talked about in QSEN is collaboration. I think as a College of Nursing we have to start partnering. We have to look at our clinical partnerships as truly collaborative, instead of an agency providing a site for us to have clinical experiences for students. And so as a college, we have to start collaborating ourselves.

I think that that kind of thing is what is going to change the culture within health care settings, so that we're actually collaborating and providing care together, rather than the medical school here and the nursing school here.

In addition to the quality and safety movement, faculty also mentioned university structures that empower faculty to participate collaboratively. A nursing faculty and
administrator at Midwest South mentioned that faculty now hold positions on key faculty senate committees, which has helped to break down barriers between academic silos. A nursing faculty summed up her observations about the need for organizational change and individual resistance by talking about faculty perception as the biggest barrier. She said:

MWN3: There is I think a conscious desire for us to be exposed to each other and to work together. Are there barriers? I’m sure there are. Maybe the biggest barriers are own perception of what you’re allowed to do and what you’re not allowed to do.

Perceived value of “soft” content. A last facet of organizational culture that influences the educational program is the perception that interprofessional communication and collaboration qualifies as “soft” content. Soft content was described as knowledge not based in the hard sciences. Less value was assigned to soft content by some medical students and by some medical faculty as well. A medical faculty from Midwest North captured the essence of what “soft” content means:

MNM4: Until the curriculum reform . . . (the) medical school here which is organ system based and people get patients right from the beginning and it has a lot of good stuff, basically it was started with biochemistry. When the new curriculum began block one, which was the social and behavioral context for medicine was greeted by a fair proportion of students as what the hell is this stuff? Where’s the biochemistry? Where’s the molecular biology? . . . They even had a thing in the old curriculum where they taught communication and that kind of stuff. It was always on Tuesday and it was touchy feely Tuesday. I think that view is promulgated by the reward system in medical school . . .

A nursing faculty from Midwest North talked about her experiences with the interprofessional grant project, in particular an exercise combining medical and nursing students in continuous improvement cycles. Although some of her medical faculty colleagues were highly engaged in the project, other medical faculty resisted, and expressed concern about medical student receptivity. This view affected the level of enthusiasm by medical faculty not directly involved in the grant project. She explained:

MNN2: This is how it works. We as the faculty meet in a professional team to determine what the activity will be. We don't really work as an interprofessional team. My observation is that we kinda, I really think we just let the physicians
kind of dictate what they think. They constantly talk about how these medical students don't feel this is valuable; this is the soft stuff, and they walk on egg shells, the physicians. The physician faculty like, oh god they won't like that; oh we can't do that, they won't think that's of value.

A medical faculty from Midwest North noticed a proportion of the medical students were anxious that collaborative exercises might distract them from focusing on “important” content that appears on the national examinations. Even though content covered during these exercises included quality and safety focused topics, such as error root cause analysis, they still expressed some angst. She said:

MNM5: The topics that were chosen were perceived as important, however, from the medical student standpoint some of the topics were looked upon as if they weren’t on a test, they weren’t being tested on it, it wasn’t thought of as important. Is this gonna be on the boards? Are you taking this time out of my schedule to teach this? . . .

The positives were they enjoyed the experience. They thought it was well worth going through. The negative were there was a lot of angst related to how does this fit into the big picture. If I was to sum it up, which is not probably fair to do because it’s a sort of reductionist way of thinking about it – if I had to sum it up I do think that giving the students more of sort of how this fits in the big picture piece is very important but I think you can only do that to a certain extent. This is an opinion.

I’m talking medical students now. When you’re talking about people who have not been in a clinical setting, it’s kind of artificial to tell them that this is important for something that they’re gonna be doing down the line.

She made the point that context is imperative for students, particularly if their clinical experience has not progressed to the point that they can make meaning of the content for themselves.

The lone nursing faculty participant who talked about this aspect of medical education culture shared that she and her medical faculty colleagues developed a strategy to deal with this. They framed the collaborative content within the familiar context of medical diagnosis and treatment. Our conversation follows:
MNN2: It seems like this part of the curriculum is not appreciated by the medical students; and then the faculty are very careful that it's a meaningful experience, you know what I mean?

JL: Do they define what a meaningful experience would be for the med students?

MNN2: Yes, they have—we've gotten to the point where we now know that they like it to be clinically based. It can't be non-clinical, they like clinical. They really like hands-on. They don't like just sitting around a table.

JL: Okay. They would prefer simulations over conversation?

MNN2: Yes and over a clinical sheet and actually we did the root-cause analysis. We've done it three times already so we've been able to improve it each time. This last time we integrated in it, the medical teaching technique of a case. You know how they do case work and so we kind of integrated the physiology and anatomy of the disease along with the error that had occurred on that patient . . . So then it could be, oh then the medical students will see the value in it because it's disease based. . . Because any of this quality improvement stuff or safety stuff or—it's soft.

I asked this nursing faculty to describe the nursing students’ perceptions about the same exercises. Her response was:

MNN2: Oh, they said, “Why didn't we do this earlier. This is great.” They seem to have a more positive approach to it; like it's not a waste of time. This is part of what we do, and this is important that we communicate. At the SBAR (Situation, Background, Assessment, Recommendation) one, for example, one of the things we said was that, "Nursing students never have a meaningful conversation with a physician in their nursing school experience. This was an opportunity where they could have a meaningful experience in a simulated environment." So that'd give them the words to then be able to have a meaningful interchange with a physician in the field during their clinical experiences.

Another nursing faculty from the same institution speculated on the reasons for differences between the nursing and medical students’ perspectives. She said that, “in general they (medical students) view that whole thread of the curriculum as they call it the warm the fuzzy stuff.” However, she also noted that medical students are exposed to this content so early in their education that they have not had the opportunity to experience the clinical setting. She said:
MNN5: . . . they don’t seem to have the readiness. They don’t see the need; they don’t appreciate the need because they haven’t been in the clinical area enough to see how it could make a difference. In fact, we’re not so sure if even through all four years they ever get an opportunity to be independent enough to see a difference, whereas the nursing students have, my students start clinical the day they walk in. My (nursing) students (also) appreciate it theoretically . . . The medical students don’t have either of those contexts.

In summary, many of the medical students felt that interprofessional collaboration content or exercises were minimally important relative to content related to the scientific bases for medical practice. They were also anxious that it distracted them from study that would help them pass the national examinations. Medical faculty participants said that many of their colleagues in the academic medical setting shared those attitudes. Nursing faculty also found some medical students to be reluctant participants, but said that a number of them grasped the importance and found value in collaborative activities. Nursing students and faculty had a different perspective; they understood the value and appreciated the opportunities it presented.

Faculty Engagement, Competency, and Development

The importance of faculty engagement, competency and development emerged as the fourth major theme. There were 2 subtheme clusters. The first cluster was faculty engagement, which included: the building of interfaculty communication and relationships; faculty development and engagement; and faculty perceptions of the value of IPE. The second subtheme cluster was resources, and included: influences of faculty workload and financial reimbursement; and faculty incentives.

Faculty engagement. Faculty talked about the importance of communicating with one another and building inter-faculty relationships. When lines of communication between medical and nursing faculty were open, they found that the ability to be fully engaged in collaborations between their programs was made possible. Faculty also talked about the necessity of full engagement, as well as faculty competency development.
**Building interfaculty communication and relationship.** A number of faculty told stories about their experiences communicating and building relationships with faculty from the other profession. Faculty usually talked about communication as episodic events, but talked about relationships in terms of partnerships. Faculty said that programs were so isolated in their own silos that the opportunity to reach out to other faculty was limited. Faculty who talked about building relationships described it as an intentional process.

Stories about interprofessional relationship building spanned a continuum of circumstances and settings. Some faculty described relationships that had been built over a period of years, as they worked with one another in the clinical setting. Others described relationships that blossomed as a result of working together on time-limited, grant-funded special projects; some of these developed into longer-term relationships. Some faculty described the relationships that emerged out of international immersion experiences. Communication between faculty often served as a springboard for relationship building, however some faculty experienced inter-faculty communication as isolated episodes that had little potential for future collaboration.

A nursing faculty from Midwest South talked about developing relationships with physicians in the clinical setting; this venue was mentioned by both nursing and medical faculty, because they often have students in the same clinical setting at the same time. In addition, both nursing and medical faculty commonly engaged in their own clinical practice, so were likely to know one another professionally outside their academic roles. This nursing faculty described the attention she gave to building empathetic professional relationships with physicians, and how she passed that wisdom on to nursing students:

MSN6: It should be—you know, you need to develop that relationship. You need to be engaged in your practice. You need to let him know you're engaged in your practice. You know, read research about his patients and talk to him about it. "Hey, I read this article. Have you heard about this?"

You know, develop a relationship with him so when it comes time to have to be team-oriented and have to engage in change or engage in something that's
meaningful for the entire unit, then you have a foundation to work with and they respect you. They know you're vested in their patient. Because they're just like you. They care about their patients, too. It may not appear like that to you in your busy day, 'cause they're on and off the unit in five minutes. But they care or they wouldn't be doing this.

You know, and that's what I try to help students see and recognize that they're busy and they have a lot of things going on. And I told them this a million times. You know, I've been doing this almost 30 years and I started practice back in the day when we sometimes walked in their shoes.

A medical faculty from Midwest South spoke at length about the interfaculty relationships he built as a member of a palliative care team. Another medical faculty from Midwest South talked about his experience with an interfaculty team that came together as a result of a community based project; the team partnered with an inner-city church to develop a free clinic. After the team was established and the clinic opened, they were able to add medical and nursing students. This project grew into a grant-funded interfaculty initiative to include joint training in quality improvement and team work, as well as curriculum improvement which will be used to re-focus a part of the student curriculum. I verified that this project started with faculty education, then translated into curriculum design. He responded:

MSM4: It's basically a—it's trying to tie together those three areas of quality improvement, interprofessional teamwork, and then vulnerable populations. We're kind of having little seminars on each of those three areas, and trying to find where's that nexus of the Venn diagram. Because that's kind of our focus. Then having them work together, because most of them didn't know each other before.

The whole idea of how do you kind of start to develop those teams. It's still artificial because they're just being thrown together for this year long piece, but then be able to hopefully take some of those skills and they can apply it later on.

This exemplar pulls together several factors mentioned by faculty who spoke about building interfaculty relationships. Common ground provided an opportunity for faculty who were unknown to each other to collaborate, and on a project they all valued. They also discovered ways to apply what they learned about building their own team to their work with students, and to development of the collaborative curriculum elements.
Faculty relationships also developed naturally as a result of international immersion experiences. A medical faculty from Midwest South had traveled with colleagues and students to Honduras a number of times. He talked about the way he and nursing faculty worked as a team to make the experience meaningful for students:

MSM3: . . . we were able to structure some things to make sure that the nursing students were talking to the medical students or in the room at the same time; those kinds of things. There was always a college of nursing faculty member on the trips, as well, and we would talk at a faculty level about how do we get this to happen.

A grant project also served as a springboard for interfaculty relationships at Midwest North. A medical faculty from that institution talked about how the grant helped build relationships between faculty and students, between medical and nursing students, and between faculty:

MNM1: I’ve been talking with the schools about it (the project). They’re very eager to see this program put in place. In that setting everybody is going to be equal . . . I do believe that relationships developed there both between the teaching team and the learners will be significant, but also within the teaching team. Those relationships I suspect will be very important relationships as well, and set a tone for collaboration and I think would be wonderful.

The building of interfaculty relationships was sometimes regarded as tenuous. A conversation with a nursing faculty from Midwest North revealed her struggle to be heard by some of her more traditional medical faculty colleagues. She talked about the relationship she has developed with a particular medical faculty member, and said that if it were not for her colleague’s sense of equity and value for nursing, her own attempts to contribute to the conversation would often be ignored. Our conversation about this follows:

MNN2: Right so my colleague—she's a physician. We have very good communication, and I think it's because I write an article on power and identity. I've been intrigued with that article because I realize a lot of the issues with our communication is hierarchically based, power based. I have been recently aware that how she communicates well with me is that she always comes down—well in the hierarchical structure; so she's the physician, and I'm the nurse. She always
will come and pull me into the conversation. For example, if we're working on a project, and the project is all physicians and I'm the sole nurse, she has the intuition to know that I'm being excluded and she'll say, "Now, what do you think?" And she'll pull me in.

JL: Do you find that to be unusual?

MNN2: Yes, it's very unusual. Usually they have no awareness.

Faculty mentioned ways to involve colleagues from their own profession in opportunities for interfaculty collaboration. Some mentioned curricular reform committees, others talked about grant funded projects. Faculty either alluded to, or directly addressed the notion that they were role modeling collaborative relationship building to some of their colleagues. A nursing faculty from Midwest North spoke to this:

MNN5: I think for us, one of our goals in our initial grant, one of our aims, we had to have our aims, was to role model; for the advisory group to role model teamwork and collaboration. And it has been wonderful getting to know these medical school faculty. I would have never gotten to know them. Finding out the things we share and challenges for students and challenges as faculty.

**Faculty engagement and development.** Participants mentioned that faculty engagement was critical to the development and implementation of the interprofessional component of the curriculum. Participants in this study were clearly engaged, and expressed excitement about the direction in health care to be more collaborative. They also talked about themselves as members of a sub-culture, in that their level of engagement was not the norm in their institutions. Finally, they spoke about their observations of faculty colleagues who continue to resist.

Faculty participants were unanimously enthusiastic about IPE, and their involvement in curricular reform as well as grant projects. They talked about what it was like to work with like-minded faculty. A nursing faculty from Midwest North talked about her faculty partners who had dubbed themselves as the people who had “drunk the Kool-Aid”. She described this sub-culture with humility and humor:
MNN5: We’ve only worked with it within our project in the free clinic initiative, the pilot, student run free clinic. Medical and nursing students are working together. So far that’s all volunteer so they’re kind of people who have drunk the Kool-Aid. It’s set up the way the students organized the teams. They must work together. If they don’t have enough nursing students it could be two medical students but only because they don’t have enough. The patient is assessed and all by a nurse/physician team.

JL: They’ve already self-selected. They’re open to this?

MNN5: Yes.

JL: You said they’ve already drunk the – what did you say?

MNN5: Kool-Aid . . . I learned that from one of my medical colleagues. Early adopters would be the theoretical term.

Faculty engagement was said to be important, but leadership support was even more so. A nursing faculty from Midwest West talked about the importance of engagement at the leadership level, and that without clear direction about the priority level, faculty are less likely to redirect their time and energy to embrace IPE. She said, “So your dean has to say to all the faculty, this is very important. How are we going to do this? Where are we going to integrate it?” Another nursing faculty, also from Midwest West, offered a similar perspective on the prioritization of interprofessional collaboration in the curriculum, but added that colleagues who are the most engaged are those who practice in collaborative environments. She said, “I think there are people who are very engaged with it. I would have to say that I think that’s because they’ve just made it happen because they’ve been in those places where it’s possible”.

A third nursing faculty from the same institution talked about her observations of the prelicensure nursing faculty. She said that, as a group, they have a greater sense of urgency about these curriculum changes, because they “live” collaboration in the clinical practice setting. Our conversation about this follows:

MWN2: I think the undergraduate faculty do a better job of that because they’re on the spot with people in other professions every single day. So if something is happening, they are going to take advantage of it. I think that’s the beauty of it . . .
JL: But you see the pre-licensure faculty grasping (the concepts)?

MWN2: I do . . . Well, they have to. They are out there where it’s taking place. I think the more distant you get from the clinical arena that way, the more difficult it is to both see the opportunities and take advantage of them.

Faculty who participated in this study did so because they valued interprofessional collaboration, and wanted to talk about their involvement and insights. However, many of them were open about the fact that they were in the minority in this regard. Although she is a veteran educator herself, this nursing faculty from Midwest South talked about the challenges involved in engaging some of the other veteran nursing faculty. She admitted that some of this was speculation and based on her observations alone, and that she has not had the conversation with many of them. However, she has seen the emphasis some of these faculty place on nursing skills over collaboration and teamwork:

MSN6: It's really hard to get seasoned nurses to go where one person wants to go, 'cause you'll get the conversation that we're training generalists here. They have to know their skills. You know, yeah, I get that. They do. But they also have to know what it means to be a baccalaureate prepared nurse . . . it's not about skills anymore.

You know, it's probably very awful of me to say that that philosophy isn't alive and well here. It may very well be. It's just terminology. We're all not talking the same thing. And I haven't had this conversation with a lot of folks around here, so I don't know what their philosophy is. I mean, you're making me think about some of these things. I don't know. It may be that their philosophy is just like mine. We just haven't had a chance to talk about it.

Faculty said that a number of their colleagues did not share their passion for collaborative teamwork, and were not committed to IPE. Four reasons their colleagues were minimally engaged were mentioned. The first was that there are so many pressures influencing the design of health professions curricula that interprofessional collaboration has yet to rise to the top of the priority list. The second was that some of their faculty colleagues have been enculturated in traditional health care systems and have not been exposed clinically to a culture of collaboration, or are simply resistant to changing their point of view. The third was related to the size of the clinical faculties in both nursing and
medicine; core faculty must depend upon adjunct clinical faculty to teach students in the clinical settings. Finding creative ways to engage, educate, and mentor clinical faculty is daunting to those in curriculum and course leadership roles. Finally, one faculty mentioned that the value students place or do not place on interprofessional collaboration influences some faculty to continue to resist.

Faculty speculated that resistance to change, and deficiency in competency to teach collaboration concepts and skills, were associated. This nursing faculty from Midwest North talked about the importance of faculty engagement to the consistent delivery of the curriculum. She also said that the level of faculty enthusiasm was divided. Our conversation follows:

MNN2: . . . and the other thing is we can teach all this stuff to these kids, but there's a middle ground of these faculty who don't believe it either; who are trained in it, who don't know, who can't teach it . . . We have to teach the faculty first.

JL: Full-time faculty, part-time faculty, clinical faculty; are there certain bodies of faculty that either are more resistant or don't know, simply don't know? Or is it just sort of pockets of faculty that are really excited about this and pockets faculty?

MNN2: I think it's pockets of faculty who are really excited and then there's everybody else. That's my perception.

The need for faculty development was a common theme, and mentioned by both nursing and medical faculty in all 3 institutions. A medical faculty from Midwest South spoke about his concern in this regard. He said that without faculty development in the conceptual and curricular elements of interprofessional collaboration, clinical faculty may unintentionally undermine students’ foundational learning:

MSM4: Well, I think it's continuing to try to work on also educating more faculty. Because if you don't educate the faculty, then you really—you can try to educate the students. Then once they get to the faculty, it doesn't really—just everything dissolves once they get into the—I think you have to work on both at the same time . . . if you just work on the students, but then they enter the clinical years, and they're seeing bad examples . . . it has to be a system change where you're
actually having some faculty development for everyone, and then also curriculum change for the learners.

Medical faculty in other institutions shared similar insights about the handoff of students from regular faculty to adjunct clinical faculty. A medical faculty from Midwest North said:

MNM3: I think that for this interprofessional education, as much as we are making lots of headway compared to where we were in the classroom sort of part of the curriculum, I don’t want to pretend that things are very different at all in the in-patient setting or in the physician office. I think it would be a huge leap to say that we have created that kind of transition or transfer. I don’t think we have at this point at all.

One of her medical colleagues at Midwest West talked more about the need to develop faculty competency in threading conceptual elements of the curriculum into the clinical practice setting. She said:

MNM5: How do we do that and how do we develop faculty? We have a faculty development component. Then we have, it crosses, classroom, lab and clinical practice because if you can’t make a difference in clinical practice, it doesn’t really matter. And again, this is all threaded throughout. It’s not tied to any particular force. That’s what we are doing now.

Several methods for facilitating faculty development and engagement were discussed. The first method mentioned was assuring that faculty are stakeholders in curriculum changes; as mentioned previously, a willing partners model used at Midwest West has been successful in capturing and involving faculty. In that spirit, a nursing faculty in a leadership position at Midwest South said, “I truly believe that the curriculum belongs to the faculty.” A second method was to assure that changes in the curriculum relative to interprofessional collaboration were communicated to all faculty. This was particularly challenging since many clinical faculty in nursing programs are adjunct and part-time; they generally also hold clinical positions in hospitals or other health care settings. Medical clinical faculty have similar schedules; most have busy institution-based or private practices. As a result, adjunct faculty are often unavailable for faculty or committee meetings, which makes it difficult to keep them informed and involved.
Methods to keep adjunct faculty informed and involved included mentoring by senior faculty, and faculty retreats for curriculum development and faculty education purposes.

Engaging adjunct clinical faculty was the most pressing challenge. A conversation with a nursing faculty from Midwest South about the differences in engagement of regular full-time faculty versus part-time adjunct clinical faculty highlighted this issue. In response to my question about whether all faculty were engaged in the curriculum changes and understood the interprofessional elements, she said:

MSN7: If they're full-time faculty in the BSN program or even some of the part-time faculty and they're actively seeking to be involved, then yes. If they are just going in and teaching their clinical group, probably not.

A nursing faculty from Midwest South captured the breadth of this issue in terms of the sheer numbers of adjunct faculty, and the fact that they are solely focused on clinical student education. What remains is that they are unfamiliar with the curriculum as a whole.

MSN6: I think our biggest problem is the massive use of adjunct faculty. These are baccalaureate, sometimes master's level students, not educators. You know what I'm saying? They don't come to the meetings. They don't have to, so it's hard to set a tone with them and then monitor what they're up to. I don't like our system here, but you know, it is what it is. When you have 700 students, you've got all these students to get clinical, you have to use adjunct.

You have to but I think that's a real problem. I don't think the quality—they're getting real skills. Those adjuncts are practitioners, so they're getting lots and lots of skills but to me, the baccalaureate nurses need more than skills. It is what your study's all about. It's this bigger picture. It's this thinking, critical reasoning, collaborative, communicative kind of thing, so I feel like that's a real drawback for any school right now, not just (this school), but any of them.

In response to my question about whether clinical faculty are made aware of the curricular changes, and if so, how that happens, a nursing faculty from the same institution responded:
MSN6: Oh, yeah. Well, now some of our clinical faculty is adjunct. You know, they don't come to meetings. But they get copies of minutes and stuff, so we hope they're reading them.

Dissemination of written minutes and updates, electronic communication, and use of a learning platform such as Blackboard™ were just a few methods used to keep adjunct clinical faculty informed. A medical faculty in a leadership position from Midwest South described some of the technology employed to enable all faculty, including adjunct, to feel more engaged in curriculum changes:

MSM1: One of the ways that we’re going to envision rolling some of this stuff out is actually do more Blackboard™, no posting, just say a 10 – 15 minute video presentation to actually explain. . . it’s an experiment of sorts. I realize that you probably have to touch them or explain it to them three different ways and three different times in order to make it work in terms of what you're after.

Yeah and you know . . . you get into the evaluation assessment pieces. Alright, what am I really looking for from this learner? You have to have all those kind of tools in place and devised and so those have to be explained.

Formal orientation for clinical faculty was another method discussed. Faculty said that it had some level of effectiveness. A nursing faculty from Midwest West said:

MSN4: . . . they have a formal orientation session at the beginning of each semester, and we at that time share what our expectations are with the course competencies and try to give specific clinical examples on how those competencies might be met. I think we do a pretty good job giving them our expectations and bringing them up to speed on that.

Nursing faculty also talked about what it was like, as course leaders, to orient faculty new to their course and also to keep current faculty informed about curriculum changes. One course head, a nursing faculty from Midwest West, talked about her concerns in this regard, and the logistics involved in orienting new clinical instructors to her course; her course includes interprofessional collaboration content and simulation. Our conversation follows:

MSN1: So . . . my question always is, we write these competencies, but how am I sure that everyone is carrying them out? It’s just it’s there, it should be happening.
. . We have new faculty all the time teaching clinicals that are just part-time people. Is everybody making sure that those competencies are being met, and I think that’s something I have concern about.

JL: Okay, that’s a really good point because you might have it as a learning objective in the syllabus, but if you have a course head and then multiple clinical faculty, is that what you’re talking about? How it gets translated into the clinical setting?

MSN1: Yeah, I have 12 clinical groups, and I have 11 clinical faculty this semester, and five were new to the course. . . I have to meet with them individually because I’m the clinical course leader . . . Of course, the new people could not all meet at the same time. So that was five individual meetings with them.

Structures in nursing and medical programs were similar in terms of course director responsibilities. I asked a medical faculty at Midwest South about how changes in the curriculum and expectations of students were communicated to clinical faculty; he replied:

MSM2: Yeah, so the structure within the medical school is we actually have committees that oversee the different years of education. The course directors are parts of those committees, including, you know, if they’re from the different departments. Then it’s the course director’s role to go back to their departments to disseminate that information. If you’re the course director for internal medicine, and we’ve instituted a new standard or a change in the evaluation process, then the course director goes back to that department and disseminates that information to the teaching faculty.

Nursing faculty in all 3 institutions talked about workshops and retreats as methods to engage faculty and build competency by combining education with development work. One faculty leader from Midwest South talked about another advantage of retreats; she considered time away from campus and work responsibilities an essential part of creating an environment in which faculty could fully engage. She said:

MSN1: So, the goal is—is the reason that we're going off site for two days and we're going to go to a lodge, is to really give faculty time to think and create . . . I have faculty who are expert in their content and so it will be a time for them to be
creative and for them to create . . . we'll also then again be looking at such things as collaboration, the inter-disciplinary collaboration, as well as many other things as we begin to really feed into content.

Another nursing faculty leader from Midwest North also talked about faculty retreats. All faculty, full-time, part-time, and adjunct clinical were invited to participate. The agenda for an upcoming retreat included faculty education as a means to improve faculty competency in interprofessional collaboration content and processes. In addition, faculty who have collaborated with the medical school, and who have worked on curriculum redesign were willingly charged with developing the agenda and facilitating the retreat. These faculty exemplify engagement.

Medical faculty also talked about engaging clinical faculty by employing faculty development strategies. A medical faculty from Midwest West framed this within the larger context of future directions for medical education:

MWM1: I think that we've, as a community, changed the way in which we think about who we want as the next generation of doctors. Many of the faculty, I won't say it's true for all, but many of the faculty recognize that the way they were trained is not the right way to train future physicians. We do a fair amount of faculty development, trying to get faculty to sort of recognize that what they learned and the way and the criteria on which they were selected are different in kind, not in degree, from the way in which we're selecting medical students today.

His colleague talked more specifically about using methods such as student narratives and simulation with faculty during retreats, noting that faculty insight into their own teaching pedagogies is the beginning of formative improvement. He described these creative means to engage and develop faculty:

MWM3: So yeah, part of the reason we're doing these narratives and faculty retreats and building teamwork scenarios into the simulation is, in fact, to help people with self-awareness and understanding of how they teach by what they do. Sometimes inadvertently embody or exemplify values that they don’t intend to be expressing . . .

We actually even run faculty development programs that use student narratives as a point of merger, as kind of a trigger. Where patterns of behavior, good or bad, emerge, we try to give the chiefs of the divisions and of the institutions this
information, so that they can know that there are patterns. So they can get closer to the situation that deserves remedial action.

Finally, formal faculty mentoring was discussed as a means to engage and develop faculty. While this had not yet been developed at Midwest North, faculty there were in conversation about implementing a more formal structure to help adjunct clinical faculty develop a comprehensive understanding of the curriculum. A nursing faculty and leader from that institution described the plan:

MNN2: We also need to work on—we are in conversation on some formal mentoring . . . For clinical faculty. For new faculty certainly also but for these very part-time faculty can't we set up mentoring relationships where they actually have an identified person who, not just the course leader who has everyone, but an identified person. This is my mentor. This is a full-time faculty, a seasoned faculty that I can go to. And for that person to really see these two people are or this one person is my responsibility to help them. Be integrated to—to mentor them into our program. So we're talking about that and trying to get it set up. . . In a more formal way. Some of it happens—has always happened but not in a more formal structured way and we've got to do that.

She also talked about the burden orienting, mentoring, and supporting large numbers of adjunct clinical faculty places on regular faculty. She offered a structural solution to the these issues by suggesting a change in the ratio of full-time to part time-faculty:

MNN4: And I think it's putting—I think it does demand a lot of the course instructors, the course leaders to do that. My goal obviously is to have more full-time faculty and then, you know, use fewer part-time faculty so that we have people who know the program and who are committed to the program. Who are able then to communicate, work with students in the context of our program.

Finally, an unexpected influence on faculty engagement was shared by a nursing faculty from Midwest North. She talked about her experiences with the new generation of students, who do not hesitate to make their opinions and expectations known. She expressed frustration that some faculty, even those who are veteran faculty, feel pressured by student judgment about what is important in their curriculum. She said:
MNN2: Oh yeah, so somehow I feel that—it seemed like when I was in school that if the faculty felt we should learn interprofessionalism, we did. We just did it because we thought, oh the faculty knows best, and they want to guide us the right way. It really bothers me that the faculty are nervous about what they're presenting to the students; and that the students are so powerful that they can sway the faculty to deliver education or not deliver education. It goes back to my original talk about how, when we have these faculty meetings about what we were going to do in our educational pieces, and they were like, oh no we can't do that. They won't like that. It's like if you believe that this is important, then let's deliver it.

JL: Are these inexperienced faculty?

MNN2: No they're very experienced. Yeah, so I don't know it that's a generational thing that the younger generation now as a powerful force and that's a whole other topic.

No other faculty participant spoke about this kind of influence on faculty engagement, although pressure from students was discussed in other venues.

Faculty perceptions of value of interprofessional education. Participants also mentioned that the extent to which faculty valued interprofessional collaboration, therefore IPE, had an effect on their level of engagement. This subtheme differed from perceived value of “soft” content in three ways. First, the idea of soft content was related to the influence of educational program culture rather than faculty engagement. Second, the focus was on curriculum content rather than IPE as a process. Third, the perception that content was “soft” was of greater concern for medical students than for faculty.

Two factors played into faculty perceptions of the value of IPE. One factor described was faculty motivation to change their way of thinking to embrace interprofessional collaboration as an essential part of the curriculum. A second factor was related to the principle of faculty autonomy. While the curriculum plan sets forth the map for the curriculum, and course descriptions and objectives are typically implemented as written, the details of course implementation rest in the hands of course faculty.

Interprofessional collaboration was valued by faculty who participated in the study. In all 3 institutions its value was also supported by at least one of the program
leaders, the dean in either nursing or medicine. A medical faculty from Midwest South said, “where does it (interprofessional collaboration) rank in level of importance. I think it's—the new provost seems to be stating that this is an important area for him, which I think is good.” However, some faculty, particularly those in medicine, mentioned that faculty who come from a point of view that assigns the greatest importance to the scientific aspects of medicine are reluctant to engage in a direction for which evidence is just emerging. A medical faculty from Midwest West said this:

MSM5: The notion that it (interprofessional collaboration) might lead to better healthcare outcomes is a little abstract. I’m not sure we could prove that either. We would have to do a lot of work to prove that this better teaching of interplay between the two groups is gonna lead to better health care outcomes, because I don’t know if it would or not.

A medical faculty from Midwest North talked about the medical school dean’s sense of the importance of interprofessional collaboration. In response to my question about whether the dean was a supporter, she said: “No, yeah. Not that I know of. No not at all because she's a basic scientist so she thinks this is all a bunch of hoo. That's a big barrier.”

Although medical leadership in that institution was not openly supportive, the fact that external funding had been brought into the institution from the collaborative grant project shared between the medical and nursing schools served as leverage. A nursing faculty from another institution, Midwest West, noted that:

MWN2: There’s not a grant proposal that goes in anymore with regard to any kind of education that doesn’t say if you can’t show interprofessional collaboration in education, we won’t give you the money. I mean, it’s that evident in the bigger culture of financing of health care education. It’s everywhere.

In addition to conversation about the importance of their leaders’ perspectives, faculty also talked about how they saw IPE valued by their peers. Faculty observed the attitude that working collaboratively with another program, and teaching collaboration, took too much time. Faculty who already felt the pressures of a saturated curriculum and
busy clinical settings defaulted to the argument that IPE is too time consuming. A medical faculty from Midwest South described this phenomenon:

MSM2: I think the problem for that is it gets back to time, because it’s like I need my students in there from 1:00 to 3:00 just to do what we need to do, because from 3:00 to 5:00, I’ve got them doing something else. You know, because quite honestly, doing it in a teamwork effort would be much better, but the problem is nobody wants to sacrifice additional time, because instead of my students being there for two hours, they’re there for four hours, which will, in my mind, greatly benefit not only the medical students but the nursing students. Everybody spent “twice as much time doing that.” People just need to make the conscious decision that that is an appropriate expenditure of time.

A nursing faculty at Midwest West spoke similarly about her experiences with her colleagues. She suggested that a part of the problem is that interprofessional collaboration is being integrated in a piecemeal way in her institution. She expressed that this does not allow for depth of faculty immersion or development, which in turn may have an effect on how faculty value the concept and experience. However, she felt that a comprehensive effort to integrate IPE into the curriculum would be so time consuming as to be intimidating to many faculty. She said:

MSN2: . . . Yes, and that’s how I would do it all at once. I don’t think you can do this piece by piece. That’s our way (at her institution), but it’s also a way to just delay getting something done.

I mean, I’ve got a faculty member who’s a member of the Board of Advisors for the AHEC (Area Health Education Centers). She’s been on that Board for a year. Not one move has been made to increase interdisciplinary educational opportunities. Why is that? They get money to do that. Well, if they have a couple of nurses on their Board, I guess that’s the same thing as doing interprofessional work.

Or have a conference on interprofessional education, and that’s the same thing as doing it. See, I mean that’s my little cynical part saying, “People, step up to the plate here.” We have all this faculty resource of people who could be doing this, but there’s a lot of resistance still.
I think the resistance comes from the acknowledgement that two schools at the least would have to significantly change their curricula in order to accommodate it at the level it needs to be done. Maybe that’s just too daunting.

A medical faculty from Midwest North had considered many of the same factors. She talked about this in terms of minimal changes that are virtually inconsequential, and the level of medical and nursing faculty commitment it would take to integrate IPE into the fabric of the curricula:

MNM2: It's about really understanding what it means and what it takes. I think what your study is gonna unearth is that there's a lot underneath saying that term. We can't just let it sit there on the surface, okay fine there's something that needs to be done and it's interprofessional education so we've got a program, we've got nursing students and medical students working together. We've done our job, no. I just wanted to make that point.

**Resources.** The two subthemes relevant to the resources cluster were: faculty workload and reimbursement; and creating faculty incentives. These subthemes were not mutually exclusive, but are differentiated because faculty incentives were usually talked about as a creative solution, rather than an existing influence. Workload and reimbursement were inseparable, and often spoken to in tandem.

**Faculty workload and reimbursement.** Faculty often referred to their experiences in the academic setting in terms of time commitments and intensity. Faculty talked about the time it took to engage in interdepartmental collaborative planning. A nursing faculty from Midwest South said, “. . . I think it’s hard sometimes for people when they’re already on overload, how do you get excited about another project? Or if you do get excited you still don’t have enough time to actually carry it through.” A medical faculty from Midwest West said this about the difficulty engaging in team efforts because of the busyness most faculty experience:

MWM3: Well, I think frenziness, sort of spinning the wheel, our own individual wheels faster and faster no matter what it is makes us less able to really read the environment and take time to communicate with one another what each of us needs to know.
Since the dominant activities of academic medical centers are truly well described as exhausted people working as hard as they can work at all times, I think it’s amazing that we ever get any kind of nuance teamwork going.

Another participant, this one a nursing faculty from Midwest South, talked about the volume of time this kind of work takes. In response to my question about factors that hold back this work, she said:

MSN3: . . . Creating time for faculty who would champion this effort to plan; this is not something you would throw together in the afternoon. This could take months of planning. Actually, what we’ve talked about with all the disciplines involved could really take—I mean it could take an academic year to get those people together, to really plan it out well so that if it’s not planned out well and it’s not methodical then the students—we have to have clear objectives. What are those objectives? How do we carry those out? I think having the time to plan . . .

Both nursing and medical faculty from this institution and others agreed that time was an important factor. Another nursing faculty, from Midwest West, talked about the additional time needed for research and preparation prior to planning and implementation. In response to my question to her about what hinders progress, she said:

MWN3: Time to cope, to understand, to be able to look at the literature, know what’s going on out there because it seems like we’re flying a lot of times, and trying to—well, for instance, a good example is QSEN. I was a HIT scholar, Health Information Technology scholar through NLN (National League for Nursing), and I’d heard all this language, and I knew it was coming around the bend. Yet when it came it’s like, okay, so how are we going to do this . . .

The other component of this subtheme is related to financial models for faculty compensation. Financial models differed in medical and nursing programs, because the nature of medical faculty practice and contribution to the program budget through their clinical practice. In both cases, though, faculty mentioned that the models were complex, that university pressure for a balanced budget was a common element, and that budget models complicated collaborative education because of the need to identify sources of revenue and ascribe expenditures to cost centers. Medical faculty from Midwest West and Midwest North described some of the complexities. My conversation with Midwest West follows:
MWM5: It’s always time and money. It all comes down to that equation. How do we pay our nursing faculty and our medical faculty and our pharmacy faculty well? The medical faculty most of the money in the medical school comes from our clinical collections. . . .

JL: It sounds like the time and money thing are intersecting circles; they’re not really separable from the way you described it.

MWM5: Yeah, they are related, right. Yeah, the money pays for the time . . . We have lots of practicing doctors and we make money from seeing our patients and running our hospitals and clinics and everything and then the doctors take a little extra time and teach students and residents. That’s mostly how it works. That’s grossly oversimplifying a real complex financial model.

There is some money from tuition . . . to go for education and then there is some money in this State for State supporting medical school. The amount from tuition and State support is not, it sort of supports the infrastructure that can’t pay for itself; like the anatomy professors don’t have any way of making money, right? . . . The grant world does not pay in the nursing school or the medical school for any education stuff unless it’s an educational grant, unless it’s a grant to study education. Even those, the purpose is not to deliver core curriculum . . . it may be to study a question or an issue.

A medical faculty from Midwest North contributed to the commentary on financial complexities by talking about them within the context of the larger organizational. He offered thoughts about the kind of budget model needed to effectively launch IPE in response to my question about barriers to implementation:

MNM2: The barriers that I've encountered and that everybody else encounters who really seeks to do this are enormous because of our very highly developed organizational structure that is necessary on the one hand to make the organization run. You have to schools, you have to have deans, in your case you have colleges.

Those deans are burdened with budgets, the coursework. To really do this right you have to get students in the same room at the same time. Ideally have experiential opportunities be part of this, and you need to have their curriculum aligned. You need to have their time aligned, you need same level.

A medical faculty from Midwest South summarized the challenges present when comparing faculty time and compensation with return on investment. He talked about
those factors in terms of what is necessary to justify incorporating IPE into the curriculum:

MSM5: I don't see how it could hurt (interprofessional education), but nobody's really documented the benefits yet. I think that's a challenge for educators who want to push this interprofessional training, because of the resource intensity required to do it. It is time consuming and expensive. If you're going to spend all this money trying to do this, and effort, and try to get everybody together, you've got to demonstrate that there's some value, beyond just the immediate experience.

Creating faculty incentives. Participants who talked about creating faculty incentives invariably spoke in financial terms. Nursing faculty and administrators focused on adjunct faculty. They suggested that there was a need to incentivize adjunct faculty to participate in retreats, planning meetings, and educational forums devoted to IPE curriculum development and implementation. Salaries for adjuncts only covered teaching students in the clinical setting, and sometimes select meeting time, but did not cover additional activities. Faculty said this structure was not conducive to involvement in or understanding of the rest of the work of the nursing program. A faculty from Midwest South responded to my question about how to overcome this hindering factor:

MSN6: It would be nice if we had the funding that would allow us to pay the adjunct a little bit more, so that they would be mandated to come to meetings as part of their contract. But I don't think that's reality. I don't think that can happen in the budget cuts and all this other stuff that's going on right now.

Another nursing faculty and administrator from Midwest North had similar ideas. However, she also talked about the value added by adjunct clinical faculty; they are the faculty most current in clinical practice. She said:

MNN5: We’ve actually asked our senior leadership at the school about having a retreat or an education day for our clinical instructors about the whole quality and safety thing because they’re our front line faculty. They’re the ones that have the opportunity to help students operationalize these things. I’m not talking about our grant but just every day. Then they would have to be offered the pay to do that. They’re not gonna come of their own free will because they work otherwise. We haven’t reached that point yet but we really need to.
Another hindering factor mentioned by medical faculty is the way medical faculty are paid for teaching. In many programs, teaching is considered voluntary for physician faculty. A medical faculty from Midwest West talked about the model of payment in his institution. It is a complicated pay-back model which leaves little financial incentive for physicians to participate in teaching beyond their own sense of contributing to the profession. He said:

MWM2: Well, I think one of the biggest difficulties in education right now is so much of it is volunteer. Now, you come from a nursing background where people like (a nursing faculty), she's getting a paycheck to teach. Majority of us are not getting a paycheck through our school system to teach. It's mostly volunteer. Everybody thinks that the medical educator in medical school is being paid to teach, but the majority of them are not. They're doing it out of what they feel is an appropriate thing to do. Or if they are being paid to teach, it's usually so small.

Exploring ways to financially incentivize faculty based on participation and contribution is under discussion in the medical program at Midwest West. Whether it was departmental financial credit or direct faculty reimbursement was not clear, but it was a talking point between the medical program and university leadership. A discussion with a medical faculty and administrator from that institution about this potential plan follows:

MWM4: So there are multiple ways of connecting. There’s the curriculum council. There are course directors. There are competency directors. Our dean now asks department chairs what competencies they teach during their annual budget meeting. While there are not dollars in the allocation model associated with participating yet, it wouldn’t surprise me if there are soon.

JL: In terms of like merit or what do you mean by dollars?

MWM4: In terms of discretionary funds that the dean has to allocate to departments. Each department will get base dollars, but the money—or in justifying the money that they’re given for education.
External Drivers

Faculty talked about the influence of external drivers on the inclusion of interprofessional collaboration curriculum elements, and on the capacity for nursing and medical programs to collaborate on interprofessional endeavors. External drivers influencing these factors included: accreditation standards; external funding; pressure from external organizations or nationally recognized reports calling for interprofessional collaboration; curricular reform, and national models for collaboration. Discussions about several of these drivers converged, but were different enough to warrant individual attention. Accreditation as an external driver is addressed in detail as its own subtheme, but was also mentioned in the context of curricular reform. The curricular reform subtheme distinguishes itself by focusing on faculty experiences with external drivers as they affected the curriculum change processes in their institutions. External press as driver differentiates itself from accreditation in that it addresses non-accreditation external entities, e.g. the Institute of Medicine (IOM) the World Health Organization (WHO), and the U.S. government.

Accreditation supporting and driving curricular change. Both medical and nursing faculty mentioned that their education program accreditation bodies set standards that either generally or explicitly referred to interprofessional collaboration. The 3 nursing education programs represented followed the American Association of Colleges of Nursing (AACN) Essentials of Baccalaureate Education, and were accredited by the Commission on Collegiate Nursing Education (CCNE). All 3 medical education programs were accredited by the Liaison Committee on Medical Education (LCME).

Medical faculty talked about their experiences with accreditation cycles and criteria. Several Midwest South medical faculty talked about their preparations for reaccreditation, and the impact this has had on the restructuring of their curriculum. One medical faculty from that institution talked about the outdated state of the curriculum, and the fact that the upcoming reaccreditation visit has fueled the curriculum reform effort. He said:
MSM5: . . . our curriculum does not emphasize this (interprofessional collaboration) at all. As you brought up in some of the questions you're asking, that is changing dramatically and it's like a huge breath of fresh air for me because I've been pushing uphill on this for 20 years. Our college of medicine, as you probably heard if you talked to faculty, is going through a reaccreditation . . .

Our curriculum is antiquated in a number of areas. It was decided that in order to get through this accreditation was that we basically had to reinvent ourselves as best we could, start over again. They basically are starting over again. Now, changing medical school curriculum is tough and there's a lot of push back and things aren't changing as much as some would like. One thing that's very clear is that interprofessional training is a critical part of the new curriculum. That has never been stated before clearly. All the things I've been doing are now going to be able to be integrated more into the curriculum . . .

Midwest West medical faculty had a similar experience during their previous LCME accreditation visit. Two medical faculty from that institution talked about the accreditation report they had received from LCME. The first talked about changes that were suggested by the LCME, which have also served as impetus for curricular reform; the second talked specifically about the accreditation standard relative to professional values, a concept foundational to collaboration:

MWM2: the School of Medicine is going through a curricular reform right now. The LCME came here, looked at the school, gave them a continued accreditation; however, but said, "Hey, listen. Next time we come back, we expect things to be different, and different in a way that you are getting good results but you've got a 40-year-old curriculum. So even though you're getting good results with your 40-year-old curriculum, we expect you to be different the next time we come back, and here are some areas that we anticipate you improving on."

MWM 3: Well, we have an accreditation standard that asserts that the environment in which medical students become physicians has to reflect positive professional values and be supportive of the students’ growth as a responsive, humanistic physician.

There was also discussion about comparability between the LCME standards which apply to medical student education, and the Accreditation Council for Graduate Medical Education (ACGME) competencies, which apply to resident education. Since the ACGME competencies address interprofessional communication and collaboration more specifically than the LCME competencies do, most medical faculty involved in
curriculum reform elected to amplify medical school competencies to include the more descriptive ACGME competencies. A conversation about this with a medical faculty from Midwest South revealed this approach:

JL: If I understood you correctly, the ACGME, six core competencies, are now being absorbed into the medical school education as well.

MSM2: Yeah.

JL: That’s a voluntary thing.

MSM2: Well, yeah, because I don’t think—I don’t recall off the top of my head if that’s specifically LCME standard, but things are definitely hitting in that direction. We just kind of figured here it’s also like that’s what they’re going to be focused on as residents. Why not do it as medical students as well.

Nursing faculty from all 3 institutions talked about the CCNE accreditation standards, which are based on the AACN Essentials of Baccalaureate Education, commonly referred to as the “Baccalaureate Essentials”, or simply “The Essentials.” At Midwest South, a change in the university calendar from a quarter to a semester system sparked the need to reexamine and redesign the curriculum. Faculty used the AACN Essentials to guide that work, knowing they would be held to the newer standards. A nursing faculty from that institution said:

MSN2: Right, and we’re changing to semesters now . . . One of the things that, in terms of going to semesters, we looked at AACN for the development of all the semester’s syllabi and trying to make sure that we included—all those essentials, yeah, yeah. So I don’t think there’s going to be a problem. I don’t think we currently have a big problem either, but I think it might be better even because it’s more apparent. It’s there. You can see it in the end and the learning outcomes.

Another nursing faculty from that institution talked about the attention given to incorporating the AACN Essentials into course syllabi. They have done this in such a way that the Essentials are clearly visible in every course. She said:

MSN5: . . . I thought we were incorporating it more in our semester conversion. We had to go through the syllabi and convert it over to student learning opportunity or SLOs versus objectives I think it was called. We took that and then
which standard fit where. We wanted to make sure each of the standards were addressed somewhere and the outline for each course.

One of her colleagues confirmed that the AACN standards related to interprofessional collaboration have been included, and that they are visible in the written learning outcomes. She said, “As far as across colleges, in terms of collaboration, again, that's happening in the clinical environment every week. And is that in our learning outcomes? Absolutely. There are objectives that speak to interdisciplinary collaboration and those kinds of things.” The message that inclusion of AACN accreditation standards in the curriculum is crucial was heard from nursing faculty representing all 3 institutions. Another nursing faculty from Midwest South expressed the level of attention that is being given to the Essential describing IPE, and said, “So with that, you know, everybody's living and breathing the essentials right now and trying to make sure we've got that thread going throughout our curriculum.”

Faculty from each of the 3 nursing programs were fully aware of the revisions in the Essentials, and said their programs incorporated the standards soon after they were released in 2008. A nursing faculty from Midwest West talked about her experience with their recent reaccreditation, which was successful, in part, because they were able to demonstrate evidence that the essentials had already been incorporated. She said:

MWN1: We actually just went through accreditation so we were all made aware of that. So yeah.

JL: Okay. Have those changes been reflected in the written curriculum?

MWN1: I think that we were ahead of the game in some of it. That we actually had implemented that in our curriculum, I think we had already started it, whereas we were a little bit ahead. We were praised for that in our accreditation process.

Although accreditation was discussed as a support and driver for curriculum change, medical faculty from all 3 institutions agreed that the LCME accreditation standards are vague. A medical faculty from Midwest South mentioned this:
MSM2: You know, professionalism and interpersonal skills are two of the ones that are in there . . . There’s not a lot of specifics on, well, you know, what do you have to achieve to do that. . . — so there’s a communication piece there, but it’s between patient and physician. Not between physician and other healthcare workers. So there’s really as far as I’m aware not any absolute standard that says, “You know, we need to observe you. Have this specific type of interaction with another healthcare professional and do it in an appropriate manner in order to graduate.” I mean it’s generally part of the evaluation at the end of your rotation, but there’s no specific, you know, it’s like to graduate, it’s not — this doesn’t exist.

A medical faculty from Midwest North also talked about the vague nature of the LCME standards, but in addition she mentioned that she believes the accreditation standards will evolve. In that institution, she said the medical faculty have looked to nursing for guidance on development of collaboration competencies for students, so have augmented their own competencies beyond what is required by LCME. She said:

MNM3: Well the licensing body for medicine is the LCME and the LCME has standards. I know there is something about interprofessionalism in there, but it is not — It is not specific.

So I don’t think that we are being so much driven by that though they will — the LCME, my experience is the LCME does the right thing. I just have to say that. As hard as it is to be under certification and have to do the enormity of accreditation, it is a good thing, not a bad thing. I’m sure that is coming and the standards will increase. But what we made a commitment to, as I said, was this teamwork and leadership competency for our school. We worked with our nursing colleagues and you guys, the nursing, have a comparable competency on a national level, and it is called something like Teamwork and Collaboration. . .

But at the medical school level, the competencies have not been legislated, and we have the residency level. Medical schools who choose to be competency based, and more and more are, are really making their own choices about competencies, and we have nine and six are exactly the same as the ACGME. Teamwork is not one of these . . . Each school can vary so it is not really on a national level yet.

**Funding as a vehicle for collaboration.** External funding was discussed as an element essential for virtually any interprofessional venture involving cooperation between medical and nursing programs. Faculty in all 3 institutions had received grants for interprofessional projects, and said that their ability to collaborate without funding
would have been less likely. Funding came from a variety of non-governmental agencies; most grants were of a modest size, although specific dollar figures were not discussed.

Several faculty talked openly about the necessity of external funding to incentivize both the institution and faculty, although IPE grants rarely covered any part of faculty salary. A medical faculty from Midwest South used the maxim “show me the money” in his discussion about the university’s perspective on innovative programs, and shared his own insights on the importance of funding. Our conversation follows:

JL: We talked very briefly before we went on record, about what you understand how the curriculum is changing and from where you sit right now whether interprofessional collaboration is an integral part of the curriculum; you said not really, but they’re heading that way. Is that correct?

MSM3: I think there are going to be more opportunities for it to happen and there’s certainly a lot of talk about it, but it takes bold steps usually with some funding.

Again, unfortunately, it goes back to show me the money. Where is the money? Where’s the incentive to do it differently? Because it’s always easier to do it the way we’ve always done it.

Nursing faculty from Midwest North talked about financial realities in a private institution, and the interface between their budget model and the potential for collaboration between the medical and nursing programs. One of the nursing faculty said this about funding:

MNN5: Well one barrier and it seems odd that it would interfere with interdisciplinary function and particularly the students but I think everything filters down and one is that the schools, this is a private institution. There is no state funding. It's not like administration gets money and doles it out to the schools. Every school earns its own money.

Her colleague talked about how that barrier has been ameliorated by the interprofessional grant project in progress. She said:

MNN4: Well I think, you know we've kind of related to the fact that our educational programs are not integrated, you know . . . We're trying to overcome
that with some of the activities of the (name of foundation) grant to see if we can make that less true but there has been very little relationship between medical student education and nursing student education.

Faculty in medical programs had similar experiences. Also, state funded universities had much the same experience as the private institution. A medical faculty from Midwest West mentioned that this is because government funding for higher education in general, and health care education specifically, is not expansive enough to fund what might be considered special program elements. He laid out some rhetorical questions about funding for which there are no current answers:

MWM2: Now how do you impact education? How is a person gonna teach? Are you gonna teach at nighttime just like you teach during the day, and you see? There's a lot of things that are starting to come into play, and how do you build that engine, and certainly it's different for every facility, but I think that's gonna play into this interprofessional because you're stressing yet another part of it, and the government is not funding it. They're mandating it, not funding it . . .

Another medical faculty, from Midwest North, talked philosophically about what makes for substantive collaborative education between medicine and nursing. She discussed sources of resistance in medical education that is both cultural and financial, and added the imperative for funding. She said:

MNM2: The difference between people within our academic communities saying the words and understanding what it really takes to accomplish that goal. At this point in the evolution of thinking about working together in our contemporary academic life. There are many fewer people who would say it wasn't the right thing to do.

I'm phrasing that very particularly. There certainly would be a few but I think by and large it’s the kind of thing that's accepted enough, that’s understood enough by the collective culture. People say oh that's good, yeah let's do it. One of the drivers for this by the way is external funding. It's always a big driver in medicine. . .

Now there's funding attached to it, that said though you've got to really again understand what it takes and we're not there yet. You can't think just because there's funding and you do a program you're doing what needs to be done.
External funding presented its own set of issues. A medical faculty and administrator from Midwest North talked about her experience with the administration of the grant shared between the nursing and medical programs. She said the only reason that grant sharing was not an issue of contention between the programs was that no money is actually being exchanged between schools. She explained the financial structures involved, and speculated about what might happen if the grant was larger, or required the paid time of a physician or nursing faculty:

MNM3: Yeah, so I think it depends on where the demands come from for honorary reimbursement for what we are doing. So right now the grant—the grant helps, and I don’t want to say—it is not a huge grant and most of us are not getting any funding from the grant. I think it isn’t so much that individuals are being paid. So I think as long as the activities are such that nobody feels the need to have money exchange it is a non-issue, right. If for example, the nursing—let’s just say we did say ask the nursing school if the medical students could all pair with nursing students and nursing supervisors and the nursing school said yes, but here is what it will cost us, in all fairness. Then yeah there is going to be a money issue for sure.

Then the issue is going to be will that money transfer, just as an example. So the grant handles administrative roles and a little bit—it is split exactly half and half and that was the way they did it so that took care of that. A lot of what is happening and people involved, it is not because of the grant. It’s because of the grant, except it’s the money. I think if the activities became substantial enough that they were really—that we needed some significant amount of a physician faculty time or significant amount of a nursing faculty time that we have to get sorted out. I am sure.

**External press as driver.** Faculty mentioned pressure to integrate IPE from sources external to their programs and universities. Pressures came, in part, from what faculty described as the general direction in the health care environment; faculty said their colleagues were cognizant of this shift. A medical faculty from Midwest North talked about these environmental pressures from his point of view:

MNM1: I think that there is a broad awareness among the people in charge of the curriculum here at (name of university) of the national, I guess I’ll use the word “pressure” to enhance interprofessional education but I also believe that here the people in charge of the curriculum have that natural tendency anyway. I’m
actually confident that efforts are being made from both the nursing school and school of medicine to find ways to improve interprofessional education . . . I think that there is a definite awareness.

Another medical faculty from the same institution had a similar perspective on external pressures, noting that they originate from within the profession and also from the general environment. She talked about the influence those pressures have had on her colleagues in medicine:

MNM2: I was saying that there aren't a lot of people that will disagree with the value now. One of the reasons why and this is where I got off course, is because there are a lot of people outside of medicine who are saying it's important. Make no mistake that it influences medicine.

Faculty said that pressure was felt explicitly from external organizations and nationally recognized reports calling for interprofessional collaboration. Organizations named included the medical and nursing education accreditation organizations; their influence has been addressed. In addition, nursing and medical faculty from all 3 institutions mentioned the Institute of Medicine (IOM) reports. An additional organization mentioned was the World Health Organization (WHO). One medical faculty mentioned the Affordable Care Act, commonly known as the Obama healthcare act, and its relationship to the development of Medical Homes. Nursing faculty also mentioned the QSEN competencies, as well as pressure from affiliating hospitals that have achieved American Nurses Credentialing Center Magnet status, a recognition achieved by healthcare organizations for quality, nursing excellence and innovative nursing practice.

The IOM reports were mentioned more frequently than any other national reports or pressures. When these reports were mentioned by medicine, they stood alone. When the IOM reports were mentioned by nursing faculty, they were often talked about in tandem with the AACN Essentials and the QSEN competencies. Faculty that spoke about the IOM reports discussed references in the reports to associations between interprofessional collaboration and safe care. Comments from two nursing faculty, one from Midwest South, and one from Midwest West, were representative of those made by
nursing faculty relative to the IOM reports and directives. The nursing faculty from Midwest South said:

MSN7: I think it's coming. I think that's where we need to go, but that's not where we are in practice, in reality, nor is it where we are in education. I think it's very visionary. Those are visionary things and I mean, IOM has addressed this has to occur for us to provide safe care. We just need to get there.

The nursing faculty from Midwest West emphasized her thoughts about whether the interprofessional movement would have occurred if not for the IOM reports. She offered her insights in this regard:

MSN3: I know a lot of the physicians and so I think role modeling for the students—I think the big thing, though, would be what we have seen that has happened through the IOM report, the Institute of Medicine, and the whole safety issue.

A medical faculty also talked about the influence of the IOM reports. Her perspective was somewhat different, in that she has been teaching collaboratively with the nursing program for some time. She found some humor in the fact that she was an unfashionably early adopter:

MNM3: This really was—it’s the Institute of Medicine I think we report around the way that education had to go. So I think well before the grant we had this awareness and we’re beginning to work on our competency and team work and started thinking it through and thinking interprofessional. We didn’t I don’t think had nearly as much of a sense of how to do it. The funny part for me is that I have been teaching at the nursing school for years. Way before this was even fashionable. I have a colleague over there and so I—in fact I just finished. I do a whole session on rheumatologic stuff and musculoskeletal exam so maybe that helps that I have some connections, but we definitely had been thinking in terms of teams and trying to make that work.

Another perspective on the influence of the IOM reports was mentioned by a medical faculty from Midwest South. He talked about the way they have influenced the accreditation bodies, which in turn influences the medical school curriculum. No other faculty had talked about that association. He said:
MSM5: I'm very optimistic about medical school training and interprofessional work going forward. It's mostly been dictated from above by the accreditation body, which is okay. It's derived from the IOM reports that got you interested in your work. IOM reports influence the accreditation bodies. Once again, I think medical schools recognize that they’ve been behind on this.

One medical faculty from Midwest South talked about the influence of the Affordable Care Act on interprofessional collaboration and education. He mentioned Patient-Centered Medical Homes (PCMH), a program for improving primary care. He explained that the standards for PCMHs are established by the National Center for Quality Assurance. He described the PCMH concept, and talked about its influence on interprofessional teams:

MSM3: That’s the emerging way of talking about teams. It’s infused through the Obama healthcare act or at least, a lot of the discussion behind it and how primary care needs to change. The core idea of PCMH is transforming primary care medical practice from a physician centric, physician at the top; and as much as, things have changed since 1950, that’s still true in the large majority of family medicine practices.

It’s all about the doc. It’s all about supporting what the doc does. Transforming that idea to saying we have to start first by breaking that pyramid down and thinking of ourselves as an inter-professional team in the office, even if it’s just four of us in the office.

Nursing and medical faculty who were interviewed were well aware of the external press for interprofessional collaboration, and appreciated the support and leverage it provided. They said the external pressure made it difficult for their faculty colleagues to continue to ignore the movement toward collaboration. Although nursing and medical faculty talked about a variety of influences, the IOM reports were key, and were the mentioned more than any other external influence.

Curricular reform. Faculty from both professions and all 3 institutions were involved in curricular reform or redesign on some level. Nursing faculty consistently referred to two external influences, the AACN Baccalaureate Essentials and the QSEN Competencies as impetus for change. Medical faculty referred to accreditation standards for medical schools; one institution had developed a set of competencies to guide
curriculum that built on accreditation standards, but were more comprehensive. Both nursing and medical faculty made reference to quality and safety issues in health care generally, and the IOM reports specifically, as influences on curricular reform.

A medical faculty from Midwest South talked about the new curriculum design at his institution, and the innovations that will be made possible as a result. He said:

MSM5: One thing that's very clear is that interprofessional training is a critical part of the new curriculum. That has never been stated before clearly. All the things I've been doing are now going to be able to be integrated more into the curriculum. Things that I never would have dreamt possible and I think I have some skepticism about are going to be tried. We are going to send students out to work with other disciplines as part of their basic training in medical school now.

This medical faculty member has been integrating interprofessional experiences into his work with students for some time, in contrast to many of his colleagues. The new dean of the medical school became an organizational champion for curricular reform as a result of a recent accreditation site visit report that listed a number of recommendations for the curriculum; integrating interprofessional collaboration was among them. This medical faculty talked about his impatience to see his colleagues accept this direction, and about the way the dean used the report to influence change:

MSM5: It is really hard. You have to be very patient. This was just kind of one of these moments in time where the dean decided after going to some orientation meetings about the site visit and the re-accreditation process, that if we were going to have any chance of getting through this process, we had to change. He used that as leverage. If he just brought it up and said, well it's a good idea to change the curriculum, nothing would have happened. He made it clear that we had no option that we wanted not to get serious citations, we had to do something.

Nursing faculty from Midwest South talked about their curriculum redesign direction. The redesign flows from two requirements and one national initiative. The two requirements are the AACN 2008 Baccalaureate Essentials, and the university transition from a quarter to semester academic calendar. The national initiative is the QSEN initiative. Midwest West nursing faculty are also integrating the Baccalaureate Essentials and QSEN competencies into their curriculum.
At Midwest West, medical program champions used two concepts to engage faculty in the redesign process. One is emergent design; the other is a willing partners model. One medical faculty from this institution talked about the way emergent design has been helpful in moving faculty along in the change process. He said:

MWM1: . . . We, in our culture change work, use two different concepts. One is a concept called emergent design, which is basically building the bridge as you walk on it and moving from opportunity to opportunity rather than pre-selecting or pre-stating what will or won't count as change or – and that, I think, has been very successful. We've worked and had influence in every major committee in the medical school by being invitational and not dictatorial.

Another medical faculty, and leader in the curriculum redesign at this institution, talked more about the willing partners model. She said that at first, many faculty resisted, but that student pressure helped to advance the movement for change. She talked about these aspects of the process. Our conversation follows:

MWM4: We’re going through a new curricular reform process now . . . When we first started looking at the competencies, there was a significant group of faculty who said, “That’s just a fad. Those competencies—that fad will fade away.” When the ACGME, which is the residency program, when they adopted the competencies and now continuing medical education is adopted competencies for board recertification, they’re sort of here to stay, and people recognize that. . . At the time we adopted them, we didn’t know that, and we did what was called the willing partners model. So we allowed people to participate if they were inclined to do so.

She talked further about the direction of the curriculum reform, which is being developed by faculty teams charged with identifying whether any of the competencies were missing. The teamwork competency was found to be absent. Subsequently, a curriculum council steering committee adopted four guiding principles to give direction to the curricular reform efforts; one of these was IPE.

At Midwest North, curriculum redesign in both the medical and nursing programs is emerging as a collaborative process. At present it is somewhat limited to the pocket of interested faculty involved in the interprofessional grant. The medical program has moved toward using a student objective-based portfolio as a way for students to
demonstrate that they meet all of the required program competencies, including interprofessional collaboration. Nursing faculty who developed relationships with medical faculty said the portfolio is an innovative way for students to demonstrate competency achievement, and are talking about how they can conceptually adopt the portfolio concept into the nursing curriculum. Conversely, nursing faculty have exposed medical faculty to the QSEN competencies. Medical faculty were impressed by the competencies and toolkits established by QSEN and are talking about integrating the competencies into their own curriculum. A nursing faculty from Midwest North talked about this unexpected benefit of faculty collaboration:

MNN2: Well, I think the key has been that the medical school and we should follow up a lead is has this portfolio piece . . . their objectives drive their education because then they kept—because they invited me to this to their portfolio planning, which is interesting because of my friend. So she pulled me in, and so I would go and we'd talk and actually they have it stayed, they use the QSEN . . . Yeah so (nursing leadership) wants to use it (portfolio) in the graduate entry program . . . I'm sure something will evolve. It's hard to change objectives here in the nursing school, it's not as easy.

**Use of national models.** Five faculty mentioned the use of national models and the way they have influenced the unfolding of IPE in their institutions. Those 5 faculty mentioned 3 models: a federal program called the Geriatric Education Center; TeamSTEPPS, a teamwork program of the federal Agency for Healthcare Research and Quality (AHRQ); and the QSEN competencies, which have received sufficient attention and use in nursing programs that they are thought of in terms of a national model.

A medical faculty from Midwest South has been involved in the Geriatric Education Center program for a number of years. He talked about his experiences with the Center, and the way it models interprofessional collaboration. He said:

MSM5: Well, I think that—another area that I've been involved with since the late '80s is a federal program called the Geriatric Education Center. The Geriatric Education Center forms a national program, we've been part of a Geriatric Education Center here since the late '80s. We collaborate with other universities in Kentucky and Tennessee. It's called the Ohio Valley Appalachian Region
Geriatric Education Center. I think that name is what's allowed us to get continual funding for many years.

The Geriatric Education Center is by their nature our interprofessional training program. That's what they are. They require that you have interprofessional training. They've increasingly over the years emphasized that. Right now we are under the obligation for any of the activities that we do in GEC, that we have at least four health professionals involved in it. In the earlier days it wasn't quite that strict, but now it's getting more and more strict. My early efforts with students in medicine and nursing, and interprofessional training has been through the Geriatric Education Center.

The TeamSTEPPS program was mentioned by a medical faculty from Midwest West, and also by a nursing faculty from Midwest North. Both of them knew of this AHRQ program, and had made attempts to implement it in their institutions. They were puzzled that few of their colleagues had heard of the program. The medical faculty from Midwest West said:

MWM2: There's not a lot of resource anymore because of the stripping down the budgets. Yeah, but that's probably, I mean I had on there, and certainly Team STEPPS, if you've run across team steps – Those are things that even though that's a couple of years old, it's amazing how no one knows about it and, I mean when you talk to – like I was talking with general surgery and one of the directors said, it was like, "Hey, why don't you start doing the team steps in your small groups with the residents and have maybe the first years and third years and fifth years do it? That way they cycle it and they repeat it and" – Yeah, you know what I mean, it's one of those things. It's like, well, they kind of look at you. You're like, well, what is that? Even though it's out there, I think it's just starting to be known by people, if that makes sense.

The nursing faculty from Midwest North had a similar experience. She is a proponent of the program, and has begun to get the support of her colleagues to teach it in her organization. She said:

MNN1: You know, my number one—and this is the one thing that I bark about all the time—is that we have to be good role models of those behaviors. And that's why, you know, I'm kind of the one that—it's not that people didn't value teamwork, but because I'm taking an interest in it, it's like I said, I think that we should go to TeamSTEPPS training.
So there is a collaborative effort from the nursing school and the med school that we—I think there's going to be six people down there. And usually the TeamSTEPPS is taught in organizations, so what we really want to do is, you know, learn the language, get that stuff and then do the Train the Trainer for not only students, but for our own faculty.

A number of nursing faculty talked about the QSEN competencies; one nursing faculty from Midwest South who also holds a leadership position talked about the degree to which she is relying on a senior member of the faculty who has been involved in the development of the QSEN competencies at the national level. She talked about how the curriculum is being redesigned using QSEN competencies, and also how the competencies align with the nursing program’s strategic plan:

MNN5: Then because of the initiatives at our school, that I kind of—my program was targeted to start implementing quality and safety, competencies and interdisciplinary collaboration which was in our strategic plan. That provided a context. I would have had to do it kind of anyway because my program identified. But, it gave me kind the passion rather than just doing something because I was told to. I really felt like I wanted to do this. . .

We have written a—I want to mention about the strategic plan because that’s an important aspect of what’s driven some of this. We have a member of our faculty, a senior member, who has been very involved at the national level with quality improvement and interdisciplinary collaboration and was on the group that developed the QSEN competencies.

Faculty experiences with regards to the major themes that describe environments and cultures, and have an effect on the teaching of interprofessional collaboration, have been described. Data analysis will continue in Chapter 5. Chapter 5 will explore faculty experiences and perceptions related to student-centered themes, including those related to curriculum and pedagogy, authentic experiential learning, and the influence of student roles and role understanding on collaborative knowledge, skills, and attitudes.
CHAPTER 5

DATA ANALYSIS

OF STUDENT CENTERED THEMES

This chapter focuses on the analysis of themes that were student centered. Whereas other themes centered on the influence and effect of learning environments, clinical environments and cultures, these themes were directly centered on learning and roles from the student’s point of view. The two major themes analyzed in this chapter were enabling curricular methods and pedagogy, and student roles and role understanding. The themes, clusters, and subthemes addressed in this chapter are found in Table 8, *Student Centered Themes, Clusters, and Subthemes*, on page 215.

**Curricular Methods and Pedagogies**

Curriculum methods and pedagogies emerged as the strongest student centered theme. Three subtheme clusters emerged from these conversations, authentic experiential learning, faculty enabled pedagogies, structured methods and collaborative methods. The clusters of subthemes addressed methods and pedagogies that enabled faculty to create learning environments favorable to teaching interprofessional collaboration.

**Authentic Experiential Learning**

Faculty talked about authentic experiential learning as the most powerful driver of interprofessional experiences for students. Although faculty mentioned simulated learning experiences more frequently, those experiences rarely had the same level of emotional valence as authentic experience. Faculty described what they meant by
Table 8

**Student Centered Themes, Clusters, and Subthemes**

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<tr>
<th>Theme</th>
<th>Clusters</th>
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<tr>
<td>Curricular methods &amp; pedagogy</td>
<td>Authentic experiential learning</td>
<td><strong>Authentic experience</strong></td>
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<td><strong>Spontaneous teachable moments</strong></td>
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<td><strong>Exemplars of authenticity</strong></td>
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<td>Faculty facilitated pedagogies</td>
<td>Mentoring &amp; role modeling</td>
<td><strong>Mentoring &amp; role modeling</strong></td>
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<td><strong>Student debriefing</strong></td>
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<td><strong>Narrative reflection</strong></td>
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<td>Structured methods</td>
<td>Evaluating student competency</td>
<td><strong>Evaluating student competency</strong></td>
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<td><strong>Simulated learning experiences</strong></td>
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<td><strong>Teaching communication</strong></td>
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<td>Collaborative methods</td>
<td>Collaboration around common ground</td>
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<td><strong>Peer learning</strong></td>
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<td><strong>Engaging other profession in teaching students</strong></td>
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<td>Student roles and role understanding</td>
<td><strong>Student role identity and comfort</strong></td>
<td><strong>Student role identity and comfort</strong></td>
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<td><strong>Student understanding and expectations</strong></td>
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<td><strong>of other health professions roles</strong></td>
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<td><strong>Team building in medical and nursing students</strong></td>
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Authentic experience, and talked about the importance and value of authenticity. Authentic experiences differed from faculty facilitated pedagogies, which are addressed later in this chapter, in that they had characteristics that could not be planned for ahead of time. Even when faculty were responsible for setting up the environments in which authentic experiential learning opportunities were possible, the realities of the experiences with patients and the associated need for interprofessional collaboration to meet patient care needs could not have been fully anticipated. Authentic learning was real in the absolute sense, and required improvisation on the parts of both the student and the faculty.
**Authentic experience.** Faculty who talked about authenticity in interprofessional collaboration described student learning experiences that were real in the absolute sense, and were neither created nor contrived. These experiences involved students caring for real patients; they also required students to work collaboratively with either a faculty or student from the other profession to solve patient problems and provide care. Faculty and students alike saw these experiences as meaningful.

Medical faculty tended to talk more about authentic experience in a philosophical sense. Nursing faculty tended to talk more about authentic experiences as opportunities that arose spontaneously during the clinical day, although medical faculty weighed in on spontaneous experiences as well.

Some faculty were adamant that simulated laboratory experiences or classroom desk-top exercises did not substitute for reality. A medical faculty from Midwest South talked about what appeals to this generation of medical students, saying that, “25 year olds today hate—they really dislike kind of contrived situations. Alright I get it. I get the idea show me, you know let’s get down to business, show me how it really works. Let’s do it. They’re doers.”

A nursing faculty from Midwest South talked about the differences between the classroom and clinical settings related to authenticity. She also mentioned restrictions related to access to authentic collaborative experiences as a challenge:

MSN6: I don't think we're doing a good job of it. I think the most telling experience is when they're in the clinical environment. In the classroom, it's just a didactic thing. It talks about teamwork and group dynamics and shared decision making and those kinds of things. However, hands-on experience is limited for students.

Access was limited by two factors. The first was that the numbers of students are large enough that faculty have a difficult time finding opportunities for all their clinical students. The second is that some specialized patient care areas restricted student access.
Authenticity as an essential component of learning in health professions programs was emphasized by a number of faculty. This medical faculty from Midwest North talked about the importance of authentic experience as a way to reach a depth of understanding that can only be obtained through experience. She said:

MNM2: I think that authenticity is one of the key things. With all of the work that I do with students I seek as much as possible to have experiential environments where there is authentic experience. Where the student is doing the work themselves and where we've got their back. As opposed to the traditional way of following us around until you can actually do it. Then you look around and nobody's there to help you.

Anyway, I guess this conversation just had to do with why I have prioritized interdisciplinary education. Because it’s a way to —as experiential education can do and only experiential education. It's a way to learn the lessons at the depth they need to be learned. This is not - learning is not an intellectual exercise. Not when you're going to be a caretaker. It's experiential and you have to live it, eat it, breathe it.

Faculty talked about their responsibilities as role models for collaborative behavior, and about how their lead served as a source of authentic experience for students. This was true particularly when the faculty was a member of an established interprofessional team. A medical faculty from Midwest South talked about his experiences in this regard, as well as why the palliative care team, of which he is a member, works; they have a clear mission and direction for care. His experience has been that even a quick immersion with a high functioning team can be a meaningful, authentic learning experience:

MSM3: One of my views of medical education has sort of evolved over time has become that rather than simply creating experiences for medical students I think it’s really important for medical students to come along side highly functioning systems, and that includes teams . . .

What they can do is if you have a highly functioning team they can quickly discern what makes this team work, how is it working; it sparks conversation, discussion in between patients and with team members and so on. . . That has been true, especially for the inpatient team that I work with, where a student or a resident can join us simply for a half day and very quickly see that.
He also talked about the importance of authentic experiences for medical students that take place in the hospital setting. Medical students often see their future mirrored in their faculty mentors, so the hospital-based experience becomes a influential exemplar that has meaning for their forthcoming professional lives:

MSM3: Whereas in the hospital, the physician and as role model for the student, for a medical student, it’s a much more powerful model in the hospital for the hospital consult team because the physician, who they see themselves becoming as a medical student, is present all day long and is part of that ebbing and flowing of the work during the day.

Finally, faculty shared their views on the power of authentic experience, from the medical faculty and medical student point of view. Students who were able to make meaning of emotionally charged patient care situations found them to be an authentic part of the learning process. In response to my question about feedback from medical students, this medical faculty from Midwest South said:

MSM3: Well . . . because of the nature of the work it’s really eye opening for them. I mean, it’s a really unique experience and part of that—and sometimes it’s an emotional experience for students because part of it is sometimes based on personal experiences . . . it’s impossible not to relate your own experiences of a loved one dying or a parent dying or a grandparent dying and how that went . . .

The reaction that we get and part of the learning opportunities for students are based on becoming in close contact with dying and that’s held at arm’s length even in the hospital—in other hospital experiences . . We’re asking students to go with us and dive into the emotions and to manage them better and to walk with families through that and patients.

Anyway, it does touch on inter-professional training for the medical student because if it’s done well they see us as a team in these emotional situations; debriefing with each other, complementing each other’s gifts and talents through the process, so it’s an observation by the student, but there’s also this component of, sometimes, of the students personal reaction to what’s going on.

**Spontaneous teachable moments.** Both medical and nursing faculty took advantage of spontaneous moments to expose students to the realities of interprofessional collaboration. These ranged from isolated conversations between students, or between
students and the other profession, to more spur-of-the-moment participation by nursing students in structured patient rounds.

Simple, spontaneous, isolated interactions provided some of the most meaningful learning experiences. A nursing faculty from Midwest South described her experience with a nursing student who was caring for a patient with heart failure in the regional Veteran’s Administration (VA) hospital. The physician’s main concern was the patient’s cardiac status, however the patient’s main concern was a podiatry appointment he was missing because of his hospital admission. The faculty encouraged the student to contact the physician directly and work out a solution. This is what transpired:

MSN2: . . . I was with a group of students over on the step-down Unit at the VA. . . it was a patient who had come in. He had really bad heart failure, and his major concern was that he had a podiatry appointment that he was missing because he was admitted to the hospital. My student worked with the physician to arrange for him to get another appointment . . . The student was just delighted . . .

The students learn how to become patient advocates, and they don’t hesitate to page a physician and let them know what’s going on and ask for whatever the patient’s concern is, whether it’s additional pain medication or a podiatry appointment.

That the faculty had prepared the student to feel comfortable paging the physician and collaborating with him to work out a solution made a real difference in the patient’s care. This situation also reinforced the student’s confidence in her ability to talk with physicians.

Faculty also talked about preparing students for authentic exchanges with the other profession. They said they often see changes in a student’s capacity to be collaborative subsequent to interprofessional exposure in the simulation laboratory setting. Faculty said that the skills are transferable to the clinical setting. A nursing faculty from Midwest West talked about how those experiences prepared nursing students for spontaneous conversation with physicians in the clinical setting. She said:
MSN3: I just think that with the physicians and the medical students it’s just an opportunity that when they’re on the unit and they see them, that it’s not that wall that’s been up there before, that now it’s more engaging in dialogue. Not that every time they see somebody they’re going to talk to them, but it’s that, I think, fear of talking to doctors, that they’re not going to bite their head off.

Nursing faculty in particular talked about physicians who are natural teachers, and who will engage students in the moment. One nursing faculty from Midwest South talked about an individual who is an unusual combination of both physician and pharmacist. When he is on the clinical unit, she sends them to him with questions about medications. She does this for two reasons. First, he is skilled at making complex information simple to understand. Second, he is a willing partner in her efforts to help nursing students talk comfortably with physicians and other health professionals.

Another nursing faculty from Midwest South talked about a pediatrician she always approaches to let him know she has students in the area, because he is always ready and willing to step into the spontaneous teacher role. She offered an example of one of his teaching moments; our conversation follows:

MSN5: This particular physician, no matter who’s around, you’re experienced, you’re a medical student, you’re a nursing student, you’ve been an experienced nurse he’ll say, “I’m a red blood cell and where do I enter the heart?”

Okay, right atrium. “Then where do I go, what valve?” and he makes you go step by step where this red blood cell goes. It puts everybody kind of like okay. Well, this child now has this particular defect and there’s no way for this red blood cell to go out, how are you going to get it out? He actually draws everybody in, see what I mean? It’s kind of a—that way if you don’t know you might look at your colleague or they’ll kind of whisper to each other, “Do you think it goes to the right ventricle next? Or when does it go to the pulmonary artery?”

JL: Who might be in that group standing around him?

MSN5: Generally it’ll be one or two medical students, a nursing student, maybe a new RN, maybe someone who just started in our outpatient area. That is a very lively discussion because they’re like I’m a what? A red blood cell.

I think it’s an intriguing way for him to start the discussion and to see if they’re getting the anatomy right and say, wait a minute this child has whatever this thing
is. Then he’ll draw it on the board and where is this blood cell going to go. He actually says, “Now our surgeon will do such-and-such and now the red blood cell can go out.”

JL: I want to make sure I understand these are spontaneous moments, not planned?

MSN5: Teachable moments, very teachable moments.

Faculty mentioned that sometimes timing is the key to spontaneity. A medical faculty from Midwest South described the opportunities that might present themselves during a midnight lull in the emergency department:

MSM2: Like, you know, sometimes if it’s slow at 3:00 in the morning, we’ll kind of just do it kind of impromptu, because there’s not much else going on. I think that’s really important. Not only (does it) give everybody a little bit more, but it’s also important because, you know, everybody knows what everybody else is thinking.

Another situation that lent itself to spontaneous, authentic opportunities for collaborative learning was during direct patient care. This usually occurred when nursing students were giving patient care, and physicians came around to see the patient. Physicians often asked questions of the student. A medical faculty from Midwest South talked about this type of unplanned scenario from the physician’s point of view, and discussed the prospects for information sharing that are helpful to both the physician and the student:

MSM1: A student will be there or a resident will be there with a (medical) student, and they will be discussing issues around a particular patient, what’s going on, getting updates on that and sometimes they’ll walk in when a patient is getting a bath, you know, it’s typically the nursing students that are doing the bathing kind of thing.

If you have wound care and things like that that you’re looking at then there are opportunities where you can discuss what they’re seeing and query and ask questions.

There’s those sorts of dialogues that can go in conversation that they’ll have, but they’re not intentional at this stage. It’s like if they’re there it happens.
Patient care rounds, which are more formal than the situation just described, also served as an opportunity for spontaneous and authentic learning. Nursing faculty in particular talked about patient care rounds, or “rounding.” A nursing faculty from Midwest West talked about this opportunity nursing students have to discuss the patient with physicians during rounds. She said, “An example that I could give would be with my own students working in an area where during rounding, when physicians would come in and they would include the student and there was dialogue going on between the students.”

Nursing faculty said it generally takes significant faculty encouragement and support to get the student into the room during physician rounding if they are not already with the patient. A nursing faculty from Midwest South talked about this need for encouragement, as well as the kind of information that can be exchanged. In response to my question about whether students have an opportunity to communicate with physicians during rounds, she replied:

MSN2: Absolutely. Yes, absolutely. I encourage students when the physicians make rounds to just join the group and listen to what’s going on. It’s a good way to find out what’s going on with your patient, what the plans are for your patient. If they are going to be discharged, if they are going to be tested, if they are going to have surgery. So I encourage them to do that and I also encourage them to ask questions if they have a question.

Another nursing faculty, from Midwest North, talked about her precepted students and the likelihood they will communicate with physicians during rounds; she said that she rarely sees it happening. She explained the differences between precepted students and a typical clinical group of nursing students; students in a precepted experience are working alongside a staff nurse who is more likely to be juggling patient care needs than paying attention to the students’ needs to learn interprofessional collaboration. She talked about strategies she employs to encourage students in their precepted experience to talk with physicians:
MNN1: One of the things that I think—when the floors that I have been on, it's like—and you know the physicians are going to round with their teams, it really is, you know, tapping the student on the back and asking them to go in the room. They do not do that naturally at all. It's almost like they want to run in the other direction. And so you have to really encourage them to—you know, that may be their first opportunity to be a part of a team kind of experience, but it has to be—they don't do it voluntarily. They have to be encouraged and coaxed and sometimes you have to even be the person that facilitates the introduction to the physician. There's a student and they want to participate in this thing.

A nursing faculty from Midwest West described much the same phenomenon with her nursing students. She offered her insights on the instructor effort required to encourage nursing student participation in dialogue with physicians during rounds:

MWN1: . . . I’m just—and with the physicians, some of them (nursing students) will ask questions, but most are too afraid . . . I have to really push them in the room when they’re going on rounds. I literally kick them into the room, and say, and give them information.

Descriptions of scenarios like this one were shared repeatedly by nursing faculty participants. In every exemplar, faculty talked about student reluctance to engage with physicians, and how they skillfully worked with the student to transform that anxiety into an opportunity for them to learn beginning skills necessary for collaboration.

Many of the nursing faculty who spoke about rounding said that physicians were usually delighted to make rounding meaningful for students, and engaged student nurses as well as their medical students. A nursing faculty from Midwest West talked about the blend of spontaneous teachable moments with rounding:

MWN3: In my students, and I can only speak on my students when they’re making rounds, that some physicians just are very—make everything a teachable moment. They’re just that kind of physician, and we’re very blessed to have several of those. Those ones that are like that will take the student and ask the student what do you think.

Finally, a nursing faculty from Midwest North talked about plans for a future project that will include rounding, with a twist; medical students will be involved, and the experience will be mutual and collaborative. She shared those plans:
WN5: Next year we will roll out another element which will be med student/nursing school student teams working together on the unit to develop discharge plans for the third year med student’s little cohort of patients. Our plan is they’re each gonna listen to report, nursing together. Listening to nursing report, listening to medical report together, then rounding. The nursing students will come every day, even before class, when they’re even not on the clinical unit to make rounds with the medical students.

**Exemplars of authenticity.** Faculty talked about their experiences with different types of authentic experiences. These fell into four categories, and included shadowing experiences, international experiences, service learning, and the care of vulnerable populations in the community.

**Shadowing.** Shadowing involved placing students alongside either practicing professionals, non-professionals with whom medical students will work in their future roles as physicians, or nursing students. The purpose of shadowing was to immerse the student in the others’ work to enable a more authentic, experiential point of view of non-physician health care team member roles. Medical faculty used this method; when nursing faculty talked about shadowing, they referred to medical students shadowing nursing students from their program.

Medical faculty from all 3 institutions talked about shadowing programs. At Midwest West and Midwest North, medical students shadowed practicing nurses; Midwest North medical students also shadowed student nurses. Midwest South’s medical students shadowed medical assistants in physician offices, and also a variety of health professionals, including nurses, physical therapists and respiratory therapists; this occurred in the hospital clinic setting. A faculty from Midwest South said this about shadowing in physician offices: “There’s a lot of opportunity there for the student to interact with everybody that’s in the office.”

A medical faculty from Midwest North speculated on the value of shadowing programs for medical students. She said, “So maybe we will find that we can do meaningful work around getting those medical students to be in with the nursing
supervisors. Something that we maybe never thought about before.” Another medical faculty, this one from Midwest West, talked from his experience about the advantages of this kind of a shadowing program:

MWM3: We had a nurse shadowing program for freshman or first year medical students here. They had enough time flexibility to actually be, with the consent of nurses, shadowing . . . Nurses in their work. So that they got a chance to see what it was that nurses do. We are, at the present moment, implementing a broader, I think, in reach to the curriculum for this purpose. That is, we have all of the medical students scheduled to be working with, working in a longitudinal experience with visiting nurses, who have agreed—this is the first year for this—have agreed to adopt a student, a medical student, to take them on home visits to individuals they are working with.

In a second way to do this, hospice workers have agreed to take medical students, most of whom are, most but not all of whom are nurses, have agreed to take first year students on a sequence of visits to people whom they are seeing. So the idea is let’s have the students have an experience with the nursing professional and work in these contexts over a period of months . . . It creates the interprofessional interaction that we’re looking for . . .

The Midwest North shadowing program for medical students was in its pilot phase. In this program, medical students shadow nursing students. The program accomplished two goals. It gave medical students a better understanding of nursing education and the role of the nurse, and it also provided an environment that encouraged professional interaction between the two types of students. The program was voluntary for medical students, but the response was immediate and positive. This medical faculty from Midwest North talked about the focus and structure for the program:

MNM5: This week right now we’re having medical students, they’re shadowing nursing students in the clinical area . . . medical students were shocked at what nursing students do and how much they know and their education.

We’ve started educating, we’re having them teach each other about their backgrounds and what they’re learning and they want to do more of that. They want more social interaction, so we’ve had the shadowing, just this week. We said we would do a max of 20 volunteers, and we got 12 medical student volunteers which we were excited just to get one. They’ve been shadowing. For
about three hours we wrote objectives, they have things they’re supposed to do and we’re gonna do focus group follow up.

**International experiences.** Only 3 faculty, all from Midwest South, and all medical faculty, talked in depth about international experiences as exemplars of authentic collaborative learning. One nursing faculty from Midwest South mentioned international experience, but mentioned it as a part of a list including a variety of collaborative experiences available to nursing students. Although few mentioned international experiences, faculty that did emphasize that they were powerful and meaningful for both students and faculty. Of the 3 who talked about their experiences, one faculty in particular really told the story of his experiences in Honduras; excerpts of our conversation are included here:

MSM3: In fact, it is really, come to think of it, over the last 25 years, the only real meaningful way where medical students and nursing students have worked closely together because they are forced into community for two concentrated weeks in rural Honduras. I think it’s really hard to get medical students and nursing students to work closely together unless you sort of pull them out of their usual. At least, the current traditional training situations, and force them together.

Not just for the sake of forcing them together again, but it comes back to what’s driving it. With a mission, with a common mission and that is so evident in these trips that we make to Honduras.

I mean, these groups become very, very close and they work very closely together. There are tears shed when the break up at the airport. It’s interesting to watch.

Not just medical students, but also residents and even the attendings. It’s the only chance; it’s really the only chance for physician attending’s to work closely with nursing students; because many of the rules are different in Honduras. The setting is different, the needs are different, the rules are different, the opportunity for disciplines to separate themselves by technology is gone. . .

They have very little technology in Honduras so it’s all about the patient and who’s in the room with the patient. Someone comes in with a machete wound from a drunken fight the night before. . .

There’s no x-ray taken. It’s whoever’s awake and willing to be in the room and sometimes it’s a nursing student with a family physician attending and a medical
student with a physician and the medical student coaching the nursing student on how to put the first suture in.

JL: Oh wow! In many places here a nurse would not be putting the first suture in.

MSM3: No [laughter] so the rules are different. There is very little technology to come in between disciplines and there’s very little—liability is not a fear . . .

Scope of practice. Those walls are broken down. Here you have this patient in front of you with a machete wound. How we gonna help him? Who needs to learn something?

JL: And that’s the goal? Those are the goals.

MSM3: Those are the goals. . . Are we going to help him and who needs to learn something and can we allow you to learn something and still help the patient and not do something wrong.

He mentioned multiple characteristics of the Honduras experience that made it successful. These include a common mission, no regulatory restrictions that constricted nurse and physician roles, the understanding that students were there to learn, and “forced community,” which resulted in lasting professional friendships. His colleague talked more about the forced community concept, and added comment about the value of peer learning:

MSM1: The situation that we’re in is somewhat unique because you have to work in tangent. Live together and we share dormitories and things like that. You eat together so you develop some pretty strong ties to the teams and you start to see different roles.

The value that’s there is that there clearly is—they’re at their formative stages of learning. That they need to, in a sense there’s a lot of peer to peer education that goes on. Kind of teaching each other what they do or in sharing back and forth things at the formative stages because not any one of them, is a student or is a nursing student, are they going to be in that position to have kind of final say as to what it is.

They’re asking questions and they’re kind of more at a peer to peer experience so you get ‘em early and hopefully, that translates into breaking down communication barriers down the line by having them work collaboratively during their formative years they get appreciation for the different roles and what each person actually brings to the care of the patient.
Medical faculty from Midwest South admitted these characteristics are difficult to replicate on U.S. soil, however, they mentioned other projects involving service learning and the care of vulnerable populations that captures some of these.

*Service learning.* Faculty who talked about service learning as an authentic collaborative experience mentioned a variety of characteristics that make them so; many of these characteristics are similar to those described in the international experiences. The medical faculty from Midwest South who spoke of his Honduras experience provided a link for the discussion about the attributes of service learning. He said:

MSM3: Particularly for 25 year olds today, you can force community and they’ll chat a little bit, but unless they have a mission they’re out of there.

With some meaning—it has meaning. It’s not just contrived. It’s not just, you know?

That’s why I think service learning is such a good way. It doesn’t have to be in Honduras it can be downtown (name of city). Service learning is such a good way to structure this because you have instant mission.

A medical faculty from Midwest North talked about the value of service learning with a different kind of population, in this case sixth grade students in an inner city school system. He also spoke of the benefits of such projects, both for the recipients of care, and for the student team:

MNM1: If they develop a relationship with a classroom of sixth grade students with an inter-professional team working together with an evidence based program I firmly believe that it can make a difference to those sixth grade students and a profound difference to the nurses, physicians, public health students, social work students who may be part of that inter-professional team.

Another service learning environment mentioned was the free clinic setting. A group of health professions students from Midwest South initiated an IHI Open School chapter, which has served as a foundation for a student-run, faculty facilitated inner city free clinic. This combines service learning with the care of vulnerable populations. A medical faculty from Midwest South talked about this project. Our conversation follows:
MSM4: . . . the students then developed this (IHI) open school chapter. We've now started a—this is starting our second year, but then have started as part of that whole idea as kind of tying together interprofessional education, quality improvement, and then vulnerable populations. Then we started a service project out of that where they can kind of bring those three together with students from each of those three—all those areas . . . Medicine, nursing, pharmacy, social work, nutrition. Then I think that's mainly the students that are involved from those areas.

JL: My familiarity with the IHI open school is this is very in many ways student directed, is that correct?

MSM4: Correct. The students are—there's course work, online course work that they can complete to get a certificate. Again, it's nothing that's—from the school standpoint it's not supported by the school as far as getting course credit from the school for this. We then have this service piece to try to apply the principles that they're learning. We have a partnership with (a church) downtown. We've actually established a—it's sort of a clinic in a way. It's more of an integrated self-management.

The characteristics of common mission and forced community beyond the hospital, which becomes the students’ comfort zone, were common characteristics that contributed to the authenticity of service learning experiences. Faculty said that pulling students out of their environmental comfort norms helped build a sense of community and relationship. A medical faculty from Midwest West talked about the impressions about health professions team members students bring to these experiences at the outset, and how working together in uncharted territory motivates an open mind:

MWM3: The nurses (students) arrive thinking that the medical students, whom they’ve never met, just as the medical students have never met the nurses, are arrogant, are not collaborative, and do not respect them, and don’t care that much about psychosocial needs. Some of those are just stereotypes.

So if you import them—this is sort of like an outward. Community immersion is a bit like an outward bound team building excursion. If you get out there in (eastern inner city) or (another inner city on the east coast), and it’s a scary place, and you have to accomplish something, you get rid of the stereotypes. You start figuring out how you can succeed.

JL: It’s a metaphor for a high ropes course. I had never thought of that.
MWM3: It is a high ropes course . . . Community immersion is.

He mentioned the association between community immersion and outward bound team building exercises. Although I prompted the term “high ropes course,” he agreed that was accurate use of the metaphor. The group must work symbiotically to be successful, which teaches cooperation and collaboration in a very authentic way.

**Care of vulnerable populations.** Faculty talked about the care of vulnerable community populations as another means to provide students with authentic collaborative experiences. The care of vulnerable populations was sometimes mentioned within a service learning context; at other times it was considered a straightforward clinical experience. Populations served by students included geriatric patients in their community and home environments, free clinics, and medical homes. A medical faculty from Midwest North referred to the authenticity of the experience for students in a free clinic as an “in vivo” opportunity. In this context, she talked about the importance of repetition as a way to cement collaborative behavior into a student’s way of thinking and skills set. Our conversation follows:

MNM3: What to put in, how to make it successful. How to make it work . . . in the end changing behavior is really hard and it’s all about repetition. It is really about repetition. It is just so much about having enough—doing it again and again. It’s really difficult, at least I think, to set up enough opportunities to really think we are changing behavior. I think we are making—hopefully we are getting med students and nursing students to be more aware of each other’s professions and more respectful of each other’s training. But is this going to change when they get into the ward settings or the office setting and will the behavior—I don’t know. I don’t know if that’s going to change.

I think the hope for us is that the free clinic experience, which is truly an end sort in vivo opportunity with nursing and medical students taking care of patients. That has probably the best chance of changing behavior because they are really doing it.

JL: Real patients, real situations?

MNM3: Real situations but I think that is really the big thing. One is what are the activities that are received successfully, perceived that the medical students think
are good. Regardless of what we think and then what is really going to change behavior so that the interprofessional collaboration.

One of the underserved population settings used as a clinical site for an interprofessional group of students demonstrated vividly that some of the characteristics of experiences abroad can be found close to home. A medical faculty from Midwest South, one of the two involved in the Honduras experience, talked about a free clinic set up at a local racetrack by one of his colleagues. He described his experiences working with students to serve this population:

MSM3: Now can you recreate that (the Honduras experience) here while you’re still in U.S. borders? I think it’s really tough, but there may be . . . You can recreate it a little bit with underserved populations here in the United States that otherwise would not have any health care at all and we’ve done that to some degree with places like—and one of our faculties started a free clinic for the backstretch workers at the racetrack of all places.

But the people who take care of horses there are often undocumented workers or people that were homeless and now have a job at the race track for a little while or whatever, and very poor, no insurance and so you have the luxury of time during that evening clinic at the racetrack.

You might only have six people that want to see you, so you’re there with a nursing student and a medical student, and a physician. You look at those six people and you ask the same questions. How can we help these six people and who wants to learn something about that? Right?

As faculty described them, all of these environments provided students with authentic experiences because the environments shared certain characteristics. In all cases students and their faculty shared a common mission, real care was delivered to real patients, and the environment required a sense of team to solve challenging patient problems.

**Faculty Facilitated Pedagogies**

Faculty facilitated pedagogies were faculty-designed instructive strategies that enabled students to engage in, experiment with, and process interprofessional collaboration. The pedagogies addressed in this cluster required an intensity of faculty commitment to the process that was indicative of how deeply they valued
interprofessional collaboration. These pedagogies included mentoring and role modeling, student debriefing and narrative reflection. Each of these instructional methods will be explored and exemplar transcript excerpts offered.

**Mentoring and role modeling.** Faculty in both medical and nursing programs consistently talked about mentoring and role modeling as exceptional learning tools to help students understand collaboration. This theme appeared across institutions and professions. Role modeling came naturally to the participants in this study. Faculty indicated mentoring and role modeling occurred more naturally and frequently in the clinical setting rather than the classroom. However, some team exercises in the classroom were also improved through the use of those methods. One medical faculty from Midwest South described his experience this way:

> MSM5: I do a lot of modeling. I just, when I have learners and when I'm working in this environment, it is a constant non-stop interprofessional experience. It's never ending. The learners who are with me, whether they be medical students or pharmacy students or the occasional other discipline, they just see how I'm working with all these other professions. I try to model respectful communication and I try to emphasize how these people are helping me as the day goes on. That I think is as valuable as anything that I could do for the students.

Nursing faculty in particular talked about teaching students to be attentive to efficiency and courtesy in their working relationships with physicians. One common faux pas that undermines the relationship is calling the physician in the middle of the night for something that could have been anticipated. Nursing faculty talked about this kind of scenario with students, and how they modeled dialogue that exemplified anticipatory problem solving. This nursing faculty from Midwest South said:

> MSN4: I really think we need to engage more. What we can tell them (the physician) is, “You’re too busy to make all these decisions right now, I’m gonna help you with what I know you’re going to need. Because I’ve seen a million of these (specialized surgery) and if you don’t order some PRN (as needed) diazepam (Valium) I’ll be calling you tonight . . . would you think about it?”

Another nursing faculty from the same institution told similar stories from her experience. I asked if role modeling in this way was common practice for her and
whether she thought that students absorbed what they were seeing. She replied “Oh, all the time, what they pick up. Oh yeah. They do.”

Faculty said that communication between students and physicians usually improved with mentoring and role modeling. Many of the nursing faculty described their efforts to encourage students to talk with physicians during one of the few opportunities available to them during their clinical hours; rounds. Student nurses were often reluctant to talk with physicians, although they were interested to hear the conversation between physician and patient or between the physician and medical student. Nursing faculty gave them the encouragement they needed to go into the room and listen to the exchange. Students who took courage actually engaged in conversation with physicians. One nursing faculty from Midwest West commented:

MWN4: Now I'm not saying that I don't still get students that are very shy and still testing the waters, so to speak, but as a rule the students are much more adventuresome, I guess would be a good word, to go into the room. They wanna hear what the doctor is saying to the parents and they wanna hear, see that communication of the doctor. And if they are in the hall, I'll just practically push them in the room. I'll say, "You need to be in the room and hearing this communication, and you need to hear what the physician is saying to the parents. This is how you're gonna learn. You're not only gonna learn between that doctor-parent communication, but as the chief or the attending or whoever is presenting about the patient, you're gonna learn."

Another nursing faculty talked about students observing her conversations with physicians as a way to model collaborative conversation. She also talked about mentoring nursing students who are reluctant to talk with medical students. She noted that occasions for interaction between nursing and medical students are often limited; even when they did have occasion to talk, they were not sure what the other could bring to the conversation. She actively engaged them when she saw the opportunity, and gave them the guidance they needed to initiate a conversation:

MSN4: You know, try to help medical students talk with nursing students. I don't think it's that they don't want to. I guess it's that they just don't realize all the ways that they can be helpful to each other. They need a little bit of guidance
sometimes to see how they can – to some of them it's still a kind of a novel idea that, gee, I could use them as a resource for information. And vice versa.

Faculty from Midwest North, the institution engaged in a grant-funded interprofessional project, talked about a student experience that involved working on problem-focused situations in a classroom setting. Students participated and worked in mixed groups of medical and nursing students; facilitation was provided by an interprofessional team of medical and nursing faculty. Faculty noticed that the students were processing the exercise in a way that was one-sided; the medical students solved the problem, and the nursing students deferred. A nursing faculty involved in facilitating the exercise talked about the experience, and the way she used it as an opportunity to mentor them to think more inclusively to meet the goals of the exercise:

MNN2: Yeah, the medical student was talking, and I'm like, oh wow. I said, "Did you check in with everybody to find out?" Everybody told us, we all agree that we got the answer . . . so then I started to try and teach and coach a little bit. It's really important to kind of touch base with people to identify what their perspective is and pull them in to the situation. I said, "So, for example, did you ask the nurse there like what her perspective was?" He was like, "Well no, I didn't really ask her." I said to the nurse . . . "Did you feel that you were heard here?" She's like, "Well not really." She said, "I just figured that they kind of knew the answers so I kind of just let them go with it."

She didn't—right, so he never asked her what she thought, and she never said to him, well this is what I think. She said the reason why she did that was because they all agreed, all the medical students agreed and so she figured she was the minority and so she figured well she'll just let it go. Then interestingly she said, "I was a little bit mad about it because then I found out that I had the right answer." [Laugh]

This situation exemplifies some of the common challenges faculty faced when facilitating collaborative discussion between the two types of students. Both nursing and medical faculty described student behavior similarly, and said that medical students typically took the lead in conversations while nursing students often deferred to the medical students. However, faculty found that students generally responded positively when they were
more prepared with prerequisite skills for teamwork, and when faculty provided excellent mentoring. They said that over time student behavior became more egalitarian.

Most faculty in both medicine and nursing described their mentoring and role modeling experiences in positive terms. Faculty who agreed to participate in this study were overwhelmingly interested in creating a milieu that was conducive to collaborative experiences between students, and between students and other professionals. Some faculty noted that their perspective was not shared unanimously by their colleagues. These perspectives are spoken to in the cluster of subthemes addressing faculty engagement, in Chapter 4.

**Student debriefing.** Both nursing and medical faculty employed debriefing as pedagogy. Nursing faculty said debriefing was frequently structured into the nursing student’s clinical day during a period of time following direct patient care known as “post-conference.” Nursing faculty use debriefing as an opportunity to process and guide the student’s thinking about challenging situations they had encountered with the physicians. Faculty helped students reflect on conversations they had in the clinical setting, and talked with them about more effective ways of handling these interactions. A nursing faculty from Midwest West said:

MWN3: . . . I’ll dialogue with them and help them to kind of process through and kind of think through, well, what do you think was going on that happened. How could it have been handled differently? What would you do if you were in that situation that the RN that encountered that to kind of get them to kind of reflect back on that situation.

Medical faculty employed debriefing as well, although the exemplar that follows demonstrates the differences in the medical and nursing faculty approach to debriefing. Nurses caring for patients on a hospital unit often engage physicians in conversation to update them on a change in the patient’s status, offer their assessment of the situation, and ask for direction on the medical plan of care. Physicians must sort through the information offered by the nurse and attempt to drill down to the nuggets of information vital to their decision making. Faculty said that miscommunication between nurses and
physicians is not uncommon, so student reflection and guidance from faculty was as essential for medical students as for nursing students. The end goal was to achieve the best outcome for the patient. One medical faculty from Midwest West described how she and her colleagues typically debriefed with medical students about nurse-physician miscommunication following classroom or laboratory simulations:

MWM4: We'll say why do you think there was a disconnect in the communication? What was going on here? Was the nurse not clear in what she was trying to transmit to the physician, or was she giving information that was honestly not that – let's look at what she was saying here. Was she giving information that was really important to the patient's care, or was this just maybe nice information but not really critically important right at that point in time?

The power of the debriefing process came through in a number of participant interviews. As novices, students in medicine and nursing sometimes had experiences that elicited strong emotional responses. Faculty relied on their own understanding of patient and family issues, interprofessional relationships, and the health care organizational culture to help students find meaning and context through debriefing. One medical faculty from Midwest North described the kind of influence faculty could provide through this kind of guided reflection:

MNM2: You can have, and this was one of the principals in medical education, you can take the same experience and have someone there to help reflect on the lessons with them, or have a means to reflect on it. The experience can either be terrible and devastating or can be affirming and empowering, depending on whether that reflection is there.

Faculty said that one type of emotionally difficult experience for students was interaction with the other profession that is either confrontational or unheard. Nursing faculty offered similar exemplars; in the course of their patient care, student nurses often uncover essential assessment data that should be shared with their faculty member, the staff nurse, and the physician. Faculty encouraged student nurses to speak directly with physicians when the situation warranted, but not all physicians were sensitive to the fact that such a conversation has usually been rehearsed with faculty to assure its accuracy and appropriateness. When such a conversation was unheard, debriefing with the student
provided a means for students to process the interaction. Debriefing also helped students understand that the interprofessional interaction was more than a conversation between two people; it was an essential part of the patient’s care. Faculty wanted students to gain confidence in their communication skills so they could build courage to engage physicians in the future. I asked one nursing faculty whether she was able to debrief with the student after a particularly distressing attempt to share patient information with a physician during rounds:

MNN4: Yes, yes what we talked about afterwards was first of all don't lose confidence in what you have to say. What you have to say is important, and then talked about how could you have perhaps interrupted the physician? How could you have gotten his attention without being unprofessional or disrespectful or whatever? What are some things you could have said? What are some ways you could have responded instead of just kind of giving up, which could have had negative outcomes for the patient? What could you have said? Kind of role played a little bit of what would be some ways that you could actually get the attention of someone who's clearly blowing you off?

Nursing faculty also used debriefing as a way to help students process their role and contribution as a nurse. A nursing faculty from Midwest North told a story about mentoring students in the operating suite, and helping students understand their role in that setting. She talked about the kind of conversations she has with students during post-conference following surgery; I asked what the response from students was, typically, when she engaged them in that way:

MNN3: In awe, a light bulb. Because then what I will always do is, again, remind them that their body of knowledge is very important and not everybody can do what they do, that they’re not second to physicians, even though we have a healthcare system that it gives that perception, that the captain of the ship is the physician, but they are the safety officer for that patient as a nurse. They are the expert for their patient care when they’re in a variety of settings. They’re the coordinator of the care.

Even though most participants mentioned the value of debriefing, not all clinical environments were structured to allow for debriefing to happen. One setting that is structured in such a way that debriefing with medical students is a challenge for medical
faculty is the operating suite. Medical students were often assigned to observe a number of different surgeries, and rotate between operating rooms and surgeons. Since their exposure was so varied, it is likely that no one surgeon is responsible for oversight of the medical student. I asked a medical faculty and surgeon whether there was anyone to process with those students after the surgery:

MWM2: Not really. I think –Because you can't leave. I mean you're not done when they're – right? Yeah. I think the challenge is, is today's medicine is patients don't come in the night before or day before anymore. They come in that morning and many of them may be going home that day, so there is a tremendous time issue. You'll see a patient and get them signed up, and then they're going back to the OR and you'll do that case, and there is immediate pressure on you when you finish that to get out there and get the next one ready to go.

After that case, even though you try, like our educator in surgery tries to impress upon us is can you debrief and go through those things with the student, and the answer is yes and no. So you get done with that case. Immediately, I have to get into that electronic medical record and put all the coding in it, and then I have to get the discharge orders all ready to go. Now, you can try to do some of those beforehand but some of them you just can’t.

Narrative reflection. Another effective faculty enabled pedagogy was the written narrative reflection. Both nursing and medical faculty made use of narrative reflection.

Nursing faculty generally instructed students to focus the narrative on a specific topic or question; with regards to interprofessional collaboration, the topic was usually communication. However, faculty said the reflection might include communication between the student nurse and the patient, family, or health care staff including physician. This was because most clinical competency statements found in evaluation tools defined communication broadly. Nursing faculty who used narrative reflection in this way instructed students to include rich description, noting that students tend to default to short, non-descriptive sentence fragments such as “communication went well”. Faculty typically reviewed the narratives, and used them as a springboard for either individual or group conversation with students. When students wrote about communication with physicians, they were encouraged to include both positive and challenging aspects of
their conversations. I asked one nursing faculty how she typically followed through when she “flagged” the narrative as challenging for the student. She would say to the student, “well, next time you have that how are you going to handle that? What did you learn from that experience?”

One medical school in particular used narrative reflection as both an instructional tool and an opportunity to share student insights about experiences with the rest of the institutional medical community. Medical faculty from this school told compelling stories from student narrative exemplars. Students’ stories focused on professionalism as they witnessed it being played out in the clinical setting. Three out of four stories told by students were positive and focused on events they witnessed involving nurses, medical residents, or attending physicians. One quarter of the stories were negative, and focused on the level of respect for other professionals. The majority of student narratives on the topic of respect were negative. The faculty said that “. . . there they see disrespectful behavior of the attending toward a nurse, or the nurse toward a patient or a fellow student.” I asked him about debriefing with students, whether or how they facilitated discussion with students to help them make meaning of these experiences. He said:

MWM3: We ask what drew your attention to this story? Have any of the rest of you experienced anything like this, as a way of reducing social isolation of the person who's telling the story. What would you do or what would you like to have done differently? What element of professionalism do you think is involved here? Where would you draw the line? A lot of these stories are stories about seeing mistakes being made . . . What we're trying to do is to use these narratives, both at the individual level but also use it at the institutional level to bring forward issues of professionalism, issues of empathy, issues of humanism, that the entire community can benefit from and discuss.

Regardless of the specific method used to engage students in narrative reflection of their experience, faculty agreed that the processes involved, including reflecting, writing, and debriefing, were essential to learning.
Structured Methods

Faculty employed a number of structured methods to enable student exposure to interprofessional collaboration. These methods were structured by virtue of the fact that faculty in a course or program used the same or similar evaluation tools, employed standardized clinical simulation exercises, or taught content in the classroom by following a course syllabus designed for the purpose. The methods most often mentioned formed three subthemes. These subthemes are evaluating student competency, simulated learning experiences, and teaching communication.

Evaluating student competency. Most participants mentioned evaluating students’ abilities to demonstrate interprofessional communication or collaboration with other professions. Faculty experience with methods of competency evaluation varied. The different programs had different ways learning competencies were expressed in the curriculum, experienced by students, and assessed by faculty. One nursing faculty captured the essence of the reason to evaluate student competency in collaboration, and that is to ask the following questions:

MNN5: In my mind what I was thinking was once a student does get through all of this, what do we want them to look like when they step out in regard to teamwork and collaboration? That’s kind of the overall focus of our particular grant is the ultimate goal of patient centered care and quality and safety. If we could put them in a lab or in a clinical area how could we know when we watch them practice that they operationalize this; that they’re applying it? That’s what it all comes down to.

Nursing faculty talked about threading interprofessional collaboration competencies through their course, level, or program outcome objectives in such a way that the expectations became progressively more comprehensive and complex. One nursing faculty explained that “there would be a course outcome that would talk about inter-disciplinary collaboration. So, that would level throughout our curriculum so that it would become broader . . . more aggregate at the end of our program than initially.”
There was some inconsistency in terms of agreement about whether interprofessional collaboration concepts and competencies were threaded throughout the programs, or appeared in every course. Most nursing faculty indicated that, while those concepts and competencies might not appear in every didactic course, they consistently appeared in clinical objectives.

Nursing faculty who mentioned objective-based competencies often mentioned the American Association of Colleges of Nursing (AACN) Baccalaureate Essentials and the Quality & Safety Education for Nurses (QSEN) project as drivers for instituting specific interprofessional collaboration competencies into the curriculum. At Midwest North, the nursing and medical faculties have been collaborating to incorporate each others’ competency tools into their own program. As discussed earlier, the medical program is adopting elements of the QSEN competencies, and the nursing program is talking about requiring students to put together a professional portfolio. The inter-faculty team working on this effort referred to themselves as a “competency brain trust,” and they are changing the way both professions think student competency evaluation for their respective schools.

Medical faculty talked about the Accreditation Council for Graduate Medical Education (ACGME) competencies, which guide residency education and include requirements related to professionalism, as well as interprofessional and communication skills. Although medical schools are regulated by the Liaison Committee on Medical Education (LCME) and held to standard that are less explicit, faculty at the medical programs in this study referred more often to the ACGME competencies than to the LCME competencies. Faculty at Midwest West had used the ACGME competencies to create their own “guiding principles” for medical education; one of these principles is interprofessional education. This medical faculty and administrator from Midwest West talked about the competencies and guiding principles, and also how faculty are informed about student requirements for competency achievement:
MWM4: We adopted the competencies in 1999 and thought it would be best if they were seamlessly introduced. . . So the language for us would be a little different. The four guiding principles, one of them is interprofessional education. The way our faculty will know about it is we are in phase one of the curricular reform process right now.

She continued by talking about how the development of these competencies is unfolding and how faculty are involved in the process:

MWM4: So there are faculty members from the School of Medicine, faculty members from the School of Nursing, residents, students, staff members, I think that’s about—so there are over 200 of those folks clustered in small teams. . . so these teams have been meeting and talking about what they think our students should have in terms of these nine competencies in relation to the four guiding principles. So, if we’re looking at these four guiding principles, interprofessional collaboration is one, how should we approach that from a life-long learning perspective, or a self-awareness perspective or a communication perspective.

Faculty from both nursing and medicine talked about the importance of evaluating student competency, but also challenges involved in accurate competency assessment. One challenge they talked about was in articulating the competency, the other was delineating what knowledge, behaviors, or characteristics the student must demonstrate to show they have mastered the competency. Also, faculty indicated they have a duty to make those expectations available and accessible to students. One medical faculty captured this notion by saying, “alright, what am I really looking for from this learner? You have to have all those kind of tools in place and devised and so those have to be explained (to the student).” Another medical faculty also talked about challenges of competency assessment. I asked him to explain how he addressed medical student competency relative to the communication competency. He said he used formative evaluation methods including observation and counseling:

MSM2: Right now it’s kind of been more just kind of, I guess, an observational thing. It’s one of those things whereby you clearly observe medical students in the clinical situation, see how they interact with not only as with colleagues and consultants, but with other healthcare professionals. Again, it’s kind of the old or apprenticeship and observation model. Then you comment upon whether or not you do it appropriately or not appropriately, and you counsel them. You know,
when you observe them, you do it in a less than adequate fashion and, you know, how to improve that.

Faculty from both medicine and nursing said that judging students’ success in achieving competencies in communication and collaboration was less than a perfect science. Measurements ran the gamut from purely objective measures to subjective evaluation. Objective measures included multiple choice examination questions about communication, collaboration and teamwork, or simple checklists indicating students interacted with someone from another profession. The more subjective measures included criteria-driven clinical experience objectives at a “satisfactorily” level, or a grade of “satisfactory” on written reflections of their interprofessional interactions. Another challenge was related to the fact that competency development and measurement are emerging skills for the faculty themselves. Descriptions of behaviors students should demonstrate were often described as more broad than specific. As one nursing faculty put it, “I think that they're broad enough that they're in there. But I really think . . . that part of what we're doing with this grant is to really see how to do that better.”

Medical and nursing faculty were consistent in their discussions about challenges involved in competency writing and assessment. Two additional challenges emerged during conversations with participants. The first was faculty autonomy. Several participants noted that faculty autonomy can undermine efforts aimed at consistency in competency evaluation. This nursing faculty from Midwest South said:

MSN7: . . . currently, it would be course-specific and we have a lot of—there's a lot of faculty autonomy and so therefore, not a lot of necessarily consistency between courses, as far as evaluation tools and, you know, the way things are done from course to course.

The second challenge faculty mentioned was that not all faculty are competent in the art and science of outcomes evaluation and assessment. One medical faculty in particular noted that in his experience, faculty who might be excellent clinicians may have little understanding or experience in evaluating students relative to outcome competencies.
Simulated learning experiences. Both medical and nursing faculty talked about successful experiences using the simulation laboratory as a milieu for teaching interprofessional collaboration. Faculty in this study had participated in mixed-group interprofessional simulation. Most of the participants referred to simulation exercises that took place in a simulation learning laboratory, which makes use of sophisticated high-fidelity mannequins capable of replicating realistic patient responses to drug therapy and clinical care.

Faculty said their institutions supported interprofessional simulation experiences. A building devoted to high-fidelity simulation was recently completed on the Midwest West campus. The building is part of the medical school, however it is used extensively for interprofessional simulations. Two of the faculty interviewed, one from medicine and one from nursing, had taken leadership in making the joint experiences for nursing and medical students happen. The medical faculty noted:

MWM2: (Medical) students certainly have interacted with the nursing students in the sessions. They essentially, for that four hours, they're interacting with nursing staff related to patient actions, interactions, and questions. That's probably been where they get the most exposure, but that has been on a volunteer basis.

In this institution, medical student participation in interprofessional simulation was voluntary, as this medical faculty indicated. In the same institution, nursing student participation is a structured part of a required clinical nursing course. The nursing faculty member who most often partners with this medical faculty talked about her experiences with simulation. In addition to her mention of the mandatory participation of nursing students during their final semester course, she shared her insights about the structure of the experience. First, she said the nursing students were placed in the simulation in a team of at least two nursing students, so they could share and compare their ideas about care. The medical students participated solo; this reflects the reality of their future practice. If they needed a consultation, they called outside to another physician. In the simulation, their consultant was the physician faculty member or simulation technician in
the control booth. My conversation with this nursing faculty about typical simulation experiences follows:

MWN1: We never put our nursing students alone in a simulation. We usually have like a primary and secondary nurse together so that they can share ideas. The medical students are coming in singly as a physician. They have to call the physician in that case.

JL: For each simulation, each patient, nursing student, med student, what is the faculty oversight ratio? Is there one faculty member at each bedside watching the Sim or how do you do that?

MWN1: We’re in a control room. Ideally, we have a technician who is kind of, usually the voice ‘cause it’s usually—many of them are males. So they can talk, as our patients tend to be male for (brand of simulator) . . . . We, at this point . . . the medical students are all volunteers right now. It’s not in the (medical) curriculum yet. So we have also the medical doctors, the medical faculty I should say. Medical faculty are also volunteering their time to come and run (the simulation). So most of the time, we have a medical faculty, nursing faculty, and technician at each of the simulations. However, we don’t have enough technicians so I tend to run one of them by myself.

JL: Okay. So it’s voluntary for the med students. How about for the nursing students? Is that voluntary as well?

MWN1: In the seventh semester, it’s mandatory ‘cause it’s part of their clinical.

At Midwest South, faculty used the simulation environment to improve student communication techniques, using the model and mnemonic Situation, Background, Assessment, and Recommendation (SBAR) as the foundation. Nursing students and faculty were familiar with the use of SBAR, but medical students were unfamiliar with the mnemonic or its purpose. Nursing faculty used that environment as an opportunity to educate medical students and faculty about SBAR communication; this allowed for development of common ground around a structure for interprofessional communication. Students generally found their communication to be more meaningful and productive when they had a format to follow.
Another nursing faculty from the same institution discussed the value of simulation for students in terms of the sense of discovery that they needed to work together to provide safe optimal care for the simulated patient:

MSN7: And I think the ideal situations are when they do an interdisciplinary simulation and everybody brings their piece to the simulation and they have to solve it and work on it and solve that patient problem together as a team, actually practicing that teamwork . . . truly working with those disciplines and learning from their perspective.

A number of faculty reflected on the importance of post-simulation analysis and debriefing. Faculty from all three institutions said that students had an opportunity to reflect, either in writing, through faculty-facilitated discussion, or using a combination of both. Faculty said the act of reflection and analysis made the experience more meaningful and valuable for students. Several faculty mentioned student insights that came out of these debriefings. These were related to dynamics between students, or about teamwork behaviors and actions that could have improved the final patient outcome. A medical faculty from Midwest West talked about what students had to say about the experience and the value of reflection specific to simulation:

MWM4: Another thing I heard—and I heard this from students, I heard this from fourth year students—is that they . . . really valued the opportunity to reflect on the experience. There were some students who didn’t reflect on the experience, and some students who did.

The ones who did reflect thought that their experience was richer because they stopped, and they watched the tapes of the encounter and actually analyzed what each person was doing in the room, and how you could have handled this better or that better. So that was just one piece of information I thought was interesting.

A nursing faculty from Midwest West talked about the combined benefits of the interprofessional simulation environment. Like her medical colleague, she also talked about the benefits of the debriefing dynamic. However, she added that students were able to process the teamwork-specific aspects of the experience, and also talked about the fact that they were developing mutual respect for both their fellow students and their faculty. She said:
MWN1: . . . Our debriefing of our simulations is really where I have to say that when I’m working with both, how much they praise each other. You can see how they are then finding out how important it is to work as a team.

That we can really figure this out together versus I probably wouldn’t have been able to do the whole thing myself. Then the medical student playing the physician, the nurse playing the RN, says the same thing also.

The nurses also come out and say they respect our knowledge. After the simulations, the nursing students all say they really respected our knowledge, and they saw that we (faculty) actually do know things, and we can answer the questions and figure things out.

Nursing faculty in particular spoke about the collaborative value of planning joint simulation exercises. A nursing faculty from Midwest South talked about the partnership between nursing and medical faculty that was necessary to plan and execute simulation scenarios. She commented:

MSN3: The college (of nursing) is very interested in simulation. I think people are excited about that. I think that presents an opportunity; even more of an opportunity for us to collaborate beyond the didactic setting, or beyond having an encounter on a clinical unit. Simulation really provides us the opportunity to sit down and plan together what sort of activity we would like to mimic from the clinical setting and then have a very controlled environment in which to participate in that. I think that’s an opportunity.

Faculty representing every institution were familiar with, or involved in, interprofessional simulation exercises of some type. Faculty said student performance in the simulation laboratory is focused on teamwork and the experience of working together to achieve clinical outcomes. Every faculty involved in simulation indicated it is not a graded part of the student evaluation. Faculty expressed the need for a “safe” place for students to have these experiences, so students could concentrate on the meaning and value of interprofessional roles and relationships. Finally, the act of creating and running joint simulations required collaboration between medical and nursing faculty, which was helpful in advancing their relationships.
Teaching communication. Nursing and medical faculty talked about communication as an essential skill, said that accuracy in the sharing of critical patient information made a difference in patient outcomes, and that excellent collegial communication between physicians and nurses was the foundation for development of collaborative relationships. Most of the nursing faculty in this study took that principle into the classroom and clinical settings, and taught basic communication skills to nursing students in one of those venues. Most nursing faculty who mentioned formally teaching communication used the Situation, Background, Assessment, and Recommendation (SBAR) mnemonic and formula. Nursing faculty in all 3 institutions mentioned teaching communication and SBAR, but two institutions used SBAR extensively. A faculty from Midwest South talked about the way she employed SBAR; I asked her about her perception of its usefulness:

MSN5: I think it’s very useful. How I think it’s one of the most useful tools is because you are getting your ducks in a row, if you will, or the information. . . It’s the patient, the current information and whatever background they need. . . I think it just facilitates accurate information, current information and what you’re assessing . . .

I think over the quarter they do make some progress in it. At first it seems a little stiff to them, but if you explain to them during orientation when we take time to talk a lot about safety—especially if it’s pediatrics. We talk about how that improves communication and safety. Once we do that—and then the other instructors and myself, we kind of role model it for them.

Nursing faculty saw the value of this tool, especially the way it systematizes information the nurse needs to share with the physician. Nursing faculty found that this tool helped students organize their thinking about what information was essential to share. One nursing faculty noted that physicians in the academic medical center were not generally familiar with the mnemonic. This fact was thought of as irrelevant, so long as the nursing student learned an organized way of communicating important information. A nursing faculty from Midwest West talked about this:

MWN1: We’re working also with SBAR. Situation, Background, Assessment, Recommendation. We’re working on that, but I think some nurses kind of do that
naturally. They’ve (student nurses) been able to see that, and see how they get their idea across, and see that for patients, that they are getting the care they need. So we looked at it in two different ways, and they each went around the room and gave their opinion of what could be done in this situation. As far as . . . nurse to physician, we try to practice doing an SBAR because we’re trying to teach them to give a recommendation, which is new. We do our simulations (using SBAR). Medicine doesn’t know about SBAR here.

This nursing faculty also said that some practicing nurses have a natural knack for organizing their communication to physicians, although this does not usually come naturally to students. She also noted that students find synthesizing the data and formulating a recommendation challenging.

The same faculty member also shared her experience using SBAR during simulation. She talked about the value SBAR provided as a learning tool when mixing nursing and medical students in the same simulation. In the simulation she described, nursing students assessed the patient, and made a phone call to the “physician”, in this case medical students acting the part. Medical students were expected to prescribe appropriate patient treatment by phone on that basis, so that treatment could begin prior to the time the “physician” arrived at the bedside. She shared that a part of her role as instructor was to mentor students by providing cues:

MWN1: Okay, well I can say with the simulation for sure I’ve seen nursing students that gave an excellent SBAR. I mean I could show you a video sample of one where they gave the situation. They gave the background. They gave the assessment. They gave the recommendation, and they were right on target. It was a beautiful, well spoken information that got treatment started on the patient before the physician, medical student, was able to get to the room. Yet when the medical student came in, the conversation continued, and it was a sharing of ideas. It was very good patient care. It usually takes them awhile to figure out what’s going wrong . . . We give them cues.

She went on to talk about the feedback from medical students on the usefulness of the student nurses’ communication during the simulation: She said:

MWN1: The medical students say, “I couldn’t have cared for that patient without your input because I didn’t know what to do.” We’re hearing that “You gave me
enough information‖ or ―I could have used this a little bit more. It would have been helpful for me.‖

All they get is the—our nursing students get a very throughout report on the patient. The medical students just get a—as if they are going on call. Just a quick clip of this patient. They don’t know where the room is. So the nurse has to give the name, the room number where they are. They have to—and what’s going on.

Another nursing faculty from Midwest West mentioned other ways to make SBAR experiential for the students, and that was to write an SBAR into a clinical tool, and base it on a real experience they had during the clinical day. She shared, “we tell them that they need to identify a problem or some reason why they would have to communicate with a physician. We ask them to really do something that actually occurred that day.”

Nursing faculty also talked about an added benefit SBAR brings to the simulation setting; the use of a system for communication increased student comfort with the nurse-physician interaction in the clinical setting. This nursing faculty from Midwest West said:

MWN1: We’re hearing that it was great to be able to talk to a physician because they’re never on the—if they’re in the hospital, and they’re with their clinical instructor or preceptor, they are never talking directly to the physician usually. In this case, they have to. They’re forced to.

You can see they are very nervous, but if they use that SBAR, it really helps them organize their thoughts. Some of them just completely forget—I mean, they don’t tell the patient’s name. They don’t tell them where they’re located. They just say, “You have to come down to the room.” They have to kind of call out in the hallway, “Where are you?”

Although a number of medical faculty talked about the difference excellent communication makes in patient care, only one medical faculty mentioned SBAR by name. This was not surprising; he is the medical faculty at Midwest West who partners with nursing faculty in the simulation laboratory. His experience confirmed that it is a useful tool, and that knowledge of the framework by name is irrelevant to the physician so long as the communication is crisp, accurate, and includes the information needed to make an appropriate decision. Our conversation follows:
SBAR is used by nursing but if you went to a resident and said, "What's SBAR?" they'd say, "What's that? I don't know." But that doesn't mean when a nurse calls that they don't, the residents are asking, "Well, what's going on? Well, tell me about them. What are you thinking?" No, no, they just don't relate that phone call as having a mnemonic, but they want that information. "What do you see at the bedside? Well, what do you wanna do?" I mean we ask all those questions. We just, in medicine, never put it into, oh, that's an SBAR. Oh, I just thought it was that the way you're supposed to tell me stuff. You see, so –

JL: Well, as long as the residents are getting the information they need, though.

MWM2: Right.

JL: Because the nurses are using SBAR. Is that right?

MWM2: Right. It's the resident or the staff being able to call the nurse on a bad one, because they understand, listen, they should be telling me the situation, the background, the assessment – and their recommendations, and if they go right from what's going on to "I would like to do this," you're kinda like, "Whoa, whoa. Let's step back here. Tell me a little bit about what's going on."

Nursing faculty also talked about teaching communication in the context of clinical care. This nursing faculty from Midwest South described a scenario involving a student who withheld information from a physician because she did not realize she was permitted to talk to him. The faculty intervened, got the nursing student and the physician together to have the necessary conversation, and then debriefed with all her students afterward during post-conference. She was able to reinforce how to organize data to present it succinctly and clearly; she also reinforced the appropriateness of sharing information with the physician:

MSN5: I think the main thing they picked up on, and we talked some of them in post-conference, it’s just that physicians and nurses should be talking. Student nurses are assisting in the care and they do get a role. Just to feel comfortable but know what you want to say ahead of time. Just don’t start blurring off or if you’re not sure of all the details just say, “This is my understanding. I just did the vital signs and they’re different.” Kind of explain why you’re interjecting whatever the information is.

Also, to have your information. I know yesterday their heart rate had been 110 now this same infant’s heart rate is 160 or whatever. Kind of doing your SBAR
where you kind of say this is what—get your situation background, assessment recommendation all in your mind instead of just saying, “Well person so-and-so I don’t know what they have.” If you present it in a good format they’re going to respect the information more than what I think it was, or wait a minute, let me think, or rummaging through your notes. Have it clearly in your mind what you want to converse with them. It just comes off, I think, as a better presentation.

Although most nursing faculty found the SBAR framework to be useful, it was not universally revered. One nursing faculty from Midwest North noted that it sometimes felt artificial; students sometimes memorized the tool, but did not grasp the essence of its importance. Our conversation follows:

MNN2: It's using a tool but it didn't get at the meat of it.

JL: Did it seem like it was an artificial tool?

MNN2: Yeah that's what it felt like. That's like if you were to ask me intuitively what I thought about it, it felt very artificial like. We taught them this tool but did they really get what this was about? And what is it about? It's about the nurse voicing or the physician voicing and then the other hearing it . . . I think we can teach it superficially like that but I really think we need to get into the depth of it. How do you do that? I don't know.

In summary, nursing faculty taught communication in the classroom, simulation laboratory, and during student clinical experiences. Most nursing faculty encouraged students to use the SBAR framework in a way that was appreciated by and useful to physicians, although some caution about relying on a mnemonic without attending to the underlying reason for its use was cautioned. This nursing faculty summed up the value of this technique by saying, “So, we have found that this communication has just been, to me, priceless.”

**Collaborative Methods**

Collaborative methods were faculty enabled pedagogies that depended on collaboration, either between nursing and medical faculty, or between medical and nursing students. Faculty talked about three kinds of collaborative methods. These are collaboration around common ground, engaging the other profession in the teaching of
students, and peer learning. Each of these collaborative pedagogical methods will be explored.

**Collaboration around common ground.** Both nursing and medical faculty from the 3 institutions mentioned common ground suitable for interprofessional learning opportunities. They said that at the present time, nursing and medical students learn in their own silos, and their content is isolated and customized to their profession. A number of faculty discussed foundational, core elements of the nursing and medical curricula that were common, and talked about the possibility of students learning these core elements in the same courses. Faculty participants said their experience had taught them that there is more common ground than is acknowledged by many of their colleagues. Common ground mentioned by faculty included both learning methods and content areas.

In one institution, discussion between a group of nursing and medical faculty about the prospects of creating courses with shared content were realized with the support of grant funding. The interprofessional faculty team in this institution designed and implemented a successful quality and safety grand rounds exercise using quality improvement techniques. My conversation with a medical faculty from Midwest North about this venture follows:

MNM5: When you do an inter-professional curriculum the sky’s the limit to what you can do and I think honing it down to well these are the topics we want you to focus on really helped us focus on the experience. Through the grant we ended up doing five learning cycles if you will and we used a very continuous quality improvement approach to it which was you did one, you learned from it and you went to the next one. . . We did some quality and safety grand rounds. We did a root cause analysis on a patient safety issue.

The focus on quality and safety as the common content, and the use of techniques that cross professions such as quality improvement learning cycles, provided the opportunity for students to work toward achievement of common learning goals. This faculty also noticed that an effect of the experience was an enlightened perspective related to the contributions the other profession could bring to the table. In addition,
faculty structured the exercise such that it involved multiple learning cycles, an intentional use of iterative and incremental learning. A nursing faculty from Midwest North shared student feedback following this exercise, saying, “Oh, they said, ‘Why didn’t we do this earlier. This is great.’ They seem to have a more positive approach to it, like it’s not a waste of time.”

Another method faculty mentioned that was based on common ground was critical appraisal. A medical faculty from Midwest North described their approach as both a way to teach a systematic way of thinking, and as a catalyst to engage students in the experience of exploring and discussing one another’s literature. Faculty who collaborated to design this activity were as attentive to the experience of collaborative discussion as to the technique of critical appraisal. She said:

MNM3: One of our early thoughts is to do something around critical appraisal. So we were really intrigued with the idea of bringing together groups of students, in small groups of eight to ten. It would be social work, dental, nursing, and medicine, and we thought it would be great to have a topic . . . So that they are reading each other’s literature and critically appraising - critically appraising the articles, because everybody—each school wants their students to be better at critical appraisal. It doesn’t matter what articles you choose, but if you then now share each other’s literature on a common topic and then you can compare and contrast.

Both faculty mentioned that these interprofessional exercises included faculty-directed debriefing. Other methods used by faculty that crossed professions included root cause analysis and problem-based learning.

Faculty also speculated on core curriculum content that could be learned in a shared environment. Health care and medical ethics content is required for both professions; one nursing faculty from Midwest South said, “I think that we could do, for example, a course in ethics together . . . we have traditionally kept them apart. Then all of a sudden they both graduate, and we expect them to work well together as a team.” A medical faculty from Midwest South suggested, “It is interesting because although I think one of the most important things that we all do, which could be learned together is
assessment. You know, the pathophysiology that I may need to know may or may not be different than the pathophysiology you need to know.” The same medical faculty described a typical scenario relevant to the thought of medical and nursing students learning assessment in the same venue:

MSM2: When the nurse comes out of the room and says, you know, “Hey, doc, you know, they’re not breathing like they used to be,” or “They look bad,” or whatever it is, you know, they’re just as good at that as I am. It’s just as important that they’re good at that as I am. That, I think, is probably the component that we need to focus on that we could do more together collaboratively.

Other potential areas of common content discussed included cardiopulmonary resuscitation (CPR), advanced cardiac life support (ACLS), gerontology, cultural competency, and patient interviewing skills.

Faculty were enthusiastic about experimenting with the design of student experiences that crossed professions. Even faculty who mentioned that there is a disparity in the different levels of education, i.e. undergraduate education for BSN students, and graduate education for medical students, were able to identify some content that could be combined. This medical faculty from Midwest West said:

MWM5: In the first two years of medical education—I think actually there’s a lot of similarity, there’s a lot of didactic classroom stuff in both disciplines . . . There’s a lot of similarity in those first couple years. The trouble is that they’re disparate; they expect two different levels of education . . . Where they really start to merge is in these courses where you teach patient care, so the principles of patient care and then actual patient care in the latter parts of nursing and medical education.

Peer learning. Twelve faculty talked about peer learning as a method that enabled students to explore the meaning of interprofessional collaboration. Faculty talked about what they meant by peer learning, and mentioned several environments as ideal settings for peer learning. Among others, these included the simulation laboratory,
community-based care settings, and international experiences. These were some of the same kinds of settings in which students had experience faculty said were “authentic.”

Faculty said that mutual skill building was one example of useful peer learning. A medical faculty from Midwest South said:

MSM4: It's having the nursing student teaching the pharmacy student how to take a blood pressure. Because they're like, I've been taught this, but I'm not really comfortable with this. It's having them kind of be that teacher with the faculty member there to give help, to give oversight and monitor. It's that piece.

One nursing faculty talked about her experience in the simulation laboratory as a setting where peer learning occurs. While students cooperated during the simulation, she said the real peer learning occurred during the debriefing session. As the students shared their thinking during the scenario, they came to the discovery that they were learning together. She said:

MWN3: After we go into debriefing we talk about help me understand what were you thinking, and a lot of times it’ll come out, well, he was the doctor and I didn’t think that I should be telling him what to do, or I thought he should know, that kind of thing. It’s been eye opening. The thing I think that’s come through all of this with having our interprofessional simulation is that they see that they’re both learning together. It’s not me, it’s not you, it’s us. . . .That comes through in debriefing, almost every debriefing that they’re amazed at the knowledge level that (nursing) students have with medications and kind of the basic pathophysiology. They’re very knowledgeable. They (medical students) said they’re very knowledgeable and they (medical students) said, well, they (nursing students) helped to guide me. That’s been heard many times in our debriefing.

Faculty engaged in international immersion experiences with mixed groups of students found those to be particularly rich settings for peer learning. A medical faculty from Midwest South described his experiences in this living and learning environment, and the impact it has on peer learning:

MSM1: The value that’s there is that there clearly is—they’re at their formative stages of learning. That they need to, in a sense there’s a lot of peer to peer education that goes on. Kind of teaching each other what they do or in sharing back and forth things at the formative stages because not any one of them, is a
student or is a nursing student, are they going to be in that position to have kind of final say as to what it is.

I asked him to clarify what he meant by peer learning, and to offer an example. He said:

MSM1: Well, let’s say that you’re checking blood pressure and things like that. You’re trying to verify things or verify physical signs and there’s the intake and she’s wondering if she did it right, if I did it right. A student will come in with it and say, no you got it right. There’s some of that that goes on. Certainly around just verifying clinical findings and things like that . . . There’s this sense of testing, if you will, it’s kind of like a dance figuring out does this person really know what they’re doing or not . . .

Another medical faculty from the same institution also participates in the Honduras experience. He shared more about the faculty role, describing the interprofessional faculty team as facilitators of peer learning.

MSM3: There was always a college of nursing faculty member on the trips, as well, and we would talk at a faculty level about how do we get this to happen. How can we get the nursing students to teach everybody else something and empower them? It’s another way to break down barriers. Think of your learners as teachers and if they’re charged with teaching, if they have to come up with something that the medical students would be interested in hearing about. That’s a hard thing to do.

But it is one way of thinking of ways to break down barriers ’cuz you always think of well, the medical students have something to teach the nursing students. I mean, I think that’s the common thinking probably, right?

The nursing students know better that they have a lot to tell the medical students too. Medical students don’t know how to change a dressing properly. They don’t know how to put an IV in properly. They don’t know how to give an IM injection. They don’t know how to care for a triple lumen port. They don’t know how to choose whatever you need to inject in a subcutaneous port to keep it open. There’s a long list of things that nursing students can teach medical students.

A colleague and another Honduras traveler from the same institution summarized his perception of the value of peer learning:

MSM1: I think then the awareness of the value and the importance of peer to peer feedback in education that there is a lot of benefit to that. It just doesn’t have to be from your faculty members or your resident supervisors as a medical student . .
Engaging the other profession in teaching students. A third collaborative method mentioned was about engaging the other profession to teach students. That is, nursing faculty invited medical faculty to teach nursing students, or medical faculty invited nursing faculty to teach medical students. Nursing faculty in particular mentioned that this happened spontaneously; they prompted nursing students to take their medical questions directly to the physician in the clinical setting. Others planned for collaborative teaching in their curriculum by inviting the faculty from the other professional program to lecture or participate in the classroom.

Faculty involved in the interprofessional grant at Midwest North talked about teaching the other type of student. This medical faculty talked about the innovative methods he used with nursing students, and also about the fact that he has regularly been invited by nursing faculty to teach nursing students:

MNM1: I do a number of lectures in the nursing school. I get invited to come and talk to nursing classes. In particular, I have developed a game called the “DDX” a game of medical mystery that is a deductive reasoning game that helps people organize their clinical thinking. I’ve been asked on a number of occasions to come and play the game with the classes of nurses . . . So those kinds of interactions and I bring nursing professors in to do programs and projects with us.

The same faculty said that one value of engaging the other profession as teachers was that students were witness to faculty collaboration. He also mentioned that by introducing interprofessional exercises early in the curriculum, acceptance of the other profession’s expertise came more easily to students. This medical faculty captured that notion; he talked about the intentionality faculty bring to collaborative experiences that helps students reshape their point of view:

MNM1: We bring in nurses both from the community and from the nursing school to help out with that tabletop exercise and it’s an excellent opportunity because the medical students at that point aren’t expert on anything so the people there are accepted as experts . . .
Faculty who discussed collaborative teaching found it helpful to target subject matter that overlaps professional roles. A medical faculty from Midwest West talked about this kind of practical approach to teaching interprofessionally. He said:

MWM2: . . . where do we overlap? Where do our nurse practitioners overlap? Where do our nursing students overlap? Where do the medical students overlap? So if you truly put on a board and say here's where you overlap, well, why can't a medical physician be showing that nurse practitioner how to suture? Why would you have somebody in the nursing school?

Just like why in medicine are we showing them how to put in an IV, are we showing our students how to put in an IV? I know I can put an IV in, but wouldn't it be better to have a nursing faculty that, really, that's been their main focus and they have actually 21 steps to that process and not just stick it in like we do in medicine? There's actually a process to go get your equipment, make sure you've got the right patient. Why in medicine do we just do it . . . when we have willing partners on the other side? So if you could find where these cross over . . .

He also mentioned the influence of organizational culture on the practice of sharing content. He said that to make this work, nursing and medical faculty and leadership must understand the importance of collaboration.

Finally, a number of faculty talked about taking advantage of spontaneous clinical teaching moments with willing partners from the other profession. A nursing faculty from Midwest South shared her experience with a particular group of faculty cardiologists who are invariably willing to teach nursing students. As an example, she talked about how one cardiologist skillfully explains cardiac blood work to student nurses:

MSN4: Another piece that we do is I include—for example I will have a lab, a doctor who is looking at a lot of cardiac labs and I’m really trying to get this explained. They will come and do a little conference right there in the hospital. Thirty minutes. Boy, do the students listen. They love it.

Nursing faculty in particular mentioned another method to engage the other profession in teaching; that was to encourage students to approach the physician with their questions. Faculty who mentioned this noted that the strength of their own relationship with the medical faculty member gave them confidence that they were
sending students to engage in a conversation that would be both safe and helpful. A nursing faculty from Midwest South talked about sending her students to talk to a physician:

MSN6: But you know how students will always find two medicines that shouldn't be given together? I mean, they're just in the books, and they're paying attention to every detail . . . Every time they'd find something I'd say, "Well, go ask Dr. So-and-So, and they would. He would like totally engage with them, teach. He'd be out in the hall showing little diagrams.

It was wonderful. So I thought that was a very positive experience for them, but it had nothing to do with me. It was just his personality. He was just a teacher, loved students. He had pharm residents and physician residents, and he'd take students around with him. He'd come down the hall and say, "Come here, I've got something I want to show your students," and he'd drag 'em down the hall with him. They loved him . . . But that was just a really good environment. But it had nothing to do with me. I encouraged it.

This faculty member took little credit for her role in setting up interactions between the medical faculty and nursing students. However, she clearly had a relationship with the physician that allowed her to be sure of his expertise, teaching style, and eagerness to engage with students.

**Student Roles and Role Understanding**

Student roles and role understanding constitutes the sixth and final major theme. The influence of student roles and role understanding includes three subthemes. These are student role identity and comfort, student understanding and expectations of other health professions roles, and team building in medical and nursing students.

**Student Role Identity and Comfort**

Faculty talked about the way a student’s sense of role identity and comfort had an impact on their ability to engage with students from the other professional program.
Faculty mentioned their comfort level also affected their ability to interact with faculty from either professional program, but in particular with faculty from the other profession.

Nursing faculty talked about nursing student reluctance to go to physicians with patient care issues or questions. Nursing students invariably wanted their own faculty member to verify the need for the conversation, or to verify the legitimacy of their question, before mustering the courage to face the physician. Similarly, medical students were more comfortable rounding with and shadowing their own physician faculty. Faculty found it understandable that students would turn to their own program faculty for mentoring and support, but said that students were more likely to talk to members of the other profession as their role identity and comfort matured. A medical faculty from Midwest South explained his perspective on this phenomenon, using his own first year residency experience as a frame of reference:

MSM2: . . . I think you’re more open to seeing that when you are more confident in your own basic foundation of knowledge. I mean, because, you know, I kind of think back to what—more so when I was in residency, I mean, I remember thinking, you know, as a first year resident, you’re going, “Oh, my God, I’ve got so much to learn. I got to take care of these six patients.” That’s all you’re focused on. Like as you get through residency, you start to become more aware of everything else that’s going on around you. Then you’re truly kind of more part of the team, because, you know, you’re just trying not to drown in the first year.

Faculty expected that they would mentor students to help them build confidence as they grew into their professional role. Many students came into their professional programs without formed expectations about their future role identity; faculty had an opportunity to shape that sense of identity. A nursing faculty from Midwest North, and a perioperative nurse, told the story of a not atypical nursing student’s demeanor in the operating suite, and her work to mentor the student with regards to her professional identity. Our conversation about this student and the faculty’s response follows:

WN3: Is that the nursing student would act inferior to the medical student in—I won’t say ooing and ahhing, but it was sort of that ooing and ahhing that they were all so knowing and knowledgeable. That would make me crazy because as a
nursing student, they also have a body of knowledge that’s worth oohing and ahhing.

JL: Was there opportunity to debrief or process with the student nurse after? . . .

WN3: I would do that ‘cause basically my core belief is as nurses we are highly intelligent. My conversation with anybody that would be like that would ask them what they thought about their education, get them to acknowledge that they too are in a field that not everybody could succeed in, get them to recognize that they were in fact being educated to be intelligent, competent, future healthcare professionals. Then ask them to recall what happened, how did they interact with—sometimes with other nursing students or even other physicians, you know, med students or even physicians and have them replay in their mind how that looked to others.

Other faculty talked about the importance of mentoring students to build role identity and comfort. In some cases, faculty found that starting small, with intraprofessional interactions, was a necessary prelude to interprofessional interactions and teamwork. My conversation with a nursing faculty from Midwest South about this strategy follows:

JL: I heard you refer to role modeling before, that you’re using role modeling with students to show them how to work interprofessionally.

MSN5: Mm-hmm. Often that starts with just talking, giving them a comfort level with getting a report from the night nurse and the talking with the day shift nurse. We’re going to work together and when I go introduce myself to the patient and the family I’ll say, “We’re going to be working with your nurse So-and-so. We’re here to work with them and to care for your child.”

JL: Okay, so you start with the comfort level in nursing and move into Allied Health and Medicine?

MSN5: When I first came on campus, students were so fearful to ask a doctor anything. If they'd see somebody coming and they knew that they were the child's physician, they would immediately exit the room. They wouldn't even go in there, into the room. They wouldn't even wanna be standing in the room when the physician was in the room talking to the child's parents or when the physician was talking to the child themselves. They would just say, "The doctor's in there," and they wouldn't wanna go in.
Although faculty appreciated their own role in helping students advance their sense of role identity and comfort, a perspective that called for the student to take personal responsibility in that regard was also argued. This point of view asserted that students have made the choice to become health care professionals, and that they needed to understand that they are the individuals ultimately accountability for their own role development; faculty can only mentor and support. A nursing faculty from Midwest North shared this perspective during our conversation:

MNN3: Well, I think it is the more assertive, the more the extrovert. I also believe it’s—I don’t know that’s a fair statement. I was gonna say students that know that this is the direction they have to go, that they have to have that conversation with the physician. There’s no way around it, so—

JL: Okay. Okay. So there’d have to be a level of clinical understanding and they have to get that they have to have answers to their questions or the conversation?

MNN3: Um hum (affirmative)

JL: Okay. So it’s gotta be a student sharp enough to put that picture together—

MNN3: Um hum (affirmative). Exactly.

JL: —and know that there’s no alternative?

MNN3: Right. I guess I was trying to avoid the students that are timid and sit back and allow things to happen versus the students that appreciate the work they have to do

Early socialization into the profession was described as an essential element of role identity formation. A medical faculty from Midwest North explored this perspective:

WM3: Well I think one of the challenges would be around professional formation. I’m just going to play with that for a little bit. That is that we are bringing—there is this balance, and I have no idea how you would achieve it, between getting nursing students to take on the profession—the formación—of the nursing profession. You want them to be nurses, and we want medical students to take on to engage in formación around physicians and the professions around that. So you want this sort of unique professional formation and yet you want them to be able to respect each other together. So I don’t know because we have schooled
ourselves separately if we are going—if it’s going to be easy for us to figure out how to do this.

That’s one that’s on a much higher level.

**Student Understanding and Expectations of Other Health Professions Roles.**

A number of faculty identified that students in nursing and medicine programs had little or no understanding of the role the other played on the health care team. Faculty said that some students came into their educational programs with predetermined notions about their own roles and expectations about the other professional; many of these notions were inaccurate. Faculty spoke about these preconceptions, misunderstandings, the journey students take toward better understanding of other team members’ roles, and their own role as faculty in helping students align their expectations with reality.

Medical and nursing students frequently expressed that they knew little about how one another are educated. A medical faculty from Midwest North told about the mutual discoveries made during a free clinic experience with medical and nursing students. A conversation about roles revealed how little physicians and medical students knew about nursing; the most significant surprises were related to the scope and depth of nursing education. She described the conversation, subsequent interactions between students, and her insights. She also raised questions about the durability of their newfound sense of mutual appreciation once they are exposed to more traditional clinical settings. Our conversation follows:

MNM3: What’s happened is a group of medical students and nursing students have worked together to create a Saturday morning interprofessional free clinic at our free clinic. So one of the things that came out of this, which I loved, was as we (medical and nursing faculty) sat down at the table together with the nursing students; what we recognized is we, as doctors, did not understand their education at all. We didn’t have any idea. We do all those different . . . and when they sat down and explained to us, we were in awe of the amount of education they had. Number one, and number two, we were just so impressed with the early clinical activities . . .
Yeah, but it is a great example where you begin to learn about each other and each other’s training and profession and really I think it is incredibly insightful.

JL: Did you get a sense from the nursing students that they were feeling the same way about medical students not understanding their role?

MNM3: Oh, for sure and in the activities that we’ve set up, the first activity was around some things around teams, and the feedback really was that they wanted much more time to just talk to each other and learn about each other’s role.

But yes, I think that some of the feedback from the nursing students was they were really shocked at the sort of perception that the medical students had of nurses training. Imagining it was all around bed pans, and passing pills and really being surprised by the amount of holistic approaches and really I think the enormity of the cognitive kind of expectations. So yeah, I think they were really surprised. So it was good, a good surprise.

I think we are making—hopefully we are getting med students and nursing students to be more aware of each other’s professions and more respectful of each other’s training. But is this going to change when they get into the ward settings or the office setting and will the behavior—I don’t know. I don’t know if that’s going to change.

Medical faculty at Midwest West conducted a study asking medical and nursing students to describe what they knew about each others’ roles and training. A medical faculty from that institution, and one of the investigators, talked about the findings and his insights about how those relate to interprofessional teamwork:

MWM1: . . . it was fascinating because the nurses had no idea what medical students do, and the medical students had even less idea of what nursing students do. I think part of the gap in interprofessional training is a lack of knowledge of what each role is trained to do.

Some faculty said that attempts to structure opportunities for nursing and medical students to get to know one another was a new concept for many of their colleagues, and a new addition to the curricular calendar. Some faculty found that building experiences for students to learn about what other health professionals education is about, and what they can do for the patient, helps students have a better sense of how to interact with
others on the team. A medical faculty from Midwest South talked about the meaning of these opportunities for students:

MSM5: They are—up until recently, they haven't had much exposure . . . they don't really know what other disciplines do and what their skills are. They don't even know how to ask for help. Doctors tend to be fairly independent sorts. We emphasize over and over again that you absolutely cannot do a good job taking care of older patients if you're just working on your own. You absolutely have to have help, it's just not going to work.

He went on to describe the interprofessional “fair” at the college of medicine, which was mentioned earlier. Nursing and all the allied health professions colleges were invited to participate. Representatives from each participating college talked about their education and role in patient care. Some did demonstrations, e.g. the audiologists demonstrated hearing testing equipment. The medical faculty who organized the fair provided a common foundation; they created a case study involving a stroke patient to guide every profession’s approach to their presentation. As a result, the presenters talked about what their profession could do to help the hypothetical stroke patient. Student feedback was enthusiastic. He said:

MSM5: The feedback we got from the students was, I just had no idea that this is what people had to go through to become an audiologist or a nurse practitioner. I had no idea you had to go through that much training or that they knew these kinds of things. I'm much more likely to ask for their help in the future kind of thing.

That was what we were looking for. It was just a very limited early experience for the students. We've never done anything like that before.

Another aspect of role understanding was related to preconceived notions of hierarchy in health care. While many students came into their professional programs with open attitudes, faculty said that some medical students came into their program with the assumption that they were hierarchically superior as students, and would be a cut above all others as practicing physicians. A medical faculty from Midwest West talked about this phenomenon, although his experience was that most medical students came in with
an altruistic attitude and treated fellow students as peers. Our conversation about this follows:

JL: Do you think medical students come to the profession with a preconceived notion about what their role’s gonna be in the—

MWM5: Yeah, that’s a very interesting question, isn’t it? We see some medical students clearly believe that. In the first or second year of medical school they sort of interact with others in a way that makes it seem like it’s clear like they think they’re special children of god, right?

They may be sort of mean to someone or mean toward a senior nurse whose trying to tell them about Johnny . . . That’s more the exception. I think a lot of these medical students do come to medical school idealistic about it and they want to help people.

Another medical faculty, from Midwest North, shed additional light on this singularity. He talked about the effort he and his colleagues made to ameliorate that false impression through exposure to other health professionals, nurses in particular. His thought on this was to expose medical students to expert nurses early in their education, before they have had an opportunity to embed the traditional medical culture perspective. Following is our conversation:

MWM1: . . . I think that sometimes is a problem in inter-professional education of just this hierarchy of medical students feeling that their discipline is a hierarchically superior discipline than treating both faculty and students in that fashion; which of course isn’t right or accurate, but it’s part of the medical culture at this point that I think we’re trying to train out.

JL: Do you think they, medical students, come with that perception?

MWM1: I think they do and I think there are situations in which it’s reinforced, but I think that is not in the settings that we’re involved with . . . so they see, in our block, nurses in expert roles on a regular basis. That, we think, is a good introduction for them to help them orient towards a more accurate view of the role of nursing.
Several other faculty talked about breaking down preconceived notions of role hierarchy by facilitating opportunities where students could work together as peers. At Midwest North, a nursing faculty talked about their plan to develop this approach;

MNN5: What we’re trying to do is at the kind of upstream level is trying to break down some of the perceptions of roles and hierarchy that kind of either captain of the ship thing or the nurse that doesn’t feel empowered to share or that they have something that would be useful to a physician – we’re trying to – at the beginning of the education although we’re realizing it may have to happen even before that but trying to get them to see each other as peers.

Everyone is important to this ultimate goal of safe, quality patient centered care. We’re still back there. As we get into some of our clinical pilots we’ll obviously work with this more. We’re just thinking it through theoretically at this point.

Faculty in two different institutions talked about faculty-designed situations that helped students gain a better understanding of roles. At Midwest North, nursing and medical students were brought together to work on a root cause analysis exercise (RCA). The medical faculty member who helped facilitate the activity said the students liked learning the others’ perspectives, and that many incorrect assumptions were cleared up; she said, “I think that were like myth breakers if you will in terms of some of the thoughts of what nursing learned in nursing school and what medical school students learned in medical school.” She said the experience of watching the RCA unfold was enlightening as students recognized and appreciated how patient safeguards could be missed. She said:

MNM5: . . . they really appreciated what each other brought to the table by the RCA. I think things that the medical students were thinking about – things the nursing students thought about in the case were not necessarily things that the medical students were thinking about and vice versa. They were like oh it was kind of neat to see how you guys break the case down and it’s kind of neat to see how you think about something.

JL: Okay. It sounds like they learned something about each other’s roles and backgrounds.

MNM5: Each other’s roles and each other’s way of thinking.
Another learning environment that created opportunities for medical and nursing students to learn about each other’s roles was the simulation laboratory. A nursing faculty from Midwest West observed that they talked to each other and compared notes on their educational processes. She saw this as a preface to learning how to work in team at a more substantive level.

MWN4: . . . They talk with each other. They're interested in what the other person is doing. Like what are you doing in medicine? How does your curriculum, perhaps, in medical school, what's the similarities and what are the differences between our curriculum in the nursing school?

But I think we wanna strive more toward, instead of it just being I'm interested in you and you're probably interested in what I do, I think we would like to see them actually working more closely together. And this simulation creating scenarios where they're in the room at the same time . . . We're actually meeting up with the medical students and they're doing their simulations together.

Finally, a nursing faculty from Midwest North shared her perspective on an important element she felt was necessary for mutual understanding, and that is to think of one another as people first, and professionals second. Although she also noted that nursing and medical students say they do not know how the other is educated, she felt this was an important aspect of the interprofessional team:

MNN1: I think that's what it's all about and as part of our inter-disciplinary team meetings that we've actually been engaged in, we've seen the students—the med students and the nursing students both articulate that they do not know how each other are educated. I think that they do not really feel comfortable until they look at each other as people first. And we have seen that even in our inter-professional teams. You know, we still are doctors and nurses and everybody comes from their own perspective.

**Team Building in Medical and Nursing Students**

Learning to build team was viewed as a means for students to form a more collaborative and realistic sense of how they could contribute to the work of an interprofessional team, first as a student, and then as a licensed professional. Faculty engaged students in a number of activities and experiences that helped them build team skills and enhance their appreciation of their own and their team members’ contributions.
One example of a team building activity involved use of the Plan-Do-Study-Act (PDSA) cycle, an improvement model developed by the Institute for Healthcare Improvement (IHI). A medical faculty from Midwest South talked about this kind of team-building group exercise and the student response:

MSM4: I think they feel, definitely in the group they feel comfortable with each other. I think they feel, especially if we're—doing the PDSA cycle. They're willing to, if someone comes up with an idea, they're willing to kind of not challenge, but they're willing to kind of ask, explore that idea more if that doesn't make sense or someone's suggesting something. That would—I think you can take that to when they're counseling a patient about let's say smoking cessation. Then they're both kind of, it's not just one person talking to the patient. They're both doing it together.

I think it's the combined communication, dealing with those kind of—contribute their knowledge to the education, educating the patient. I think being able to be kind of develop that familiarity and comfort with just the other profession, ideally is going to translate to their third year clerkships, then beyond.

Faculty talked about the kinds of basic skills students need to develop to learn to solve problems as a group. A medical faculty from Midwest West talked about this, referencing a community immersion student experience. He described the group process for building team:

MWM3: Well, if you’re, it seems to me, learning together and doing such things and getting clearer on your questions and the relevance of your questions and your need to know as a group. Then figuring out how you can divide and conquer and bring back what you need to know and network out to find the knowledge that you needed to find and the advice on the resources and materials and so on.

Then you’re—there’s different terminology, but you are a learning team. You are a work team. If you’re a work team then that levels—working in an area that challenges everybody. That pretty much levels any hierarchy, that sense of hierarchy you might have imported . . .

I think they acquire a respect for the capacity of the other. To discover, invent, to improvise, evaluate, to adjust . . . They acquired some understanding of how their differences actually create capacity rather than their similarities. So their differences mean that they have certain built in propensities that you can play to in teamwork circumstances.
He revealed a number of key aspects, including how to clarify relevant questions, how to partition the work according to each team member’s best talents, learning to communicate despite professional language differences, and the leveling of hierarchy through mutual respect for individual contributions and differences.

Another way to build team, particularly in large groups, was to participate in formal team-based learning. A group of students at Midwest North was led through such an intervention. Constructing the exercise around patient safety cases lent a degree of authenticity to the experience, and this worked well for this size group. The participating medical faculty talked about that experience:

MNM3: Yeah, so the sessions that we’ve had are large groups so we bring together—we really do it in two parts so there will probably be about 75 medical students at a time and not nearly so many nursing students, maybe 30. They work in teams, little groups, because there is not enough time for a true team to evolve; but you know about eight or ten students around a table.

The most recent one they looked at different cases around patient safety, and they worked through—it was a team based learning exercise, so they had to do some preparation ahead of time. I don’t know if you are familiar with the formality of team-based learning is an actual curriculum intervention. They really did do that and they came in and they did their individual readiness assurance test and, then as a group, they did the group readiness assurance test.

In summary, building basic team skills, and putting them to use in exercises and situations that called for team collaboration, was a way faculty prepared students to become more comfortable with the dynamics of teamwork. On occasion, team building exercises were not fully successful; on those occasions, faculty usually identified that either the students had not developed the basic skills to successfully accomplish team-related goals, or required more diligent mentoring during the team interaction. Faculty found that creative use of spontaneous clinical opportunities for teamwork, and the use of improvement models to guide team exercises, left students with a better sense of team dynamics and formed a foundation for future teamwork and collaboration.
Summary

Nursing and medical faculty from all 3 institutions shared remarkably similar experiences as they endeavored to create learning environments amenable to the teaching of collaboration in interprofessional teams. Factors that influenced student learning and faculty capacity for collaborative teaching separated into 6 themes. These were enabling curricular methods and pedagogy, the clinical environment as it shaped student perceptions about interprofessional collaboration and relationships, the structures and culture inherent in educational institutions and programs, the degree to which faculty were engaged and competent in interprofessional collaboration and had access to necessary resources, the designing of learning experiences that were authentic and experiential, the influence of external drivers, and the influence of student roles and role understanding. The 6 themes further divided into two major ideas. The first included themes describing environments and cultures that either enabled or impeded faculty capacity to create learning environments for students that fostered collaboration and cooperation. The second included student centered themes; those were themes that addressed curricular methods and pedagogy, and student roles and role understanding.

Minimal differences in the experience of nursing and medical faculty were noted. The teaching of communication as content, using the SBAR mnemonic, was peculiar to nursing, as was the focus on encouraging nursing students to participate in medical rounds. Medicine was unique in its use of the practice of shadowing nurses or nursing students.

Although the 3 institutions were geographically separate, and resided in two different Midwestern states, correspondences in the institutional cultures and organizational cultures of the affiliating academic medical center hospitals were revealed. Structurally, two of the institutions were state-funded public institutions; the third was a private university. Although this might have made a difference in terms of financial models, fiscal challenges to operationalization of interprofessional curricula were comparable.

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Curricular reform or restructuring was underway in two of the three institutions, and the third was engaged in a grant-funded interprofessional project. All of the faculty participants were early adopters of the concept of interprofessional education and were engaged in interprofessional education in some way. Most importantly, they all took it on both evidence and faith that interprofessional collaboration makes a difference, and articulated that it is the right thing to do for their professions, and to serve the public.
CHAPTER 6

SUMMARY AND CONCLUSIONS

Purpose of the Study

The purpose of this study was to explore faculty perceptions of the preparation of medical and nursing students for interprofessional teamwork and collaboration with one another and student outcomes. The research questions that guided the study were:

- How do medical school and nursing school faculty describe the experiences that enable medical and nursing students to learn how to work collaboratively in interprofessional teams?
- To what degree do faculty perceive that students are achieving outcomes related to interprofessional teamwork and collaboration, based on current relevant accreditation standards/competencies?
- What factors do faculty perceive as hindering the development of these competencies?
- How could hindering factors be overcome to remove barriers to collaboration?

Findings in Relation to Research Questions

Experiences that Enable Students to Learn to Work Collaboratively in Interprofessional Teams

Medical and nursing school faculty described a variety of experiences they felt enabled medical and nursing students to learn to work collaboratively in interprofessional
teams. The two student-centered themes addressed this; curricular methods and pedagogy, and student roles and role understanding.

The most powerful kinds of experiences that enabled students to learn to work in collaborative teams were described as authentic and experiential. Authentic experiences were real in the absolute sense; they were neither created nor contrived. These experiences involved students caring for real patients and also required students to work collaboratively with either a faculty or student from the other profession to solve patient problems and provide care. Authentic experiential learning often involved working alongside specialized collaborative teams, or involved taking the student outside of their comfort norms in a way that forced the creation of team to the point that the experience was transformed into something very meaningful. Examples of the latter included international immersion experiences and community service learning. Faculty also felt that making use of spontaneous teachable moments enabled students to learn to work collaboratively. Exemplars included encouraging students to approach a faculty member representing the other profession with a question, or to engage in conversation about the patient’s care.

Faculty also talked about mentoring students through interactions with the other profession, and using debriefing as a pedagogy that helped students make meaning of their clinical experiences relative to interprofessional collaboration. Interactions with the other profession were often positive; faculty used these techniques to add context to those positive experiences. Contentious conversations with the other profession occurred from time to time, and faculty were particularly careful to process those experiences to help students understand and manage future interactions. Reflection was an important element of debriefing, although narrative forms of reflection were also helpful for students. Role modeling and mentoring shared some characteristics, in that faculty drew on their knowledge and experience to serve as a guide for student learning.

Learning experiences in interprofessional simulation also enabled students to learn collaboration. Simulated experiences occurred in laboratories and made use of high-
definition mannequins that replicated patient problems. Students had to work collaboratively to care for the simulated patient; this included goal-directed communication, and joint problem solving. Not all students had an opportunity to engage in these experiences; these were elective courses or experiences in a number of the programs. Although these experiences were synthetic by their nature, most faculty felt that they provided foundational preparation for authentic experience in the clinical setting. A less high-definition method to teach collaboration was used primarily by nursing faculty; this was to teach principles and methods of collaborative communication in a classroom setting. Faculty who included communication in their courses often used role playing as pedagogy, which is a simplified form of simulation.

Several other creative methods for enabling students to work collaboratively were described. The best exemplars shared certain characteristics; faculty from both medicine and nursing worked collaboratively to design the method or pedagogy, the activity or experience was developed out of some common ground, it was structured such that students were required to engage each other in conversation and make a contribution to the activity, and faculty from both medicine and nursing participated equally as facilitators. Examples included continuous quality improvement (CQI) exercises and root cause analysis to determine causes of error in case studies. Simulation experiences often shared these characteristics, as did some authentic learning experiences, especially those that were community based or international. Peer learning is also appropriately mentioned here, because faculty who mentioned peer learning talked about it in the context of experiences that embodied all of these characteristics. Peer learning involved faculty encouraging nursing student to teach medical students something about what they knew, and vice versa.

A number of more simply and spontaneously designed pedagogies also enabled students to learn collaboration. These included shadowing someone from the other profession, encouraging nursing students to round with physicians and engage in patient-
centered conversation with both physicians and medical students, and to ask questions of someone from the other profession.

Experiences that enabled students to learn collaboration in clinical settings were most successful when the organization in which they occurred embodied a culture that was committed to quality, safe patient care, and valued and supported collaboration. Faculty felt that students had a better opportunity to practice their novice knowledge of collaboration in practice when their clinical experiences took place in environments with those characteristics.

Faculty Perceptions of Challenges Assessing Student Outcomes

Nursing and medical faculty from all 3 institutions talked about challenges involved in assessing student outcome competencies related to interprofessional teamwork and collaboration. A continuum of outcome assessment and measures were discussed; some programs simply evaluated whether or not the student was a good communicator, and other programs had developed, or adopted, complex outcome competencies that included communication, but encompassed a full range of knowledge, skills and attitudes related to interprofessional collaboration as well.

When faculty talked about students achieving the requisite knowledge, skills and attitudes for interprofessional collaboration, they did so separate from discussion of objective outcome achievement. Faculty who had mentored students during any hands-on activities, such as clinical instruction, exemplar authentic learning experiences, or simulation laboratory exercises, consistently talked about students “getting it,” “light bulbs going on,” and learning something special about working together.

Faculty found the development and implementation of outcome competencies challenging at a number of different levels, beginning with outcome competency development. Once competencies had been developed, the challenge remained as to how to thread competencies throughout the curriculum. Consistently informing students of
competency requirements and assuring faculty used consistent assessment methods were other challenges that were discussed.

Confronting the need to develop outcome competencies was discussed by many of the faculty who talked about student outcomes. Nursing faculty talked about embedding the American Association of Colleges of Nursing (AACN) Baccalaureate Essentials and the Quality and Safety Education for Nurses (QSEN) project competencies into the curriculum (American Association of Colleges of Nursing [AACN], 2008; and Cronenwett et al., 2007). These standards and outcomes are straightforward, detailed, and have been embraced by the nursing education community in the U.S. The challenge in nursing education was to revise the curriculum, including syllabi, course content, practical experiences, and evaluation tools to reflect the competencies. Medical faculty had a more difficult time, because the Liaison Committee on Medical Education (LCME) (Liaison Committee on Medical Education [LCME], 2011) competency speaks only to communication skills as they relate to the physician’s role; communication is mentioned in this standard only insofar as it includes patients and families, colleagues, and other health professionals. The fact that this LCME standard makes only a vague gesture to include interprofessional collaboration left medical faculty without the specific guidance nursing enjoyed. Medical schools are held to the LCME standard, however, Accreditation Council for Graduate Medical Education (ACGME) standards that guide residency education include more specific requirements related to professionalism, as well as interprofessional and communication skills. Faculty from the medical schools talked about looking to those ACGME standards (Accreditation Council for Graduate Medical Education [ACGME], 2007) to guide their own competency development. Both nursing and medical faculty participants understood that communication outcomes addressed only a portion of the knowledge, skills and abilities needed for interprofessional collaboration, therefore understood the need to continue competency development.

Other problems faculty encountered included designing methods to assess student competency, and whether they should be formative, summative, or both. Faculty talked
more about formative and subjective measures included criteria-driven clinical experience objectives at a “satisfactorily” level, or a grade of “satisfactory” on written reflections of students’ interprofessional interactions. There was little mention of final summative evaluation or objective measures. Some faculty indicated they were either “not there yet,” or learning “how to do that better,” which was representative of the way most of them felt. One captured this: “alright, what am I really looking for from this learner?” Most faculty who did talk specifically about competency assessment used it as a formative part of the evaluation; their rationale for this was that collaborative experiences were new enough that they wanted the learning environments in which they took place, e.g. the simulation laboratory, to feel “safe” to students and allow for truly experiential learning.

Another challenge addressed by faculty was how to thread interprofessional collaboration competencies throughout the curriculum. Nursing faculty had already begun to do this. Nursing faculty talked about threading interprofessional collaboration competencies progressively through their course, level, and program outcome objectives. In this way, as students progressed through the program, outcome objectives became more comprehensive and complex, and culminate in aggregate competencies at graduation. Faculty within programs did not consistently agree that collaboration concepts and competencies were threaded throughout the programs, or appeared in every course. Most nursing faculty indicated that these outcomes did consistently appear in clinical objectives.

Part of the direction faculty were taking with the interprofessional grant at Midwest North was aimed at outcome competency development and methodology. In this climate of development, it was no wonder that the faculty who were intimately involved in this part of the design had concerns about the ability of their fellow faculty to carry out outcomes competency assessment with a degree of consistency. Finally, some of the faculty talked about the need for students to understand what is expected from them as they entered their educational programs; until faculty had fully developed the
competencies, integrated them into the planned curriculum, and developed faculty to the point that consistency in student assessment was reasonably assured, this would continue to present some difficulty. Faculty autonomy and development were both problematic. Clinical course faculty were usually independent in terms of their methods to achieve course objectives and were also said to be largely unprepared to competently measure these particular outcomes.

**Hindering Factors**

A number of factors hindered development of student outcomes related to interprofessional teamwork and collaboration. Many hindering factors were structural and found at the level of the educational program or university. Others were environmental, and originated in either the educational environment or in the affiliate hospitals or other organizations that provided clinical experience placements for students. Other hindering factors were related to individual faculty competency or motivation to adopt interprofessional collaboration as a curriculum element.

Structural barriers were both geographic and cultural. Medical and nursing education programs were in different buildings, with separate agendas and academic calendars. Even where nursing and medical program buildings were next door to one another, this silo’d structure had effects on both faculty and student ability to engage with one another. Academic calendars in nursing and medical programs were separate; nursing programs conformed to the university academic calendar, but medical programs followed a calendar of their own making. This made the logistics involved in setting up joint experiences cumbersome. The structural separateness also had an impact on resources, and set up a competitive environment rather than one that was collaborative; this undermined faculty motivation to work collaboratively. Faculty who typically worked collaboratively were able to do so because they cooperatively obtained external funding, or because organizational champions from amongst their leadership promoted collaboration. Other structural barriers included what was perceived to be a saturated curricula, and the sheer numbers of students in the medical and nursing programs.
The existing formal curriculum was also discussed as a hindering factor. Faculty within institutions and professions agreed that the formal curriculum addressed communication and collaboration in some ways. However, there was inconsistency in the degree to which faculty within institutions and professions thought it was expressed in level or program objectives, course syllabi, clinical experience objectives, or outcome assessment tools. Most faculty said that there was no clear curriculum thread that addressed interprofessional collaboration. This made it sometimes difficult for enthusiastic faculty to find the right venue to encourage and facilitate collaborative experiences for students; it also made it easier for resistant faculty to continue doing things the way they had always been done.

Organizational culture and inertia also hindered student outcomes related to interprofessional teamwork and collaboration. Faculty described organizational cultures in academic medicine and nursing as separate, with longstanding historical organizational memories. Faculty talked about elements of the organizational culture that were profoundly resistant to change, in both medicine and nursing academic programs and in the affiliating clinical organizations. Some clinical organizations demonstrated evidence of cultural contexts that were still hierarchically and paternalistically structured. Exposure to these clinical environments negatively influenced student perceptions of the potential for interprofessional collaboration and made it difficult for faculty to facilitate collaborative experiences. Some academic administrators, and a number of faculty colleagues, were described as “stodgy.” Many of the faculty participants considered themselves to be early adopters, although several mentioned that there was enough external pressure coming from the national quality and safety movement, and in most cases from program leadership, that there was hope for change.

Several hindering factors were directly related to faculty: these were faculty engagement which included consideration of workload and incentives; and competency to teach and facilitate interprofessional collaboration. Faculty engagement in curriculum change and efforts to include interprofessional collaboration in the curriculum was
variable. Faculty who were less engaged, or not engaged at all, were those who had very full teaching loads, considered the content irrelevant or not their job, or who held part-time clinical appointments and had very busy clinical lives outside of the academic setting. The size of the clinical faculties in both medicine and nursing were significant. This factor made communication about curriculum changes challenging. Assuring that clinical faculty attended meetings or workshops where they could enhance their competency to teach collaboration was virtually impossible. Reimbursement for clinical faculty to attend meetings and workshops was discussed, as was reducing workload for regular faculty involved in curriculum revision.

Two other hindering factors, student mastery levels and student maturity levels, were associated with the program structures and curriculum. Student mastery levels were an issue when collaborative activities were planned involving nursing students early in their curriculum, and medical students early in theirs. If the nature of the exercise required a level of clinical prowess, the nursing students had the advantage because they were exposed to clinical experiences early in the program. The nursing students had context, and a level of clinical expertise. Medical students, on the other hand, did not have the same level of exposure in their first and second years, so were at a disadvantage in that regard. If the exercise required a depth of academic understanding, for instance in the biological sciences, the medical students often had that edge, but not always. Medical faculty and students alike remarked that nursing students had more depth of knowledge in the sciences than they expected.

Matching student maturity also emerged as a hindering factor. Medical education is at the graduate level, while nursing education, in the prelicensure programs, is generally at the undergraduate level. The medical students were on average 4 or more years ahead of nursing students in terms of psychosocial development, and also in terms of previous academic experience. The population of graduate entry second-degree prelicensure nursing students, however, were more matched with medical students from a maturity standpoint. Another student-centered hindering factor was related to
preconceived notions some students brought with them into their programs. Students who held these notions, which were about hierarchical superiority and dominance in health care for medical students, and about deferral to physicians for nursing students, provided challenges for faculty who strove to correct misunderstandings and facilitate more equalized collaborative experiences. Some of the participants’ faculty colleagues held these same perspectives; those who did either unintentionally undermined or intentionally sabotaged efforts to incorporate interprofessional collaboration in the curriculum.

The perception that collaboration is “soft” content and not worthy of the students’ time or effort was another hindering factor. Faculty participants said that medical students and faculty were more likely to hold this view than nursing students or faculty. Faculty explained that the origins of this point of view were twofold. First, medical students, and many faculty as well, expect that the curriculum for medical students should be emphasized in the biological and physical sciences which constitute the “known” gold standard for medicine, and the diagnosis and treatment of disease. Any content that varies from that core is considered to be “soft,” or irrelevant. The content tested on medical licensing exams serves to support that perspective. Second, medical students are not exposed to clinical situations involving both patients and other health professionals early in their experience as nursing students are, so they have no context to help them readjust their thinking about the importance of learning to collaborate.

**Overcoming Barriers**

Faculty either had ideas about how hindering factors could be overcome to remove barriers to collaboration, or had already overcome barriers by using any of a number of strategies. Overcoming barriers was seen as a long and complex process with regards to organizational culture and environments, structural and functional barriers, and funding. Other barriers that hindered the development of student competencies in interprofessional collaboration were overcome by using excellent teaching methods and pedagogy.
National accreditation, the Liaison Committee on Medical Education (LCME) for medicine and Commission on Collegiate Nursing Education (CCNE) for nursing, was used as leverage for change in every program. Faculty in both nursing and medicine programs were forced to update their curricula to remain compliant with accreditation standards. In one institution the timing was fortuitous; the university was changing from a quarter to a semester academic calendar, so the curriculum was required to undergo revision for that purpose. It was seen as an excellent opportunity to make necessary changes and assure that accreditation standards were met. In one institution, a new medical program dean had explicitly indicated that faculty needed to update the curriculum, and include elements that are in the forefront of national attention. Among these are quality and safety, and interprofessional collaboration.

The most difficult barrier to overcome was organizational culture. In all three academic institutions, there was some group of engaged faculty and leadership working to reform the curriculum, however they were often in the minority. Encouraging their faculty colleagues to consider the value of collaboration, and to get them excited about the process, was sometimes a challenge. Clinical faculty were particularly difficult to engage because of their commitments outside the academic setting. One institution used a “willing partners” model to engage faculty; another talked about faculty workload adjustments, or compensation for meeting attendance, as a way to encourage all faculty to be engaged in the process.

One way barriers were overcome was to engage organizational champions. The most effective organizational champions came from the leadership ranks. However, small groups of dedicated faculty in nursing and medical programs were able to instigate a remarkable degree of change. Working together to obtain external funding was helpful.

Faculty competency was also a barrier. Faculty participants had, to a person, been interested and involved in collaborative relationships and experiences over time. Together they had accumulated a tremendous amount of understanding about strategies that were or were not effective, and had developed their own competencies that help
students develop knowledge, skills and attitudes related to interprofessional collaboration. Many of their colleagues did not have the same level of competency, so faculty development was talked about as a barrier to overcome if there is to be any consistency in the quality of interprofessional collaborative education.

The data revealed that the most important factor in overcoming barriers was the commitment and teaching expertise of individual faculty members. The faculty participants in this study had the fortitude to either tear down or bypass barriers in their own unique ways. When organizational cultures were less than hospitable to collaboration, they found willing partners to engage, either from their own faculty ranks or clinicians who were of like mind. Nursing faculty engaged physicians to teach their students, in the moment, on clinical units. Medical faculty worked with nursing faculty to design simulation and quality improvement exercises, and collaborated with them to take students into community immersion experiences or on international mission trips. When faculty from either profession saw that their students were the subject of or witness to incivility, they processed that experience with the student to turn it into a learning opportunity. Faculty found authentic collaborative experiences for students, and debriefed with them afterward to help them make meaning. Faculty who were members of specialized interprofessional teams invited students to work alongside them, to experience the process and benefits of collaboration. When students complained that experiences focused on collaboration were “soft” and irrelevant, these committed faculty found ways to contextualize experiences so student understanding of its importance could evolve. Although matching student mastery and maturity levels presented challenges, excellent teaching, mentoring, and facilitating helped students to learn on a more equal footing.
Findings in Relation to the Literature

Collaboration and Cooperation in Health Care Teams

Evidence of collaboration and cooperation elements found in the literature were mentioned during conversations with faculty participants. Attributes and determinants that have been identified in a number of reviews and concept analyses were revealed during conversations with faculty, and were described in a number of scenarios and examples. These attributes and determinants of collaboration include shared information leading to goal achievement (D’Amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005; Fewster-Thuente & Velsor-Friedrich, 2008; Henneman, 1995; and Nembhard et al., 2007), relationship and mutual respect (Baggs & Schmitt, 1997; and Schmalenberg et al., 2005), willingness to collaborate in the context of a partnership (Baggs & Schmitt, 1997; D’Amour et al., 2005; and Sicotte, D’Amour, & Moreault, 2002), trust and mutual respect (Baggs & Schmitt, 1997; D’Amour et al., 2005; Silen-Lipponen, Turunen, & Tossavainen, 2002; and Sicotte et al., 2002), commitment and trust (Katzenbach & Smith, 1993); interdependency and shared power (Baggs & Schmitt, 1997; and D’Amour et al., 2005); and communication (Baggs & Schmitt, 1997; D’Amour et al., 2005; San Martin-Rodriguez, Beaulieu, D’Amour, & Ferrada-Videla 2005; and Silen-Lipponen et al., 2002). Shared information leading to goal achievement was talked about in the context of goal-driven communication, which included the use of the Situation Background Assessment Recommendation (SBAR) mnemonic. That attribute, along with the establishment of relationships built on trust and mutual respect, and the willingness to collaborate in a partnership context, were demonstrated clearly in discussions of specialized stable teams, e.g. palliative care teams, solid organ transplant teams, and surgical teams in the operating room. The element of trust and mutual respect was also apparent in discussions that focused on shared values. The characteristic of interdependency and shared power was addressed in several contexts. One was in specialized teams, where hierarchy was irrelevant and patient needs trumped power structures. The other was in relationship to preconceived notions medical students and
nursing students sometimes bring into their professional programs; hierarchical superiority more common to the medical student, and deferment to a higher authority more common to the nursing student. Interdependency and shared power came up in this context when faculty talked about exposing students to experts from other professions to neutralize any preconceived notions about hierarchy. Communication was often addressed within the context of modeling collaborative communication in clinical settings.

Other team characteristics necessary for collaboration and found in the literature were willingness to be involved in a joint venture which required planning and decision making, that team members mutually acknowledged individual expertise and shared responsibility for outcomes, and that the relationship was nonhierarchical (Hanneman, Lee, & Cohen, 1995; Katzenbach & Smith, 1993). These characteristics were demonstrated particularly well in specialized, stable teams; the medical faculty from Midwest South who talked about the palliative care team, and the medical faculty from Midwest West who talked about solid organ transplant units, mentioned those characteristics; intensive care units, emergency departments, and operating rooms exemplified some or all of these characteristics as well. In addition, a voluntary rather than coerced sense of mutual accountability is also a critical characteristic of collaborative teams (Katzenbach & Smith 1993); staff members of specialized teams chose to join and remain committed to those teams. Other venues demonstrating these team characteristics were community-based service learning experiences, and international immersions; these two environments were unique in that they pulled both the students and faculty out of their usual hospital-based comfort norms, which allowed the team dynamics to evolve.

The literature also addressed the value created through collaboration which is greater than is possible through traditional communication and teamwork structures (Rosen, 2007). The palliative care team at Midwest South was able to demonstrate this value in terms of dollars. In addition to preserving the dignity of the patient and family at
end-of-life, the team reduced intensive care usage by these patients as well as overall hospital length of stay, yielding significant cost savings for the organization.

Relational dimensions of collaboration addressed in the literature (D’Amour et al., 2008) reduced uncertainty and risk in collaborative relationships, and were apparent in discussions referencing specialized stable teams. Relational dimension indicators mentioned in the literature were: a patient-centered orientation over other allegiances; and mutual group member acquaintanceship that included both personal and professional knowledge of the other to the extent that values and competence are mutually known. Discussion about the palliative care team exemplified these relational dimensions of collaboration. Authentic environments, including experiences with any of the specialized teams, but also community service learning and international immersions, were mentioned as places where students and faculty could mutually develop these relational dimensions. Simulated and classroom environments provided the opportunity to begin cognitive development of elements of collaboration, and simulation provided an arena to practice and hone skills. However, there was no substitute for authentic experience. Authentic experiences were the most effective means to allow relational dimensions of collaboration to develop in students.

Incidences that characterized cooperation, rather than collaboration, were also mentioned by faculty. Cooperation is distinguished from collaboration in that it focuses on joint effort that may result in mutual benefit, rather than on group work and goal accomplishment. Cooperation also involves risks and costs; however the benefit of collective action usually outweighs the costs (Axelrod, 1997 & 2006; and Dugatkin, 1998). A scenario that exemplified cooperation was one in which a nursing student and staff nurse relentlessly insisted that a physician pay attention to the assessment data they had collected, on a patient who was at risk for rupturing a previously undiagnosed aneurysm. This was not a collaborative event at the outset; the nursing student and nurse risked negative reprisal from the physician, and pursued him until he surrendered and listened. The benefit of the ultimately collective action was life-saving for the patient.
Other scenarios were described by faculty that were similar but not so detailed; these generally involved nurses risking physician anger to get their point across and the patient treated. Nursing faculty, however, told some stories about nurses using avoidance to prevent physician incivility; this resulted in poor patient outcomes, and in addition served as poor role modeling when students were witness to the behavior.

Evidence of other elements of cooperation was visible in conversations with faculty. Two factors that predict the success or failure of the emergence of cooperation in teams are related to the team’s social structure. These are: labels; stereotypes which become self-confirming; and status hierarchy, reputation, and deterrence (Axelrod, 2006). Also, student biases and attitudes have been identified in the literature; students entered their professional programs with stereotyped views of each other, which worsened during their interprofessional collegiate experience. Medical students consistently held a lower opinion of the academic quality of others health professions students (Tunstall-Pedoe, Rink & Hilton, 2003). Medical faculty in particular talked about the tendency of some medical students to come into their professional programs having already labeled physicians as heads of the status hierarchy. Medical faculty from both Midwest North and Midwest West talked about “training this out” early in the medical students’ experiences. They did this by introducing medical students to experts in other fields before they developed their own body of expertise, and by exposing them to high functioning teams where hierarchy and pedigree have become irrelevant. Both nursing and medical faculty talked about reputation, which is obtained through the observations others make of the player and raises questions about appropriateness, trustworthiness, and capacity for ethical action. Negative reputations were developed by physicians who were regularly uncivil, or by nurses who were unkind to medical students or residents and withheld important patient information as a power play. Faculty said that uncooperative individuals were sometimes representative of an enculturated health care setting; other times the behavior was anomalous and not seen generally in the culture of the organization.
Faculty mentioned clinical environments in which the characteristics of collaboration and cooperation were not evident; these are described in the theme that addresses the influence of the clinical environment on student perceptions of interprofessional collaboration relationships. Environments that negatively influenced student perceptions demonstrated elements of hierarchical, paternalistic organizational culture, provided poor role examples, some of whom demonstrated uncivil behavior, and were settings where students were fearful of or intimidated by the other profession.

**Learning and Developing Collaboration and Cooperation**

High Reliability Organizations (HROs) and aviation industry principles and practices that have been adapted to health care settings were discussed by faculty, although not in those terms. Faculty talked about safety-focused communication in particular, especially in high stakes environments such as the operating room and emergency department settings. The five hallmarks of HROs reduce the incidence of failure (Weick & Sutcliffe, 2001). The first of these is preoccupation with failure on both large and small scales; a medical faculty and surgeon from Midwest West mentioned a communication technique used in the operating room (OR) called a “time out,” which exemplifies preoccupation with failure. The time out allows anyone on the surgical team to call for a pause in the work to check accuracy and safety. A nursing faculty and perioperative nurse from Midwest North talked about these techniques in the context of the nurses’ role in the operating room as “safety officer.” Another hallmark is the reluctance to accept simplification, which acknowledges that the environment is complex, unstable, and unpredictable; words used by faculty that demonstrated this understanding included “ballet” and “improve” to describe the work of the team. A third hallmark included abhorrence of indifference; mission drove every exemplar of authentic learning experiences, and in all of these, quality and safety were paramount. One medical faculty described the atmosphere the authentic environment created – it focused on what could be done for the patient, and who wanted to learn something. One additional hallmark that applied to this study was deference to expertise; in discussion about flattening hierarchy
and facilitating medical student understanding of their role in health care, medical faculty in particular said they had brought in “experts” from other health care fields to make that point. In addition to these examples, the hallmarks and attributes of HROs were often mentioned in the context of discussion about specialized, stable teams.

Faculty also talked in general about interprofessional communication, and improved communication models including Situation, Background, Assessment, and Recommendation (SBAR). A portion of the literature on interprofessional collaboration focused on communication, and its relationship to patient safety and the reduction of sentinel events (Ascano-Martin, 2008; Greiner & Knebel, 2003; Haig, Sutton, & Whittington, 2006; Nadzam, 2009; The Joint Commission, 2009; and Thomas, Bertram, & Johnson, 2009). Nursing faculty most often talked about the SBAR mnemonic, and relied upon it as an organized method for teaching nursing students how to communicate effectively with physicians. Medical faculty said that most physicians did not know about SBAR; they paid attention because the conversation with nursing students or nurses gave them the information they needed to give appropriate patient care. Only one medical faculty member mentioned SBAR by name, and that was because he collaborated with a nursing faculty in the simulation laboratory and knew the language. Faculty also talked about communication from different points of view; both perspectives demonstrated a degree of one-way thinking about communication. Nursing faculty talked about communication as something that is shared with the physician in order to get appropriate patient treatment, while medical faculty talked about it as a way to retrieve information. Both nursing and medical faculty talked about interprofessional communication as a way to minimize safety. This difference in medical and nursing education is also reflected in differences in accreditation standards (AACN, 2008; and LCME, 2011).

Theories and models such as Kolb’s Experiential Learning Theory, which combines experience, perception, cognition and behavior (Kolb, 1884), were helpful in understanding how students learn collaboration. This study did not focus on student preferences of learning style, but it did explore faculty perceptions of how students
learned collaboration. Nursing faculty in particular talked about teaching communication in the classroom, which was one way for students to “know.” Both nursing and medical faculty often talked about the next step in learning, which is that “knowing” is transformed through intention, called reflective observation, or extension, called active experimentation. Intention, or reflective observation, was facilitated through a number of faculty enabled pedagogies, e.g. mentoring and role modeling, narrative reflection, and debriefing. Extension, or active experimentation, was facilitated in a number of settings, including the classroom (e.g. continuous quality improvement or root cause analysis exercises), the simulation laboratory, or with authentic experience in clinical settings. Kolb’s model purports that ways of knowing are staged and cyclic, beginning with concrete experience, then reflective observation, abstract conceptualization, and active experimentation; faculty also mentioned that repetition of experiences followed by faculty facilitated processing were important to internalization of collaboration knowledge, skills, and attitudes. The model also suggests that the cycle usually begins with concrete experience; a way to provide concrete collaborative experiences as “practice” for students was in the simulation laboratory. Once basic collaboration skills were grasped, then the cycle of active experimentation – concrete experience – reflective observation could proceed; the knowing leads to the action behavior. Action behavior was best exemplified by authentic experience with real patients, in real clinical settings.

Foundational knowledge and skills necessary for teamwork and collaboration between nurses and physicians have been described to include an understanding of one’s own strengths and limitations as a team member, ability to recognize the impact of authority gradients, being able to define and describe the scopes of practice and roles of health care team members, and being able to describe specific strategies for conflict resolution when disputes arise. (Cronenwett et al., 2007). The literature describing the silo effects of health professions education indicated that this separation could also produce a sense of territoriality (Baldwin, 2007; and Barnsteiner, Disch, Hall, Mayer, & Moore, 2007). Faculty participants addressed all of these requisite elements. Many faculty mentioned that students had limited understanding of professional roles, including
their own as well as others. Faculty worked toward improving that understanding by using a variety of strategies, including collaborative student team work in classroom exercises, clinical experience with specialized, high functioning teams, exposure to “experts” from the other professional field, and exposure to clinical settings where collaboration was valued and practiced. Students recognized authority gradients and hierarchies when they experienced them; faculty did their best to process those experiences with students to provide context and perspective. Faculty also mentioned that students had occasion to be the subject of, or witness to, uncivil behavior; faculty prepared students as best they could for those eventualities, and debriefed with them afterward if the occasion presented itself.

Faculty mentioned a number of teaching methods that are reflected in the literature. Reflection was one tool that was used to promote individual growth in collaboration skills. One of the Institute of Medicine (IOM) criterion states that the health care professional should be educated to “Both act as an effective member of an interdisciplinary team and improve the quality of one’s own performance through self-assessment and personal change” (Greiner & Knebel, 2003, p. 59). Faculty successfully used narrative reflection, debriefing, and exercises such as quality improvement methods with students.

Faculty also used collaborative learning as pedagogy, a process for constructing meaning and transforming experience into knowledge by using conversation (Kolb, Baker, & Jensen, 2002). The work being done at Midwest North, within the context of the interprofessional grant, demonstrated the degree to which faculty enabled collaborative conversation between medical and nursing students. Other collaborative learning approaches faculty mentioned included case study, problem-centered instruction, simulations, peer teaching, and peer group conversation that produced a level of consensus; all of these have been mentioned in the literature (Smith & MacGregor, 1992).
A number of structural elements discussed in the literature had an impact on student’s learning of interprofessional collaboration. In particular, programs are in silos, with separate faculties who report to their own administrative structures and focus on the needs of their individual programs (Barnsteiner et al., 2007; and Kohn, et al., 2000). The silo structures common in medical and nursing education had an impact on how faculty interacted to execute interprofessional experiences, how students interacted with one another, and how experiential learning opportunities played out separately in the clinical environments.

Support and Direction for Interprofessional Collaboration in Prelicensure Nursing and Medical Education

The literature supporting and directing IPE came from the Institute of Medicine (IOM), Accreditation standards for nursing and medical education, QSEN, and the body of literature in general which included systematic reviews (AACN, 2008; Greiner & Knebel, 2003; Cronenwett et al., 2007; and LCME, 2011). The IOM reports, QSEN competencies, and accreditation standards were frequently mentioned by faculty, and appeared thematically in the data as external drivers. Faculty at every institution, representing both nursing and medicine, gave these reports and accreditation standards more than a passing mention. In every institution, curricular revision or total curricular reform was guided by the revisions in accreditation standards, which in turn grew out of the IOM reports. Medical faculty from Midwest South said that an upcoming re-accreditation visit was serving as leverage to motivate faculty to re-write the curriculum. In addition, the new dean of the medical program had not given them a choice; change was mandatory if they are to have a successful re-accreditation survey. Nursing faculty also mentioned the QSEN competencies related to interprofessional collaboration. Those competencies are developed to a degree that exceeds the competencies and standards in medical education; medical education accreditation standards related to collaboration were declared “vague” by several medical faculty. At Midwest North, the medical faculty
were impressed enough with QSEN that they are planning to adopt some of the language for their own needs.

**Quality and Safety Education in Nursing (QSEN) Competencies.** Criteria for engagement in IPE have been described in the QSEN literature, and include a number of stipulations (Cronenwett et al., 2007). Although these apply to nursing education, these characteristics were also discussed by medical faculty.

The first criterion is an explicit philosophy of IPE that permeates the organization and is observable and is measurable (Cronenwett et al., 2007). Organizational champions amongst the leadership in both nursing and medical education helped advance the IPE agenda. At Midwest South, the medical program dean used the anticipated re-accreditation visit as leverage to introduce a philosophy of IPE into the fabric of the medical program. Nursing faculty also talked about support from their leadership, which they needed, for example, to obtain external funding for collaborative projects. The second criterion is that learning experiences for students are co-created by faculty from the different professions (Cronenwett et al., 2007). Inter-faculty relationships, and also team building for students, both emerged from the data as subthemes. Exemplars included the interfaculty curriculum reform committee at Midwest West, the interprofessional grant project at Midwest North, and cooperation in the international immersion experiences at Midwest South.

A third QSEN criterion is that student opportunities for integrated and experiential learning of collaboration and teamwork are in evidence (Cronenwett et al., 2007). These were discussed in several venues. One was in the simulation laboratory, another in the classroom using continuous quality improvement (CQI) and root-cause analysis exercises. Authentic interprofessional learning was particularly important, and happened when students participated in clinical experiences working alongside specialized teams, or in clinical settings where authenticity was a natural part of the experience, such as in the community or international settings. A fourth criterion is that IPE learning experiences are embedded in the curricula and required for students.
There was some discrepant data about the presence of IPE in the formal curriculum. Faculty responses about this depended on the level of their involvement in curriculum development or reform, whether they were part of the interprofessional grant (at Midwest North), or whether they were closely involved in classroom or clinical experience where interprofessional collaboration was a part. Some faculty participants were less informed than others, even though they were all interested in supporting and participating in IPE.

The fifth QSEN criterion is that students demonstrate a single set of interprofessional competencies, such as those promoted by the IOM (Cronenwett et al., 2007). In every institution, this was still in development. Faculty made comments such as “we aren’t there yet.” The work at the medical program at Midwest West was trying to get at this through use of the competencies they had developed by combining the essence of the IOM competencies with accreditation standards. Midwest, and Midwest North was exploring competency development as a part of their grant project.

The sixth criterion requires organizational support that fosters IPE, including support for faculty developing and engaging in courses, incentive systems, and integrated activities across schools and professions for both faculty and students (Barnsteiner et al., 2007). This last is complicated to address, because organizational support was in “pockets.” Some faculty referred to themselves as early adopters. Also, faculty mentioned that because not all of their colleagues were engaged in the IPE movement, other faculty sometimes sabotaged the efforts, either intentionally or unintentionally. Nursing faculty said that some of their colleagues spoke unkindly about physicians to students in the classroom, and that this was particularly unhelpful. Another factor that complicated this was that course faculty could prepare students for collaborative teamwork through a variety of means, but unless they were supervised in the clinical setting by faculty who understood how to bridge theory and classroom knowledge into the clinical setting, students were vulnerable to exposure to less than collaborative clinical environments.
Enculturation was still present in some of the academic medical center affiliate clinical settings, and this was often problematic.

Faculty preparation for both teaching and competency evaluation is another issue that contributes to the difficulties in realizing collaboration competencies, and has been mentioned in the QSEN literature (Cronenwett et al., 2007). The QSEN project is developing innovative pedagogy and evaluation methods to assess student learning of competencies, and also support for development of faculty expertise for execution (Quality and Safety Education for Nurses, 2009). Faculty in both nursing and medicine talked about the difficulties of developing appropriate competencies related to interprofessional collaboration, and communicating them effectively to students so they understand the expectations. Faculty also talked about the need for faculty development so that all faculty are aligned; this was difficult because of the size and structure of the clinical faculty pool; most clinical faculty are only devoted part time to clinical education, and have many external demands. The need for faculty incentives for participation, e.g. compensation for attending meetings and workshops, was a part of this discussion.

**Systematic Reviews of Interprofessional Education Research.** Cochrane and JET reviews (Cooper, Carlisle, Gibbs, & Watkins, 2001; Hammick, Freeth, Koppel, Reeves, & Barr, 2007; and Reeves, et al., 2008) highlighted the growing body of knowledge related of interprofessional education (IPE), and offered recommendations. A number of the findings and recommendations expressed in these reviews were evident in the three participating institutions. One of the systematic review findings was that IPE had a positive effect on understanding professional roles and team working; faculty talked at length about students coming into their professional program with little understanding of the others’ roles or how teams work, and that interprofessional activities helped to change that. Continuous quality improvement exercises at Midwest North, and the community and international experiences described by faculty at Midwest South exemplify this. A second finding was that early learning experiences were the most
beneficial in the development of healthy interprofessional attitudes. While some faculty talked about the need for students to have some grounding in their own profession first, there was agreement amongst a number of faculty that there was no such thing as “too early.” At Midwest North and Midwest South respectively, medical faculty had planned interprofessional experiences in the first week, bringing in “experts” from other fields, and by holding interprofessional “fairs.” A third finding from the systematic reviews was that approaches to IPE generally involved principles of adult education, problem based learning, case studies, and experiential learning. All of these methods and pedagogies were described by faculty participants.

Systematic reviews also revealed that few studies involving interventions demonstrated principles of reinforcement and facilitation. By contrast, faculty talked about repetition as one method by which students embedded team behaviors into their repertoire. The reviews also said that few interventions conducted summative assessment; this was true in this study as well. Most faculty talked about formative assessment during IPE learning, especially in environments such as the simulation laboratory, which they talked about as a “safe place” for experimenting with the principles of collaborative teamwork. However, faculty were interested in summative assessment; at Midwest West graduate competencies were embedded into the curriculum; one of these included interprofessional collaboration. At Midwest North, one thrust of the interprofessional grant was to discover ways to “do that better.”

Two key finding of the Cochrane Collaborative and JET Review updates that were relevant to pre-licensure students were that: undergraduate health professions students come with prior perceptions and attitudes about IPE and collaborative working that are shaped by a variety of factors including age, prior work experience, and gender; and that a key mechanism in well-received IPE is the utilization of adult learning principles, with a focus on authentic learning experiences that translate well into the real practice environment (Hammick, et al., 2007). Both of these findings were demonstrated at the study institutions. A subtheme, Student understanding and expectations of other
health professions roles, was, in part, devoted to this finding. Both medical and nursing students came with prior conceptions, although they were very different; some medical students came with a sense of hierarchical superiority, and some nursing students came with ideas that they would need to defer to physicians. Authentic learning was also deserving as its own subtheme; faculty talked about authenticity as an essential element for meaningful learning about collaboration and teamwork.

Also, the literature demonstrated that IPE is not typically embedded into the culture and curricula of programs in academic health centers (Barr, Freeth, Hammick, Koppel, & Reeves, S 2006). Nursing and medical faculty from all three institutions verified that finding in their institutions. At Midwest South, faculty in both nursing and medicine were in the process of writing interprofessional collaboration into their curricula; the medical program was going through a fundamental curriculum reform effort, and the nursing program was re-writing their curriculum to reflect the 2008 AACN Baccalaurerate Essentials (AACN, 2008). Both programs were compelled to revise their curricula because of an institutional change from the quarter to semester system. In addition, the medical program was anticipating an accreditation visit, and had been counseled to update their curriculum by accreditation officials. Curriculum reform was also underway at Midwest West; this was a collaborative effort and involved faculty from both programs. Midwest North was engaged in an interprofessional collaboration grant, but noted that the faculty who were participating in the grant project comprised a relatively small group who had self-selected to participate and were not representative of the attitudes shared by their colleagues. In all cases, faculty noted that much of the clinical environment in the academic health center suffered from cultural inertia, and that their strategies to change student knowledge, skills and attitudes with regards to collaboration were often undermined once students entered the clinical environments.

Accreditation Standards, and Medical and Nursing Education. Faculty at every institution also confirmed that medical and nursing accreditation standards and competencies differed with regards to interprofessional collaboration. Whereas the
AACN (2008) advanced 6 separate elements in *Essential VI, Interprofessional Communication and Collaboration for Improving Health Care Outcomes*, The LCME (2011) has one element that focuses on communication and does not include mention of collaboration. Medical faculty at all 3 programs mentioned the fact that the LCME standard was vague. Midwest West medical faculty had created their own set of competencies that amplified the LCME standards. At the other medical programs, faculty mentioned they were including the ACGME (2007) standards into medical education, even though the ACGME standards are meant to apply to residency.

Faculty also mentioned that there were discernible differences in both mastery and maturity levels between the medical and nursing program student populations. This last difference was also related to the fact that the two programs were completely independent of one another, and that the nursing programs were taught at the undergraduate levels while the medical programs were taught at the graduate level. In addition, faculty talked about scopes of practice for licensees as they limited what they could teach students in the U.S. Faculty who had been with students on international excursions said that the elimination of legal barriers to scope of practice equalized the playing field for nursing and medical students, allowed students to learn skills that would have been beyond scope of practice in the U.S., and therefore permitted a more collaborative experience with students.

Shared core competencies have been established by the IOM and amplified by other researchers (Greiner & Knebel, 2003; Ladden et al., 2006; and O’Halloran et al., 2006). Many of the competencies described directly or indirectly relate to interprofessional collaboration. Faculty talked about a number of these shared competencies as they described innovations in collaboration at their institution and program; these included communication, quality improvement, and safety and systems improvement. Medical faculty in particular indicated that core science courses were taught at different levels in medical and nursing programs. Areas where faculty saw
potential for shared core content and overlap included health care ethics, patient interviewing, and assessment skills.

Limitations of the Study

Sample

This study examined the lived experiences of a relatively large sample of faculty, although in some ways this could be considered a multiple samples. Each of the institutions could be thought of as a sample, as could each of the professions, medicine and nursing. Sample sizes in phenomenological research are generally small, although there are no rigid rules about sample size. This sample was extensive enough such that saturation occurred; I began to hear or observe similar kinds of information related to the research questions early in the interview process. Although participants continued to explore and respond to the interview questions in their own unique ways, the criteria of redundancy was reached long before all of the participants had been interviewed.

Purposeful sampling was used, because information-rich cases held the greatest potential for gaining insight into the phenomenon (Jones, Torres, & Arminio, 2006). The sampling strategies were consistent with qualitative research methodologies and did not attempt to reduce or eliminate self-selection bias. In addition, the sample is not intended to be generalizable to the larger population of nursing and medical faculty or to other health professions. However, faculty did self-select to participate, and there was a noticeable lack of faculty who are resistant to integrating interprofessional collaboration into the curriculum. Obvious questions left unanswered are whether faculty who did not volunteer to participate are less engaged, is their experience different than those in this sample, and how different are the experiences of the larger faculty group than the 32 who participated.

There is evidence of gender bias in the nursing sample; no male nursing faculty were interviewed. The number of male faculty in nursing programs is growing, but none were suggested for contact as participants in this study, and few were found in internet
searches of the institutional faculty directories. The number of women medical faculty was representative of the growing number of women in medicine, although they were not distributed evenly among the 3 institutions.

In addition, faculty represented large institutions engaged in either high or very high research activity, and that offered both medical and nursing programs in addition to other health professions programs. The institutions were also affiliated with academic medical center hospitals. Thirty participants in this study were housed on the main campuses of these institutions. Two institutions, Midwest West, and Midwest South, also had branch campuses; two nursing faculty were located at Midwest South’s branch campus, some 30 miles from the main campus. Their responses were somewhat different with regards to their relationships with physicians, because the physicians the 2 branch campus faculty encountered were private practice physicians with privileges in community hospitals, rather than medical faculty. Because their responses were somewhat different, a total of 5 nursing faculty from the main campus were interviewed. The sample of 2 was too small to determine whether differences in their responses were significant, and in general they were aligned with their faculty colleagues from Midwest South’s main campus and contributed to saturation in the data. However, the subtle differences are worthy of note, and so the differences between the experiences on main campus versus branch campuses might be explored in future research. Responses might also have been very different from faculty representing smaller institutions, institutions with different research intensity classifications, or from nursing faculty in institutions where there was no medical school or academic medical center hospital. Further, institutions were limited to 3 that were located in the Midwest. A more representative sample would include a geographically larger area, including both the east and west coasts.


**Duration of Study**

More than enough medical and nursing faculty were willing to participate in the study. Each of the interviews lasted a sufficiently long time, between 45 and 90 minutes, and participants felt they had responded to all of the questions to a sufficient degree of depth. A member check revealed that none of them had anything to add to their transcript. However, a limitation of this study is its short duration. Single interviews allowed me to gain insight into faculty perceptions and their lived experience; many said that this was a form of “download” for them; none of them had ever been asked these questions before. A longitudinal study following these faculty for a year, or more, would provide information about their experiences as they continue to work on their curricula, refine outcome objectives and competencies, experiment with pedagogy, and go through re-accreditation visits. It would also serve to follow up on the interprofessional grant at Midwest North. A longitudinal study would also reveal additional data about resistant faculty colleagues and part time clinical faculty engagement. Additional questions about the evolution of organizational champions and collaboration-friendly clinical environmental cultures could also be addressed. These and other questions would be better answered in a longitudinal study.

**Scope of Interview Questions**

A number of other dimensions of the faculty lived experience could have been explored, or explored in greater depth. I did not explore differences in gender or race, either from the point of view of faculty, or from their perspectives on the students’ experience. Comparisons of this type would be helpful in further understanding the totality of the collaboration experience for faculty, and for their students.

I did not ask any questions about faculty’s own experiences in nursing or medicine, either in their academic programs or as practicing licensees. Many faculty talked about their experiences in nursing or medical school or in practice, as a foundation for their perspective; however, there were no questions related to their own experiences
with collaboration beyond a few initial questions about communication with the other profession. Responses to those questions would be enlightening with regards to the degree to which faculty have had to change their thinking about collaboration; the mean age of faculty put most of them in the age category that would have exposed them to traditionally hierarchical ways of thinking about the health professions, particularly during their early education.

Two other focused questions about the faculty’s own experience would have helped to inform the study. One is about mentoring and role modeling, both of which are necessary for, and flow into student debriefing. These pedagogical methods were particularly powerful. It would have been helpful to know what experiences faculty had that helped them to become excellent mentors and role models, and how they went about the group processes necessary to engage students effectively in debriefing sessions. Another question I did not ask was to explain the impetus for their collaborations with faculty from the other profession, and to describe their experiences as close collaborators to a greater depth than could have been accomplished in these single 45 to 90 minute interviews.

Additional questions regarding organizational culture would have been helpful. One of the major findings was that there are several layers of disconnect. Faculty who have, as one said, “drunk the Kool-aid,” have fully embraced the need for interprofessional collaboration. One layer of disconnect is among their own colleagues on the faculty who are either resistant to change and undermine or sabotage efforts to integrate collaboration, or are part time clinical faculty and minimally engaged in the curriculum. Another layer of disconnect involves the clinical sites, i.e. academic medical center hospitals. Although specialized units, departments, or teams may have naturally become interprofessional units, faculty talked about these as if they were compartmentalized. There was much angst about the remainder of the clinical environment, which often had a negative effect on student perceptions of
interprofessional collaboration. Questions focused on these different layers of organizational culture would have provided more contextual information.

Recommendations for Practice

A number of themes emerged from this study that are strong enough to suggest recommendations for practice. These include changes in the educational and clinical environments, an emphasis on building organizational support, and recommendations for structuring curriculum and pedagogy. Additional recommendations related to regulatory changes are suggested.

The Education Environment

Educational program structures and cultures emerged as strong themes. Academic medical center programs should seek ways to bridge the silo structures so faculty and students alike have access to one another. Although it is unlikely that academic calendars will change in medicine to become aligned with the rest of the university, it was clear that possibilities for faculty from both professions to collaborate and plan for joint student experiences exist. These should be encouraged and supported by organizational leaders.

An important hindering factor that is within the control of the educational environment relates to the number of clinical part time faculty who are less than fully engaged in the curriculum plan, are not current with regards to essential curriculum elements, and who are competent in clinical practice but need development in teaching methods related to interprofessional collaboration. Plans for mentoring, developing, and compensating clinical faculty such that they are sufficiently prepared to teach students to the extent required by the curriculum and accreditation standards is essential. Resources to manage faculty development are emerging; for example, the QSEN project is developing a faculty “toolkit” that would help nursing faculty in this effort.

This study showed that there are a number of resisters amongst full time regular faculty as well. Faculty who are engaged in IPE should cull the literature that supports
IPE and share it purposefully with colleagues in an effort to gather additional colleagues into their ranks. Both medical faculty and nursing faculty depend on scientific evidence; there is sufficient literature to gird efforts to incorporate collaboration into the curricula. In addition, resistant faculty should be made aware of the extent and power of external drivers, which include their national education accreditation organizations and grant funders. Requests for proposals for student-focused grants in health professions education increasingly require interprofessional collaboration; attaching potential dollars to collaborative efforts could gain the attention of faculty resisters.

**Organizational Support**

Many of the recommendations for practice mentioned here require support of organizational leaders and champions. Deans of medical and nursing education programs should follow the lead of the medical Dean at Midwest South; his message was that accreditation requires an updated, compliant curriculum, and that it is in faculty’s hands to make that happen. They should make it clear that interprofessional collaboration between programs, and in the curricula, are requirements, rather than longer optional. Midwest West used a willing partners’ model to engage faculty. Midwest North obtained grant dollars, with the support of their leadership. All of these methods leverage support and can grow the critical mass required to make change.

**The Clinical Environment**

Perhaps even more difficult to change, and more troubling than resistant faculty, was the state of some of the clinical environments. Clinical environments that are professionally enculturated may exhibit incivility and conflict, and poor role modeling. In these environments, students are often fearful of or intimidated by the other profession. These environments also sustain the notion that the physician is hierarchically superior; this is problematic for students that come into their programs with preconceived notions along those lines in that the environment supports that perception. These environments are also very disconcerting for impressionable students who come in without
preconceived notions about status and hierarchy. In either case, these environments negatively influence student perceptions related to interprofessional collaboration. It would be impractical to suggest that these clinical environments can be avoided; they exist, even in academic medical centers. The best recommendation that can be offered is for faculty to work toward making incremental culture change by engaging their clinical colleagues, and to help students process negative experiences through the use of excellent mentoring, role modeling, and debriefing. This makes it even more important for faculty to collaborate with their clinical partners, and to develop their own competency with regards to pedagogy that supports students.

A recommendation that is beyond the scope of this study is to work toward substantive cultural shifts in the thinking of individual clinicians in enculturated clinical environments. Organizational leaders in these clinical settings could support change in policy, e.g. zero tolerance for incivility. They could also support clinicians by offering meaningful continuing education where they could gain the knowledge, skills, and attitudes to change their thinking, and assure interprofessional membership on key committees.

**Curriculum and Pedagogy**

Curricula redesign provides an opportunity to thread IPE through the curriculum. It is also an opportunity to explore development of core courses that are common to both professions, in which graduate versus undergraduate course content leveling is not an issue. Examples provided by faculty included health care ethics, patient care quality and safety content including continuous quality improvement and root cause analysis methods, assessment, and patient interviewing, although additional possibilities should be explored.

Authenticity in learning experiences for students was a key theme. Faculty should identify the best of the authentic learning experiences available to them, and be intentional about making those required for students. Students should also be required to
process those experiences with faculty, verbally, using narrative reflection, or both; reflection was discussed as an important element to help students make meaning of experience. Large enrollment numbers and the logistics complexities would make this challenging. However, the data demonstrated that the rewards would outweigh the inconveniences. Also, collaborative simulation experiences for students should become required elements for both medical and nursing students rather than elective; they should be planned collaboratively by faculty, begin early, and be scheduled regularly and continuously throughout the curriculum.

In addition, faculty should consider making use of national models for team training, such as TeamSTEPPS. These could be used with first faculty, then students. Also, encouraging clinical facilities to engage with their academic partners in such a program could also help facilitate a change in the clinical environment.

Regulatory

While the regulatory environment, particularly in nursing, is becoming more astute with regards to overlaps in scopes of practice and the necessity of interprofessional collaboration, state regulated scopes of practice are still a limiting factor. Faculty who talked about international immersion experiences noted that the lack of regulation in those countries allowed for greater freedom to collaborate. Faculty and students jointly accomplished whatever was necessary for the patient’s care. This is not to suggest that scopes of practice be eliminated, for they are one way of assuring patient safety. This is only to suggest that they be relaxed to a point of reasonableness that is aligned with the 2010 IOM report on the future of nursing (Institute of Medicine, 2010), and the report of the expert panel on Core Competencies for Interprofessional Collaborative Practice (Interprofessional Education Collaborative, 2011). Additionally, it is hoped that the LCME and ACGME competencies will evolve to reflect the full scope of competencies needed for physicians to engage collaboratively with other health professions.
Recommendations for Further Research

With the publication of the Interprofessional Education Collaborative report on core competencies (Interprofessional Education Collaborative, 2011), this research becomes more timely and valuable with regards to the insights it provides on faculty experiences. Health professions programs will be called upon to embed these competencies into their curricula; understanding the breadth of faculty experience integrating interprofessional collaboration into the curricula thus far will contribute context to this amplification of the IOM’s direction.

A longitudinal study following these faculty for a year, or more, would provide additional information about their experiences with curriculum development, outcome objectives, and re-accreditation. Additional questions about the clinical environmental cultures could also be answered.

This study could also be replicated in institutions of smaller size, and in institutions that are not housed within an academic medical center structure. Smaller programs may be limited to nursing programs, since most medical schools are located in academic settings with affiliate hospitals and other clinical sites. Studying smaller nursing schools in particular would shed light on a larger and more diverse of population of nursing faculty, and may reveal experiences that differ from those found in this study. Also, the question of differences in the same institution’s branch campus came up in the data; focusing on the branch campus experience could also help to inform future directions for integrating interprofessional collaboration into the curriculum.

More in depth study of faculty attitudes and resistance should be conducted. Faculty mentioned how their own colleagues resisted or undermined their efforts. Although gaining faculty participation in a study of this sort would be a challenge, it would be helpful to understand the perceptions and attitudes of faculty who are resistant to change in this regard.
Future research should also focus on faculty development. The competencies necessary for interprofessional collaboration are complex. Faculty development should first focus on understanding and embedding the requisite knowledge, skills, and attitudes into their own professional lives, then on developing competency in teaching and facilitating learning of those competencies by students. This kind of research should be designed as an intervention study; the results of this kind of study would be important in assisting faculty in health professions programs to embed these practices into their own settings. A part of this kind of study should branch into faculty competency in assessing student achievement of interprofessional collaboration competencies and outcomes.

Studies focusing on the complexities of communication and teamwork should be developed that explore a variety of considerations. Different styles and types of communication were revealed in this study, however they were not explored. Much of health care is delivered by individual professionals who come together as time-limited fluid teams. Effective communication in these fluid teams will differ from effective communication in stable, permanent teams. Thus the complexities of communication are substantial and require detailed investigation. Studies should be designed that investigate the differences between preparing students to communicate and collaborate as individual professionals, and preparing students for future work specific to teams. Exploration of the development of student knowledge, skills and abilities necessary for fluid interprofessional collaboration should include crucial conversations, conflict management, and conversation networks, whereas study of student preparation to work in more stable teams should delve into the development of attributes seen in the teamwork literature.

Studies should also be designed to focus more intentionally of the characteristics inherent in authentic learning that make them meaningful, to both faculty and students. A study sample including both faculty and students would be helpful in understanding whether exemplar authentic experiences have common characteristics that did not come to light in this study, and could be replicated in other kinds of clinical experiences.
This study did not explore actual student achievement of teamwork and interprofessional collaboration competencies. Studies should be designed that focus on the development of specific competencies, using the core competency domains presented in the 2011 report of the Interprofessional Education Collaborative. Research on development should also focus on the leveling of competencies throughout the educational program, up to and including competencies and outcomes expected of the graduate. Research should also be designed that focuses on faculty assessment of student competencies, as well as student self-evaluation.

Student perceptions of interprofessional collaboration should be explored; studying student opinion once competency expectations are clearly articulated may reveal differences compared to their perceptions of interprofessional collaboration content when expectations are unclear or unknown. Those studies should be designed to address student characteristics, including level and experience in the professional program, that affect acquisition of the knowledge, skills, and attitudes required for effective collaboration. Additional study should be focused on a variety of didactic, classroom exercise, laboratory simulation, and clinical experiences to understand experiences that best facilitate student learning.

Summary

This study contributes to the body of knowledge about integrating interprofessional collaboration into the fabric of medical and nursing education programs, from the faculty point of view. Although it was anticipated that comparing the perspectives of nursing and medical education would demonstrate differences, they were remarkably aligned. The only observable differences were related to profession-specific methods, SBAR communication in nursing, and narrative reflection and professional portfolios in medicine, and in accreditation standards, which were more comprehensive for nursing. Faculty perceptions of external drivers, environmental factors influencing student perceptions about collaboration, complexities of academic medical center
structures, logistics, curricula, and cultures, hindering factors and possible ways to overcome barriers, and student perceptions about their roles and others roles were similar.

Accreditation standards with regards to outcome achievement were embedded in the curriculum, however, the data revealed inconsistencies within programs as to how those standards were expressed. These included the degree to which outcome competencies were expressed in the formal curriculum, the level of faculty competency in carrying out the curriculum requirements in this regard, difficulty in assessing and documenting student outcomes, and whether competencies were shared with students as expectations for which they would be accountable. Faculty felt that student outcome achievement was also affected by organizational cultures in both the education environments and clinical environments. They felt resistant faculty undermined or sabotaged efforts to integrate interprofessional collaboration, and some clinical environments demonstrated organizational cultures that negatively affected students. Effective modeling and discussions occurred when students encountered faculty who were excellent teachers and mentors, when they were engaged in exercises or simulations that required joint problem solving, and when they had occasion to work alongside high functioning, specialized teams who practiced collaboratively.

This study revealed a number of successful curricular strategies and pedagogies that embodied best practices in these institutions. These included authentic experiential learning, and faculty enabled pedagogy that included mentoring, role modeling, and facilitated reflection. Structured methods included simulated learning experiences, and teaching communication principles and techniques. Faculty who were successful identified common ground between the professions, engaged students in peer learning, and often engaged a faculty member of the other profession to teach their students.

Barriers or obstacles related to the development of these competencies were described. These included the silo’d structure of the academic medical and nursing programs, logistics, including difficulty in scheduling joint experiences, financial models that encourage competition and discourage cooperation, a curriculum the faculty perceive
as already saturated, and large enrollments. Faculty described ways to overcome barriers by using creative thinking, external funding and internal organizational champions as leverage, and by thinking about the curriculum in fundamentally new ways.

A fundamental premise to stimulate thinking about future research relates to the old axiom about the chicken and the egg. The direction to prepare new health care professionals for effective collaboration is clear, but how, and from whom, will they learn? One of the participants intuitively knew the answer on a very foundational level; his statement raises questions about how practicing health care professionals must improve their own abilities first. He said:

*I'll come back to my original comment; one of my first comments is that I think the best kind of education is driven by a practice model that’s in place; where the learners simply come along side the practice model that’s in place.*

MSM3

Faculty participants provided a wealth of knowledge, experience, and depth of understanding to this study. Their perspectives about fundamentally changing the way health professionals are educated, and working with each other as colleagues and peers to grow the future cadre of nurses and physicians, can serve as an example for faculty in any academic medical center.

The ending quotes do not come from the faculty who were interviewed, but they do capture the essence of the participants’ points of view:

*“The secret is to gang up on the problem, rather than each other.” – Thomas Stallkamp*  
The Telios Group, 2009

*“No one can whistle a symphony. It takes a whole orchestra to play it.” - H.E. Luccock*  
The Telios Group, 2009
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July 1, 2010

Administrator
Address

Dear (Administrator name):

We would like to invite your participation in a study of (nursing or medical) education, with a particular focus on interprofessional collaboration. The study is being undertaken in the context of Jackie Loversidge’s doctoral program at The Ohio State University, Higher Education and Student Affairs program. She is combining her major area of study in higher education with her long-standing professional background in health care. She is a registered nurse; her career path in nursing has included nursing education and administration. She has a deep interest in interprofessional collaboration in the health professions, particularly between nurses and physicians.

This study represents Ms. Loversidge’s dissertation research; Dr. Ada Demb, Associate Professor, is her dissertation chair. To accomplish the purposes of the research, she needs to learn faculty and administrator perceptions of the educational preparation of medical and nursing students for interprofessional teamwork and collaboration with one another.

This letter is first an invitation for you to participate in an interview specific to the role of the administrator relative to this study. We would also like to ask your assistance with identifying appropriate clinical faculty who might also be invited to participate in this study.

We would like to invite four faculty from the nursing education program, and four from the medical education program, along with one administrator from each program.

Each individual interview should take approximately 60 to 90 minutes. The interview will be guided using interview questions. With your permission, the conversation will be audio taped. However, your responses will remain anonymous and confidential, as will the identity of your institution. Your participation is voluntary, and you are free to withdraw from the interview at any time. Data analysis and reporting will at all times protect both your identity and that of the institution in which you are employed; data will be reported in aggregate form only. Interview recordings and hard copy transcripts will be kept off campus in a locked file cabinet.

If you are willing to participate in this project, please send me an email by (DATE). I will confirm your participation prior to our meeting. If I do not hear from you by (date) I will give you a call.

We thank you for your time and expertise. Your feedback is genuinely appreciated. If you should have any additional questions or concerns at this time, feel free to contact Jackie Loversidge either by phone (614-783-4727) or by email at loversidge.1@osu.edu.

Sincerely,

Jackie Loversidge, MS, RNC
Doctoral Candidate
Educational Policy & Leadership

Dr. Ada Demb
Associate Professor
Educational Policy & Leadership
APPENDIX B: FACULTY INTERVIEW SOLICITATION LETTER
July 1, 2010

Faculty Address

Dear (Faculty name):

We would like to invite your participation in a study of (nursing or medical) education, with a particular focus on interprofessional collaboration. The study is being undertaken in the context of Jackie Loversidge’s doctoral program at the The Ohio State University, Higher Education and Student Affairs program. She is combining her major area of study in higher education with her long-standing professional background in health care. She is a registered nurse; her career path in nursing has included nursing education and administration. She has a deep interest in interprofessional collaboration in the health professions, particularly between nurses and physicians.

This study represents Ms. Loversidge’s dissertation research; Dr. Ada Demb, Associate Professor, is her dissertation chair. To accomplish the purposes of the research, she needs to learn faculty and administrator perceptions of the educational preparation of medical and nursing students for interprofessional teamwork and collaboration with one another.

This letter is an invitation for you to participate in an interview specific to the role of the faculty relative to this study. Four faculty will be invited from the nursing education program, and four from the medical education program, along with one administrator from each program.

Each individual interview should take approximately 60 to 90 minutes. The interview will be guided using interview questions. With your permission, the conversation will be audio taped. However, your responses will remain anonymous and confidential, as will the identity of your institution. Your participation is voluntary, and you are free to withdraw from the interview at any time. Data analysis and reporting will at all times protect both your identity and that of the institution in which you are employed; data will be reported in aggregate form only. Interview recordings and hard copy transcripts will be kept off campus in a locked file cabinet.

If you are willing to participate in this project, please send me an email by (DATE). I will confirm your participation prior to our meeting. If I do not hear from you by (date) I will give you a call.

We thank you for your time and expertise. Your feedback is genuinely appreciated. If you should have any additional questions or concerns at this time, feel free to contact Jackie Loversidge either by phone (614-783-4727) or by email at loversidge.1@osu.edu.

Sincerely,

Jackie Loversidge, MS, RNC
Doctoral Candidate
Educational Policy & Leadership

Dr. Ada Demb
Associate Professor
Educational Policy & Leadership
APPENDIX C: CONSENT FORM
Consent for Participation in Research

Title of Study: Preparation of Medical and Nursing Students for Interprofessional Collaboration: Faculty Perceptions of Student Competency Development and Achievement

Principal Investigator: Dr. Ada Demb
Co-Investigator: Jacqueline M. Loversidge
Doctoral Candidate, Educational Policy & Leadership

Protocol # _2010E0387_

I consent to participating in research entitled: Preparation of Medical and Nursing Students for Interprofessional Collaboration: Faculty Perceptions of Student Competency Development and Achievement.

Dr. Ada Demb, Principal Investigator, or her authorized representative, Jacqueline Loversidge, has explained the purpose of the study, the procedures to be followed, and the expected duration of my participation.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: ____________________________
Signed: __________________________
(Participant)

Signed: __________________________
(Co-PI and Authorized Representative)

Signed: __________________________
(Person authorized to consent for participant, if required)
Interview Guide

1. What are your views or feelings about collaboration between physicians and nurses?

2. What types of skills or knowledge do you think [nursing or medical] students need in order to be effective as part of health care teams? i.e., what is your definition of interprofessional competency?

3. How important are these skills in the context of patient care?

4. For which types of patients are these skills more/less important?

5. What types of opportunities does your curriculum provide for them to learn these skills?
   a. Classroom
   b. Clinical
   c. other

6. With whom are they most likely to discuss questions about these skills? Peers, faculty, [nursing or medical] staff?

7. Can you describe a situation where these skills were critical to either exceptionally good or exceptionally poor care?

8. How have recent changes in accreditation standards related to interprofessional competencies affected your curriculum?

9. What is your assessment of the degree to which your students achieve these outcomes?

10. What factors hinder their development of these competencies?
    a. at the college or school level?
    b. at the curricular or program level?
    c. at the faculty level?
    d. within the culture of medical or nursing education or practice?

11. What opportunities do you see to overcome these barriers?
    a. at the college or school level?
    b. at the curricular or program level?
    c. at the faculty level?
    d. within the culture of medical or nursing education or practice?

12. Understanding that it is my goal to learn your perception of the way [medical or nursing] curriculum may or may not support the achievement of these skills, what else do you think I should understand?