INTERPROFESSIONAL COLLABORATION IN HEALTH EDUCATION:

A MIXED METHODS EVALUATION OF THE JEFFERSON HEALTH MENTORS

PROGRAM

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ABSTRACT

Interprofessional Collaboration In Health Education:

A Mixed Methods Evaluation Of The Jefferson Health Mentors Program

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In recent years the complexity and integrated nature of health care has increased. It has become accepted that the needs of patients are often greater than one single health profession can address and requires collaboration on the part of health care providers (Freeth, 2001). Interprofessional health education (IPHE) is the interactive educational process and cooperation among various health care professions. It is a valuable pedagogical approach for teaching health care students that they cannot work effectively without the use of a team, and is thought to be the first step in the direction of changing health care practice in the clinical setting. Using a two phase mixed methods approach, this dissertation investigated changes in student attitudes and measured interprofessional readiness as a result of a longitudinal interprofessional educational experience at Thomas Jefferson University called Health Mentors. The health care professions included in this program are: medicine, nursing, physical therapy, occupational therapy, and pharmacy. Together, these students visit an individual living in the greater Philadelphia, PA region with one or more chronic health conditions four times during the year. Of the five

hundred and seventy-six students participating in the Health Mentors program, four hundred and ninety-six completed two surveys in September 2008 and again in April 2009. These were the Interprofessional Education Perception Scale (IEPS) and the Readiness for Interprofessional Learning Scale (RIPLS) which measured their attitudes and readiness toward interprofessional education. Analysis revealed slight significant differences in the means of the health programs and showed small significant decreases in attitudes and readiness over time. Two focus groups were conducted to better understand the quantitative results. Using grounded theory, the following themes emerged: preparation for future professional experience, personal enjoyment from working with their Mentor, logistical conflicts, unknown roles, and program assignments seen as an 'add on' or 'busy work'. The results from both the qualitative and quantitative methods indicate that students have a high opinion of the theory of IPHE but find the application difficult in practice.

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DEDICATION

I dedicate this dissertation to my husband, Rick Tralies, who has been my number one fan, cheering me through the various slumps and hitting streaks in my academic career. He has steadied me along this journey, and his patience, reserve, and good nature are characteristics I treasure.

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CHAPTER 1

CONTEXT AND STATEMENT OF THE PROBLEM

Introduction

In recent years the complexity and integrated nature of health care has increased. It has become accepted that the needs of patients are often greater than one single health profession can address and requires collaboration on the part of health care providers (Freeth, 2001). This growing need for more collaboration has resulted in more attention on the interprofessional education and practice of health care professionals (Schofield & Amodeo, 1999). Interprofessional teams are being used in more situations across the health care spectrum and as a result more interprofessional educational efforts are needed. Interprofessional health education (IPHE) is the interactive educational process and cooperation among various health care professions. Teaching health care students that they cannot work effectively without the use of a team is the first step toward changing health care practice in the clinical setting. Using a two phase mixed methods approach, this dissertation investigated changes in student attitudes and measured interprofessional readiness as a result of a longitudinal interprofessional health education experience at Thomas Jefferson University called 'Health Mentors'.

The goals of the Health Mentors program are twofold. The first goal is to have students work in highly functioning teams and to learn the roles of other health care professionals. The second goal is to have students develop an understanding of patients' perspectives of chronic

illness care. While this program hopes to successfully integrate both goals, this dissertation concerns itself with exploring the first goal, the study of interprofessional education.

Interprofessional health education is not a new concept, but is one that has gained momentum in recent years as the population of the United States ages and the incidences of chronic illness increase. According to the United States Department of Health and Human Services Administration on Aging, there were 37.3 million persons aged 65 and older in 2006, and they predict about 71.5 million older persons in 2030, more than twice their number in 2000 (AOA, 2009). This rapidly growing population often is associated with higher incidences of chronic illness, which requires a team approach to care.

The need for a formal IPHE collective was recognized internationally first in the United Kingdom with the creation of the Center for the Advancement of Interprofessional Education (CAIPE) in 1987, and the establishment of the Journal for Interprofesssional Care in 1986. More recently, Health Canada formed the Interprofessional Education for Collaborative Patient-Centered Practice in 2006. And in 2008 individuals from academic health centers responsible for implementing interprofessional education in the United States formed the American Interprofessional Health Collaborative (AIHC). In recent years, the United States and Canada have partnered to host interprofessional education conferences called Collaborating Across Borders, where individuals from academic centers gather to share resources, discuss common issues and facilitate IPHE work at local and national levels.

Interprofessional health education in a pedagogical approach whereby students from different professions *actively* learn together, rather than simply sharing an educational

environment together (Freeth, 2007; Headrick, Wilcock, & Batalden, 1998). The goal of IPHE is to have students learn how to function as part of an interprofessional team, and as such students must have collaborative exchanges with each other after a shared experience. It does not include students sharing an interdisciplinary workshop together, or students being taught from a faculty member from another discipline, or students participating in a clinical setting with another member of a profession without shared responsibility or reflection (IOM, 2003). Team members must actively discuss their observations and contribute their own program specific knowledge and expertise with each experience. Barr (1998) summarized the professional competencies essential for successful collaboration:

> Contribute to the development and knowledge of others
>
> Enable practitioners and agencies to work collaboratively
>
> Develop, sustain and evaluate collaborative approaches
>
> Contribute to joint planning, implementation, monitoring, and review
>
> Coordinate an interdisciplinary team
>
> Provide assessment of needs so that others can take action
>
> Evaluate the outcomes of another practitioner's assessment

In the literature there is a highly agreed upon definition that was created by the UK Center for the Advancement of Interprofessional Education. They define it as, "Occasions when two or more professions learn with, from and about each other to improve collaboration and quality of care" (CAIPE, 2002). In the context of this dissertation, interprofessional health

education is the term used to describe the planned educational process where students from

different health programs learn together and work toward a common goal.

This chapter presents the rationale for the research study and introduces the research

question. Chapter 2 shows how IPHE is discussed in the literature and also how IPHE has been

theoretically influenced. In Chapter 3 the Health Mentors program is described, its' theoretical

framework is discussed, and definitions of the different health programs involved in the program

are given. In Chapter 4 the method of data collection and analysis of this study are presented.

Specifically, a foundation is provided for the selection of a mixed methods design, expressly the

choice of focus groups and survey tools. Chapter 5 highlights the results of this dissertation, and

Chapter 6 discusses those results and their applications and path for future research. There are

several appendices in this document as well. The first two are the content of the two surveys used

in this study. The third and fourth are the focus group script and focus group verbatim results.

Finally, Appendix E contains results and discussion of a pilot study that was conducted in April

2008 that was the basis for the current data collection and research study.

Rationale for the research study

Historically, doctors, nurses and others in the health professions were educated separately

with degree specific curricula and usually inteprofessional education did not occur until they

entered advanced clinical environments. This nonintegrated educational practice transitioned to

the professional workplace, where roles were not clearly understood by each other, and little

respect existed between professions. Research has argued that more cohesion in the various

health curriculums may reduce the predispositions toward competition that result from different

health education indoctrinations (Szasz, 1969; Beattie, 1995 cited in Barr, 2005). Historically,

health care was guided by decisions made by doctors alone. Quotes taken from the turn of the

century show that the doctor/nurse relationship was not interdependent and that the doctor was

the sole decision maker in the health care process.

> [A nurse] must begin her work with the idea firmly implanted in her mind that she is only the instrument by whom the doctor gets his instructions carried out; she occupies no independent position in the treatment of the sick person. (McGregor-Robertson, 1902)

> No matter how gifted she may be, she will never become a reliable nurse until she can obey without question. The first and most helpful criticism I ever received from a doctor was when he told me I was supposed to be simply an intelligent machine for the purpose of carrying out his orders. (Dock, 1917)

Today there is a move toward more integrated practices, however many issues born from

this traditional relationship still affect the way doctors, nurses and other health professionals

work together. These issues are often amplified in today's work environment, where greater

interaction and respect are expected between professions. It has been argued that

interdisciplinary contact among other professionals may assist in mutual understanding and

respect and form a better understanding about various professional roles:

> One of the most effective ways to foster an understanding about respect for various professional roles and the value of multi-professional roles and the value of multi-professional teams is to expose ... students, health care professionals and managers to shared education and training (Humphris, 2002 as cited in Health Workforce Advisory Committee, 2002).

Dr. Jack McCreary and Dr. George Szasz (1969) launched interprofessional education at the University of British Columbia, Canada in the 1960's and since then many government, charitable and academic institutions in the United States and abroad have urged that students should experience some kind of interprofessional training as part of their education in order to better facilitate working relationships (Areskog, 1988; Funnell, 1995; O'Neil, 1998; World Health Organization, 1988). Health care is now moving toward a team based approach, and as such it has implications for the education of all health professionals. Fostering a greater respect for each others' roles and professions is the key to establishing good working relationships, promoting better communication, respect and patient care. In a recent article by Stone (2006) he pointed out that there is growing evidence that interprofessional care has positive effect on health outcomes such as hypertension (Litaker, et al., 2003), mental health (Stephenson, Peloquin, Richmond, Hinman & Christiansen, 2002), asthma (Headrick, Crain, Evans, Jackson, Layman, Bogin, et al., 1996), and degenerative illnesses such as Parkinson's disease (Wade, Gage, Owen, Trend, Grossmith & Kaye, 2003). A review of the literature show further examples such as, enhanced patient health outcomes, increased employee communication and morale, better availability of services to patients, more cost effective use of time and resources, and overall better satisfaction by patients and providers (D'Amour, Ferrada-Videla, Martin-Rodriguez, & Beaulieu, 2005; Freeth, Meyer, Reeves, & Spilsbury, 1998; Freeth, Hammick, Reeves, Koppel, & Barr, 2005).

Further, interprofessional learning has been advocated as a successful way to educate health care students (Brashers, Curry, Harper, McDaniel, Pawlson, & Ball, 2001; Hall & Weaver, 2001; Harris, Henry, Bland, Starnaman & Voytek, 2003; Hilton, Morris & Wright,

1995). In a review of interprofessional education, Barr (2005) claims that it increases

confidence, furthers understanding among professions, and allows for better communication

among and between professions.

In 1998 one of the recommendations articulated in the Pew Health Professions

Commission report was to "require interdisciplinary competence in all health

professionals"(O'Neil, 1998). Also in 2001, the Institute of Medicine reported that the health

care system in the United States should be redesigned to focus on multi-disciplinary teams. They

stated that:

> All health care professionals should be educated to deliver patient-centered
> care as members of an interdisciplinary team, emphasizing evidence-based
> practice, quality improvement approaches, and informatics.(IOM, 2001)

At an educational summit in 2003, the Institute of Medicine emphasized the need for all

health professionals to be educated to provide patient centered care as members of

interdisciplinary teams to ensure that care is continuous and reliable (IOM, 2003). Further, one

of their publications states that patient safety is at risk if health care providers do not

communicate effectively with each other and work collaboratively (Kohn, Corrigan, &

Donaldson, 2000). This interprofessional educational outline is not only supported by the

Institute of Medicine and the Pew Health Professions, but other major health institutions such as

the American Council on Pharmaceutical Education (ACPE, 1997), American Association of

Medical Colleges (AAMC, 1998; Kirch, 2008), American Nurses Association (2004), the

National Academies of Practice (Brashers et al., 2001), the American Public Health Association (2009) and the Accreditation Committee for Graduate Medical Education (ACGME, 2001).

Increasing the ability of professionals to work collaboratively within teams is vital to health education today. Early prejudice toward other health professions has caused roadblocks to effective education. As a result, respect and appreciation must be taught to students early on in order to lead to a better working environment. Despite the researched benefits to interprofessional education and the noted endorsements by government and academic agencies, integration in the curriculum remains a challenge. Barriers to implementing interprofessional education include cultural and historic differences between the academic programs, different course schedules, challenges to professional identity, funding, logistics, and clinical liability (Headrick, Wilcock, & Batalden, 1998; Rafter, Pesun, Herren, Linfante, Mina, Wu, & Casada, 2006; Reeves & Pryce, 1998).

Gauging the attitudes and readiness of students toward working together in teams can help guide educational programs, and make their learning more effective. There is a need for more focused research to create effective IPHE programs, and as a result more successful health professionals. While evidence suggests that issues such as patient safety and quality of care can benefit by IPHE, challenges exist to creating effective programs. According to the literature many professions still do not possess much knowledge about the roles of the other health professions, have a lack of respect toward other professions, and disagree on clinical choices due to a lack of understanding about each others duties (Brashers et al., 2001; Harris et al., 2003; Hilton et al., 1995; San Martin-Rodriguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). This

fact is a sizeable hurdle to the success of interprofessional collaboration in terms of educating students and collaborating in the workplace (Brashers et al., 2001; Fagan, 1992; Harris et al., 2003; Hilton et al., 1995; Mariano, 1989). Additionally, there are more anecdotal accounts of successful IPHE programs, than quantitative research. Scholars have discussed that research on IPHE needs to include more longitudinal mixed method studies (Freeth, Hammick, Barr, Koppel & Reeves, 2002; Humpris & Hean, 2004; Pollard & Miers, 2008). Stone (2006) argues that, "traditional, control group experimental designs may not be adequate, appropriate or reasonable as a sole means of evaluating interprofessional education". The subsequent literature review in Chapter 2 shows the complexity and intricacy of IPHE and the challenges in rigorously studying the issue.

The research questions for this study

- What are the attitudes toward IPHE and how do they differ between the health education disciplines?
- Do attitudes toward IPHE change over time as a result of IPHE exposure?
- Are there differences in readiness for IPHE between the health education disciplines?
- Is there a relationship between attitudes and readiness toward IPHE?

This dissertation focuses on describing the process of interprofessional health education at Thomas Jefferson University through a mixed method investigation of students enrolled in the 'Health Mentors' program. Two surveys were used to examine the attitudes and readiness toward IPHE. Additionally, two focus groups were conducted to further explore the attitudes of their interprofessional education experience. Together these tools helped reach conclusions which

fostered a better understanding of the IPHE process and provided a thoughtful reflection of the

Jefferson Health Mentors program by investigating the student perspective.

CHAPTER 2

LITERATURE REVIEW

Introduction

The literature review presented in this chapter examines several aspects of

interprofessional health education (IPHE). While empirical research on this topic is limited, it is

hoped that interprofessional health care teamwork improves clinical outcomes such as patient

satisfaction and care, and provides for a more pleasant work environment. This chapter presents

the various definitions and terminology associated with IPHE and discusses the implications, its

history in the United States, and connects IPHE to educational learning concepts such as Social

Constructivism, attitude formation, and compliance. This chapter provides a research review of

scholarly articles that have contributed to the growth of IPHE in the United States and abroad.

Definitions of Interprofessional Health Education

Throughout the literature there are several different terms for interprofessional education,

and few specific definitions. An early definition from the World Health Organization (1988) is:

> A process by which a group of students from the health-related occupations with different
> educational backgrounds learn together during certain periods of their education, with
> interaction as an important goal, to collaborate in providing promotive, preventive,
> curative, rehabilitative and other health-related services. (World Health Organization,
> 1988)

More recently the Center for the Advancement of Interprofessional Education (CAIPE, 2002) defines IPHE as "occasions when two or more professions learn with, from and about each other to improve collaboration and quality of care." This definition was adopted and adapted slightly by the World Health Organization (2009) to read, "Interprofessional education occurs when learners from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes."

Other studies have adopted the ideas behind these definitions, but there are still differences in the nomenclature. A literature review by Oandason and Reeves (2005) listed search terms on this topic as 'interprofessional', 'multiprofessional', 'interdisciplinary', 'multidisciplinary' and more simply 'team'. Another review by the Canadian Interprofessional Health Collaborative (2002) found that the following were used interchangeably: 'team-approach', 'collaboratively', 'multi-disciplinary' and 'group-based'. Some terms are used interchangeably, and the lack of concise definitions and uniform nomenclature leads to confusion among researchers and practitioners (Brashers et al., 2001; Hall & Weaver, 2001; Tope, 1999).

In addition to multiple terms, there are slightly different definitions of what is meant by interprofessional education. Some consider it to be a class or lecture attended by students from mixed disciplines, others define it as more of a process of actively learning together (Tryssenaar, Perkins, & Brett, 1996). This dissertation uses the term interprofessional education, and adopts the CAIPE definition of 'occasions when two or more professions learn with, from and about each other'.

How Health Education has Evolved in the United States

In an article published in 1996, Baldwin uncovers some of the origins and development of interprofessional teamwork and education initiatives in the United States. Professional teamwork first took place in the late 1940's, occurring both in private and militarily settings. The first interdisciplinary health care team in the US was a compilation of doctors, nurses and social workers at the Montefiore Hospital in New York who provided collaborative home care to patients (Cherkasky, 1949). Militarily, interdisciplinary medical and surgical teams were employed with great success in World War II (Baldwin, 1996). Doctors of different specialties and nurses worked well together to help soldiers heal. It was found that by working together the professions became a more efficient health care team, improving the patient's care in the process.

Formal educational initiatives in the United States occurred a few decades later in the early 1970's after a conference that explored issues of education for health teams (Baldwin, 1996). Research on team behavior and small group dynamics had begun in the 1950's with the work of Kurt Lewin and became a popular topic for social scientists in the decades that followed. Effective teams require the shift of the highly individualistic nature of humans. Americans specifically value choice and individual rights, and therefore studying effective teamwork and compromise was needed if interprofessional education was to succeed. In Health care teams it requires cognitive re-definition on the part of all members, shifting what it means to be an individual practitioner to being an individual as a part of a team. It was a natural progression to study the application of group behavior and dynamics to the field of health care.

In 1974, the Office of Interdisciplinary Programs was created and several grants were funded at this time to study interprofessional education. At the same time, several universities across the country began funding and researching this area as well. Unfortunately, by the 1980's many programs and initiatives lost funding and research suffered as a result.

Over the last decade, there has been a resurgence in IPHE and the attention has moved from questioning its usefulness in patient care, toward ironing out the nuances of implementation and debating the best applications and timing of the educational experiences (Barr, 2005). To date, the United States still lags behind other nations such as Canada and the United Kingdom, where interprofessional education is mandated by the governments. However with the advent of groups such as The American Interprofessional Health Collaborative the US may soon be able to rival advances by other nations.

A literature review by Barr (2005) cited the development and progression of interprofessional education in recent years. He cites that the recent goals have been:

To modify negative attitudes and perceptions (Carpenter, 1995)

To remedy failures in trust and communication between professions (Carpenter, 1995)

To reinforce collaborative competence (Barr, 1998)

To secure collaboration

    -to implement policies (Department of Health, 2001)

    - to improve services (Wilcock and Headrick, 2000)

    - to effect change (Engel, 2000)

To cope with problems that exceed the capacity of any one profession (Casto and Julia, 1994)

To enhance job satisfaction and ease stress (Barr et al., 1998, McGrath, 1991)

To create a more flexible workforce (Department of Health, 2000) (Barr, 2005, p 13).

Learning Theories and Interprofessional Education

One of the main goals of interprofessional education is to 'enable learners to acquire knowledge, skills, and professional attitudes that they would not acquire effectively any other way." (Parsell and Bligh, 1999, p. 89). As such, it is a method of teaching students, and has its basis in several different learning theories. Barr (2005) highlights several learning theories in a review of interprofessional education. These include adult learning theories, exchange-based learning, action-based learning, observation-based learning, simulation-based learning, practice-based learning, social learning, and social exchange theory. In his paper he states:

> A general theory of interprofessional education may one day take shape. Meanwhile, its components may be identified thus: *the application of principles of adult learning to interactive, group based learning that relates collaborative learning to collaborative practice within a coherent rationale informed by understanding of interpersonal, group, inter-group, organizational and inter-organizational relations and processes of professionalisation.* (p. 23)

This exhaustive definition highlights the intertwined nature of interprofessional education. It is an application of decades of learning theory research as well as professional experiences. A sample of the many applicable learning theories appropriate for explaining interprofessional education is illustrated in this chapter. For an exhaustive review see: Barr,

2005; D'Amour, Ferrada-Videla, Martin-Rodriguez, & Beaulieu, 2005; Knowles, 1990; Parsell, Spalding, Bligh, 1998. Some of the more prominent theories are highlighted below.

Dewey (1963) is most renowned for his research on active learning, but also established the value of social learning. Dewey recommended that learners should work with others to solve problems through hands-on learning, and applied these theories to the concept of 'learning communities' (Brody & Davidson, 1998; Phillips & Soltis, 1991). These communities are teams of students learning together with an emphasis on respect of others and productive work as a collaborative learning process (Brody & Davidson, 1998). The experiences are thought to foster community among students, between students and their teachers, and among faculty members and disciplines. Within the learning community, each team member learns from the interactions with other members, and information is shared freely between members (Brody & Davidson, 1998). Interprofessional educational teams are a type of learning community. This collaborative process is respectful of each other's roles, and members ideally value each other equally and learning is done 'with, from and about' each other.

Another prominent theory affecting interprofessional education is social constructivism which was developed by Lev Vygotsky. Social constructivists argue that learning is a social process and that individuals learn through the interaction of their existing knowledge, prior experiences, and new ideas, events, and activities with which they come in contact with every day (Cannella & Reiff, 1994; Richardson, 1997). According to this theory, knowledge is obtained through participation rather than through of imitation or repetition (Kroll & LaBoskey, 1996). Activities in constructivist settings are characterized by active engagement, investigation,

problem solving, and collaboration with others. This last point specifically ties in with interprofessional education. Based on this theory, IPHE students will learn about each other's health professions, and in the process of knowledge acquisition both the students and the environment are changed. IPHE is inquiry driven, where students are learning from the interactions with each other and their environment. They are learning not only about other roles, but through teaching other about their own roles, their professional identity solidifies as well.

One concept important to Vygotsky's learning theory is the zone of proximal development (Siegler, 1996). Vygotsky's research found that students (mostly younger children were studied) demonstrated greater progression when they were assisted by a more skilled individual than when they attempted a task alone. He defined this as a zone of proximal development which is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86 as cited in Wertsch, 1984). Applied to IPHE, students in one health discipline will learn how to better treat patients when working with their peers who may have more experience in certain areas. They will learn new techniques that the other health professions excel at, making them overall better health practitioners.

Finally, social exchange theory applies to interprofessional education and its collaborative learning process. Social exchange theory suggests that teamwork is influenced by the social interactions that occur within a group (Blau, 1964; French & Bell, 1984). Group behavior is argued to be a series of exchanges and negotiations for rewards. Individuals will join

groups in order to get a certain benefit, and in exchange the member helps the group accomplish its goals. Members bring specific knowledge and expertise to interprofessional groups, and in return gets rewards. It is a cost benefit model, where there needs to be a balance of give and take by all group members. If members feel they are not getting enough benefit to being in the group, they will not likely add much to the group. Translated to an educational setting where students are forced to join these groups, one can argue that students must get enough educational rewards from these groups to give them their full attention. These rewards can be tangible grades, or other non-tangible positive experiences, such as networking and learning the roles of other professions that may help them later in their career.

Previous Research on Interprofessional Education

An exhaustive review of over 200 studies on interprofessionalism education by Freeth, Hammick, Barr, Koppel and Reeves (2002) found that most quantitative research on interprofessional health education has occurred in the last fifteen years, making it a fairly recent research topic. Of the research evaluated by the team, there was an even distribution of hospital based and community based interprofessional programs, with a large proportion of programs dealing with chronic health conditions. Further, 78% of the research that was studied by them took place in the United Sates and only 25% of those studies had a participant group that was in pre-qualification or pre-certification. This last statistic identifies the need to study participants from students who have not become certified in their area of medicine yet.

In the same evaluation, Freeth et al. (2002) outlined five possible outcomes of interprofessional education based on Kirkpatrick's 1998 model for educational outcomes. Their modified model is listed in Figure 1.

Table 1.1: Model of outcomes of interprofessional education (Freeth et al. 2002, p.14)

Educational Outcome	Description
Reaction	**Learners' views on the learning experience and its interprofessional nature**
Modification of attitudes/perceptions	Changes in reciprocal attitudes or perceptions between participant groups. Changes in perceptions or attitude toward the value and/or use of team approached to caring for a specific client group.
Acquisition of knowledge/skills	Including knowledge and skills linked to interprofessional collaboration.
Behavioural Change	Identifies individuals' transfer of interprofessional learning to their practice setting and changed professional practice.
Change in organisational practice	Wider changes in the organisation and delivery of care.
Benefits to patients/clients	Improvements in health or well being of patients/clients.

Interprofessional Education and Attitude Change

The present dissertation focuses on measuring the outcomes of 'reaction' and of 'modification of attitudes/perceptions'. Understanding the interprofessional experience and the reaction of the participants is the first step to obtain the desired effect of learning 'with, from and about' each other's discipline. Attitude is an important concept in understanding human behavior and the reaction to social environments (Allport, 1966). Understanding attitudes can help IHPE program directors change or influence behaviors and help develop each programs learning

strategy (Carpenter, 1995; Hall & Weaver, 2001; Hind et al. 2003; Parsell, Spalding, & Bligh, 1998).

The concept of attitude and attitude formation is extremely complex and the definition is not entirely agreed upon in the literature. Allport (1966) defined attitude as "individual mental processes which determine both the actual and potential responses of each person in the social world" (p 19). Allport's definition indicates that attitudes can decide or predict the individual's reaction to their current social environment. Such a reaction can be positive or negative. If measured correctly, attitude is a significant attribute that can be used to predict behavior (Ajzen & Fishbein, 1980).

One theory related to attitude formation in group behavior is called social contact theory, in which exchanges involving individuals with differences can cause changes in attitudes toward others (Allport, 1954; Tripp, French, & Sherill, 1995; Tripp & Sherrill, 1991). It was initially developed to attend to racial stereotyping; however, it can be applied to any situation with robust group membership identities, such as individuals in the health professions where roles are clearly defined. Specifically, the theory postulates that prejudice, stereotyping, and discrimination may be reduced by contact with other groups (Allport, 1954).

Attitudes are not only cognitively based, but emotional as well. They include "feelings, moods and emotions experienced in relation to the attitude object" (Warr, 2002, p. 18). Similar to attitudes, but slightly different, stereotypes are cognitive attitudes about a group shared by members of that, or another, group (Haslam, 2004). Goleman (1998, p. 155) notes, "group stereotypes can have an *emotional* power that negatively affects performance". Students enter the

interprofessional educational process with pre-existing stereotypes of their own professions and others' professions (Tunstall-Pedoe, Rink & Hilton, 2003). The goal of any IPHE program is to encourage positive attitudes and appreciation toward each other's educational discipline at the same time breaking down negative stereotypes that each other may have. Learning about each others educational discipline and working together to see each other's strengths is the key to successful health care.

Several studies have outlined attitude changes as a result from IPHE, though not all are a positive attitude change. Some studies have shown that IPHE programs can change students' attitudes and increase understanding of the role of others in the health care teams; however, there is no evidence that there is a long-lasting effect (Freeth et al., 2002; Parsell, Spalding & Bligh, 1998). This may be due to the lack of longitudinal studies on interprofessional education.

Carpenter (1995) conducted a study on a program that intended to improve medical and nursing students' attitudes and overall knowledge of each other's educational discipline. They found that while nursing students' attitudes toward medical students had improved after the program, the medical students' attitudes toward nursing students decreased somewhat or stayed unchanged. Using a mixed method approach, Rutter and Hagart (1990) evaluated a two-week, full-time program of various members of an alcohol counseling program. They found that while participants enjoyed the course and improved their knowledge of IPHE collaboration, their attitudes and the quality of their interactions stayed unchanged. Parsell, Spalding, and Bligh (1998) evaluated with a pretest/posttest questionnaire, a two-day IPHE course with 28 students from varying health professions and medicine, and found that the course cultivated more positive

attitudes of the other educational disciplines. Further, Pollard and Miers (2008) found that professionals who had gone through an interprofessional educational program respond by being more positive about their interprofessional relationships than their non-interprofessional counterparts. The literature suggests that the aspects that assist in successful collaboration among team members are a mutual respect for each other and their work, open and honest communication, an ability to be a good listener, and having the same goals (Brashers et al., 2001; Hall & Weaver, 2001; Harris, Henry, Bland, Starnaman, & Voytek, 2003; Hilton, Morris, & Wright, 1995).

Compliance and Attitude Change

The data in this dissertation are from students in a mandatory two year program called the Health Mentors program, which is described in depth in Chapter 3. Compliance in this program is compulsory for all students in all disciplines in order to get a passing grade. In the late 1950's Leon Festinger studied the cognitive effects of compliance. Specifically, he studied what happens when a person holds an opinion that is contrary to a task they are forced to perform. Compliance doesn't always bring about attitude change. Festinger proposed two theories on compliance. The first is that if a person is forced to do or say something that is contrary to their own opinion or beliefs, then there will be a tendency for that person to change his opinion so it corresponds with what he was forced to do. The second is that the larger the pressure to comply, the weaker the change in attitudes (Festinger, 1957; Festinger & Carlsmith, 1959). Gentle persuasion seemed to go further than forced participation. Translated to IPHE, students who come into a program with negative attitudes may change their attitudes when forced to

participate in the IPHE, however, the larger the pressure to comply with the IPHE beliefs, the less likely they will change their opinions.

Earlier in this chapter, the issue of varying definitions and terminology revolving around interprofessional health education was discussed. This raises a challenge to researchers trying to develop outcomes and build on existing metrics. Additionally, the lack of uniformity among the type of interprofessional collaborative teams leads to trouble generalizing one program's successes and failures to another. Some metrics to measure various themes related to IPHE have been developed to target specific university or hospital based programs, while others are used more globally. More research needs to be done to evaluate the outcomes of those programs and to validate the metrics. It is hoped that teaching interprofessional education will make for better practitioners and therefore enhance safety and patient care. Facilitating professionals in the health disciplines to work effectively and collaboratively by way of interdisciplinary teams is vital to health professional education. This study uses qualitative and quantitative approaches (mixed methods) to examine IPHE. The following chapter describes the interprofessional educational experience investigated in this dissertation, the Health Mentors program.

CHAPTER 3

HEALTH MENTORS PROGRAM

The Jefferson Center for InterProfessional Education is responsible for putting into practice various interprofessional student and faculty programs at Thomas Jefferson University. In 2007 they implemented a longitudinal interprofessional chronic illness mentoring program for medical, nursing, occupational therapy, physical therapy students called 'Health Mentors'. Students from pharmacy, couple and family therapy, and public health were integrated into the program in 2008. The Health Mentors program is based on the Wagner Chronic care model (Wagner, 1998). This model includes six core areas in managing chronic disease which are self-management support, clinical information systems, delivery system redesign, decision support, health care organization, and community resources. The model stresses that its 6 interrelated components can produce an improved health care system in which patients are knowledgeable and active and are able to interact with integrated teams (Bodenheimer, Wagner, & Grumbach, 2002). The Health Mentors program teaches these educational principles to health care students in their first year of training.

The Health Mentors program is a service learning program where the goal is not just learning a skill or fact, but doing so through helping the community. The program selects teams of four or more students who are in the pre-certification stage in their career, each including two students from medicine and the other students from two or three different health care disciplines. Together, these students visit an individual living in the greater Philadelphia, PA region with one or more chronic health conditions. A few examples of chronic diseases are heart disease, cancer,

lower respiratory disease, and diabetes (Centers for Disease Control and Prevention, 2004).

Students then complete assignments in teams and debrief in groups with a faculty member. This

program is required and is part of a course grade in their respective programs.

The long range goals of this program are not only to improve the students'

interprofessional collaboration but also to improve the overall health care of individuals with

chronic health conditions. The teams conduct four visits over the academic year in order to

complete specific assignments relevant to the care of patients. They work collaboratively to

conduct a life review and health history, review access to health care issues, and discuss

expectations of patients related to health care providers.

In the 2007-2008 academic year there were over 130 mentors involved in this program,

and in the 2008-2009 academic year there were over 256 mentors involved. Among other factors,

this increase is due to the positive success of this program. In April of 2008, an end-of-year

celebration occurred where students and their mentors and family celebrated the success of the

first year of the program. Feedback gathered from the Health Mentors on the program is as

follows:

> It has been a most rewarding experience to be a part of the Jeff Mentors program.
> The young people on my team have been a joy to work with. They are bright,
> engaged, and empathetic, all the qualities that one could wish for in a health care
> professional. I'm looking forward to working with [them] next year (Health
> Mentors Newsletter 2008, pg 3).
>
> I am delighted and proud to be a part of a program that will enhance the future of
> health care professionals (Health Mentors Newsletter 2008, pg 3).

Health Disciplines

The goal of interprofessional education is to have students learn from with and about each other. Many students, and some professionals, have preconceived notions about each others profession and roles. At the orientation session of the Health Mentors program, students are introduced to the roles they will be working with and learning from. Today, there are broad applications to health profession careers. Below are summaries of each profession that participates in the Health Mentors program from the Jefferson Interprofessional Education Center (http://naples.tju.edu/jcipe/resources/info_sheets.cfm).

Physician

The common path to practicing as a physician requires eight years of education beyond high school and three to eight years of internship and residency beyond that; additionally, they are required to pass a series of licensing examinations and complete one to two years of graduate medical education. MDs seeking board certification in a specialty may spend up to seven years in residency training, depending on the specialty, and a certification examination in that specialty area is often required. Further, physicians must complete ongoing continuing education and practice improvement activities to maintain board certification. Physicians diagnose illnesses and prescribe and administer treatment for people suffering from injury or disease. Physicians examine patients, obtain medical histories, and order, perform, and interpret diagnostic tests. They counsel patients on diet, hygiene, and preventative health care.   Physicians work in one or

more specialties including, anesthesiology, family medicine, internal medicine, pediatrics, obstetrics and gynecology, psychiatry, urology, and surgery. Physicians practice in a variety of settings such as hospitals, clinics, outpatient facilities, workplaces, schools and colleges, homeless shelters, senior citizen centers, nursing homes, and rehabilitation centers.

Nursing

To become a registered nurse (RN), a student must graduate from an accredited state-approved school of nursing and pass a state RN licensing examination. Nursing is the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations (American Nurses Association, 2003 p. 6; American Nurses Association, 2004, p.7). Nurses work in a wide variety of settings as part of the health care team. These include hospitals and clinics, homes, nursing homes, schools, workplaces, community centers, homeless shelters, children's camps, and tourist sites. Additionally, non-clinical roles such as administrators, researchers, and educators are also possible.

Physical Therapy

Physical Therapists can enter the field with a post-baccalaureate degree from an accredited physical therapist education program and pass a national licensure examination. Physical therapists provide services to patients/clients who have impairments, functional limitations, disabilities, or changes in physical function and health status resulting from injury or

disease. They are involved in prevention, in promoting health, wellness, and fitness, and in screening activities. PT's work with individuals of all ages and in a variety of practice settings including, hospitals or subacute facilities, outpatient clinics, rehabilitation centers, skilled nursing or assisted living facilities, industry or workplace, homes, schools, hospice, sports training and fitness facilities, and education or research centers.

Occupational Therapy

Occupational Therapists (OT) enter the field with a master's degree or doctoral degree and a passing score on the national OT examination. They may be certified in mental health, pediatrics, gerontology, or physical rehabilitation, or received specialty certification in driving and community mobility, environmental modification, feeding, eating and swallowing, and low vision. OTs work with other members of the health care team and use physical and psychosocial methods to help people adapt to or compensate for the physical and emotional affects of disabilities. They help patients achieve independence in all facets of their lives, at home, at work, school and community settings through improving motor function, interaction and reasoning abilities. Occupational Therapists work with infants and children with special health needs to help them improve their performance in play, social connections and school. OTs work with patients to learn or re-learn skills necessary to lead independent productive lives. OTs provide comprehensive home and job site evaluations and provide special environmental adaptations and equipment recommendations to help individuals function independently and safely in their environments. Additionally, non-clinical roles such as administrators, researchers, and educators are also possible. OT's work in a variety of practice settings including, homes, early intervention

centers, schools, hospitals, adult day programs, community centers, group homes, job sites, assisted living, long term care and skilled nursing and hospice programs.

Pharmacy

The Doctor of Pharmacy degree and two national licensure examinations are required to become a pharmacist. Pharmacists can also be certified in specialty areas such as nuclear pharmacy, nutrition support pharmacy, oncology pharmacy, pharmacotherapy, and psychiatric pharmacy. Pharmacists have expertise in how drugs are processed by the body, how the dosage formulation influences drug action, economics, and other health, social, and administrative sciences. They interact directly with patients as they fill prescriptions, provide information regarding medications, and monitor their response to drug therapies. Pharmacists also work with physicians and other members of the health care team to select the most appropriate drug therapy regimens, identify potential drug interactions, and establish monitoring recommendations for patients. Pharmacists may also conduct research to develop new drug therapies used to prevent or treat various disease states. Additionally, non clinical roles such as administrators, researchers, and educators are also possible. Pharmacists can pursue careers in a variety of settings including community pharmacies, hospital pharmacies, long-term care facilities, pharmaceutical companies, managed care companies, medical publishing companies, and educational settings.

CHAPTER 4

RESEARCH METHOD

Introduction

This chapter provides description of the mixed methods design employed in this study, specifically the choice of survey tools and focus groups. Also discussed is the data collection methodology of both methods.

Rationale for Mixed Methods Approach

The multifaceted nature of interprofessional health education lends itself to numerous ideas about approaches to evaluation and training (Stone, 2006). It is more complex than some traditional professional education programs because of the multiple disciplines involved, the lack of singular outcomes, and the varied settings IPHE can take place in (Stone, 2006). To research this complex educational initiative fully, a mixed methods approach was felt to be appropriate. Previous research evaluations by Freeth et al. (2002) and Humphris and Hean (2004) suggested that evaluation of IPHE should include longitudinal mixed-method studies. Furthermore, Hatala and Guyatt (2002) articulated that "quantitative research methods may be inadequate to capture the complexity of an educational system" (p. 1110).

This study utilizes a two phase mixed design, using survey and focus group methodology. The goal of this two phase design is to utilize the qualitative survey data in order to better understand the quantitative results (Creswell & Plano Clark, 2007). Survey tools can answer the

'what' of a question, getting firm quantitative results from a large number of individuals, but focus groups help explain the 'why' and uncover less obvious areas of research. This design starts with the analysis of quantitative survey data followed by the collection and analysis of the qualitative focus group data.

Mixed methods research is not new, but has undergone a revival in recent years. While it wasn't formally named, it was first seen in early 20th century in works of anthropologists and fieldwork sociologists who merged qualitative and quantitative techniques to investigate groups of people (Johnson, Onwuegbuzie & Turner, 2007). It was thought that integrating conclusions from two or more research methods "enhances our beliefs that the results are valid and not a methodological artifact" (Bouchard, 1976, p.268). Campbell and Fiske's 1959 article is thought to be the first to formally identify the research practice, calling it 'multiple operationalism'(Johnson, Onwuegbuzie & Turner, 2007).

Historically, quantitative researchers saw no validity in a qualitative approach to research. Likewise, qualitative researchers thought that quantitative methods were too rigid and didn't allow for variations in context (Krueger & Casey, 2000). Slowly in the late 1980's mixed method designs began to become popular as complex issues required versatile and intricate approaches to problem solving (Tashakkori & Teddlie, 2003).

Qualitative research explores the experiences of people or groups and tries to uncover the motivation following those experiences and behavior (Creswell, 1994). There are some validity issues with qualitative research. There may be internal validity threats because it can be considered too theoretical and descriptive and can lend itself to confirmation bias (Creswell,

1994; Strauss & Corbin, 1990). External validity threats are that most of the outcomes are not generalizabile to a larger population (Creswell, 1994; Maxwell, 1996). Additional threats to validity are researcher bias and reactivity such as the Hawthorne Effect (Maxwell, 1996). Researcher bias such as selective thinking may occur when the data or themes are selected because it suits the researcher's hypothesis and reactivity is the effect the researcher has on the individuals in the focus group (Maxwell, 1996). Using multiple observers can help with the problem of selective thinking and confirmation bias, and using multiple methods in addition to qualitative approaches can help deal with reactivity.

There are other terms used to describe the combination of both qualitative and quantitative research. For example, "integrated research design" and "multi-method design" are used in the literature. However, this study used the term "mixed methods" and adapted the working definition by Stange, Crabtree and Miller (2006):

> [Mixed methods] research brings together numbers and narratives, description, hypothesis testing, hypothesis generation, and understanding of meaning and context to provide fuller discernment and greater transportability of the phenomenon under study. (p.292)

Rossman and Wilson (1985) identified three reasons for combing qualitative and quantitative methodologies. First, it can be used to verify each other. Second, it can create a more complete picture of the data. Third, it can be used to begin new avenues of research by mitigating the inconsistencies that emerge from the two. Greene, Caracelli, and Graham (1989) identified more broadly defined purposes for mixed methods research. These are triangulation, complementarity,

development, initiation, and expansion. More recently, Collins, Onwuegbuzie, and Sutton (2006) established that there are four core reasons for conducting mixed methods research. These are participant enrichment, instrument fidelity, treatment integrity, and significance enhancement.

This last construct, significance enhancement, is particularly meaningful to the current study. Enhancing the results of the quantitative survey data by conducting focus groups is the rationale for conducting a mixed methods analysis. It is hoped that this will facilitate a better understanding of student attitudes and readiness toward interprofessional education.

Survey Methodology

Survey Participants

The participants in this study are first year students enrolled in the 2008-2009 interprofessional educational program 'Health Mentors' at Thomas Jefferson University. Students from the academic disciplines of medical, nursing, occupational therapy, physical therapy and pharmacy were included in this study. There were less than twenty students in the couple and family therapy and public health disciplines who voluntarily participated in the Health Mentors program but were not included in this study due to the small number and due to the fact that they volunteered to participate and did not have the same academic requirements as other disciplines.

Survey Instruments

Interdisciplinary Education Perception Scale

The 18-item Interdisciplinary Education Perception Scale (IEPS) was used to measure the professional perceptions of students exposed to interdisciplinary settings, relative to their own profession and other health disciplines (Luecht, Madsen, Taugher, & Peterson, 1990). The instrument was created to standardize the assessment of interdisciplinary education and has been used by many researchers studying interprofessional education. It is divided into four factors: competence and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others' value. The instrument is on a five-point Likert scale ranging from "strongly disagree" (1 point) to "strongly agree" (5 points). A higher score signifies a more positive attitude about interprofessional collaboration.

The instrument has a high overall alpha of .872, but a range of low to high alphas when broken down by factors (.518 - .823) (Luecht, Madsen, Taugher, & Peterson, 1990). When designing the instrument the authors used content validity to test the reliability of the instrument. This was done on a consensus basis by five faculty members in various health professions and pre-tested before on students to validate the psychometrics before a full study was conducted by the authors on 143 students from different academic disciplines, gender, and academic status (Luecht, Madsen, Taugher, & Peterson, 1990). There were a disproportionately higher number of females(120) to males(20) in their study and a higher level of undergraduate junior and senior students. The current study is not concerned with gender and is administering this survey to first

year students, so it is still deemed appropriate to generalize to our population. Appendix A shows the contents of the instrument.

The authors conducted a factor analysis and created four factors which compiled 58.6% of the variance of the instrument (Luecht, Madsen, Taugher, & Peterson, 1990). There are eight items on the first factor which is 'perceived autonomy and competence within one's own profession'. The highest loading item on this factor is 'individuals in my profession are well trained'. There are only two items on the second factor and relate to 'understanding the relative need for interdisciplinary cooperation as it impacts one's own profession', with the items being 'Individuals in my profession need to cooperate with other professions' and 'Individuals in my profession must depend upon the work of people in other professions'. The third factor contains five items and contains items that are related to the 'perception of actual cooperation between one's own profession and other professions'. The highest loading item on this factor is 'Individuals in my profession are able to work closely with individuals in other professions'. Finally, the fourth factor contains three items associated with an 'understanding (or willingness to understand) the value of other professions', with the highest loading factor being 'Individuals in my profession have a higher status than individuals in other professions'.

Readiness for Interprofessional Learning Scale

The second survey instrument being used in this dissertation is the 19-item Readiness for Interprofessional Learning Scale (RIPLS), which measures students' readiness toward interprofessional learning, in the dimensions of teamwork and collaboration, professional identity, and roles and responsibilities (Parsell & Bligh, 1999). Like the IEPS, the instrument is

on a five-point Likert scale ranging from "strongly disagree" (1 point) to "strongly agree" (5 points). It has been validated by Parsell and Bligh and used by other researchers studying interprofessional education. The internal consistency ranged from a high of .85 to a low of .46. Unlike in the original RIPLS, this study will reverse code six items. These are items 10, 11, 12, 17,18, and 19. Reverse coding of items 10, 11, and 12 was suggested in a critique of the instrument by McFadyen, Webster, Strachan, Figgins, Brown and Mckechnie (2005). In scoring for this dissertation, items 17, 18 and 19 were also reverse coded to be able to compute a total readiness score and make interpretation of overall 'readiness' more meaningful.

The RIPLS is composed of three subscales. The first factor contains six items that are related to the effectiveness of team working skills and three items are related to the need for positive relationships between professions. The strongest item on this factor is 'Learning with other health care students will help me becomes a more effective member of a health care team' closely followed by item 'patients would ultimately benefit if health care students worked together to solve patient problems'. This item gets at the crux of the goal that health care professions should be trained in patient centered care.

The second factor contains seven items that contribute to positive and negative characteristics of professional identity. The highest loading item is 'I don't want to waste my time learning with other health care students' which is a negative aspect to interprofessional education. A highly loading positive item on this factor is 'Shared learning will help me communicate better with patients and other professionals.

The third factor consists of three items related to knowing professional roles. Items on this factor include, 'The function of nurses and doctors is mainly to provide support for doctors', 'I'm not sure what my professional role will be', and 'I have to acquire much more knowledge and skill than other health care students'. The full instruments are presented in Appendix B.

Psychometrics of the IEPS and RIPLS Together

The Interprofessional Learning Group at Glasgow Caledonian University has been using both the IEPS and the RIPLS to examine attitudes toward interdisciplinary education of undergraduate students from different health and social care programs. They conducted a study on a modified sub-scale version of the IEPS and the full RIPLS and found a high alpha of .80 indicating that the two measures are highly reliable when used together. (McFadyen, Maclaren, & Webster, 2007).

Survey Administration

All first year participants in the Health Mentors program were asked to complete the IEPS an RIPLS in September 2008 via paper and pencil during a one day workshop introducing them to the program. In April 2009, during a concluding workshop, these same students were asked to take the IEPS and RIPLS again via paper and pencil to measure changes in attitudes and readiness.

Focus Group Methodology

Building on the results from the first phase of the mixed methods design, this study utilized focus groups as its qualitative methodology. Focused and structured interviews with groups were first developed in the 1940s (Merton, Fiske, & Kendall, 1956) and have been used with great regularity by social scientists and market researchers. The researcher uses guiding questions to shape the discussion, but the group participants make up their own dynamic and discuss topics with each other, as opposed to only answering questions. This creates a conversation and group interaction, which become the data analyzed (Morgan, 1997a). Focus groups were conducted with guiding questions to steer the conversation as one measure to see if the Health Mentors program was effective and to gauge the attitudes toward interprofessional education.

Focus Group Participants

Selecting the right participants is key to a successful focus group. Morgan (1997b) notes that participants for a focus group should not consist of a random sample. The subject pool for the focus group was all Health Mentors participants who completed two survey tools described later in this chapter (the IEPS and RIPLS) during the September 2008 workshop. Students were recruited through email, class notices, and online postings to the Jefferson Intranet system. In total, 27 students responded, and of those, 22 students participated in two separate groups.

Focus Group Administration

Focus Groups were conducted at the conference room of the Thomas Jefferson University Center for Collaborative Research in Philadelphia, PA. The focus groups were audio taped and the participants signed a consent form acknowledging that they were aware they were taped. The audiotape recorder was placed on the center of the conference table. Refreshments were offered to the group. A focus group script was followed during each session and is located in Appendix C. Additionally, descriptive data were collected for each participant. These data included:

- Educational discipline
- Overall experience in interprofessional education
- Gender
- Age

Present in each focus group was the research investigator and a member of Thomas Jefferson University Health Mentor's outcomes assessment research team. This team member observed each focus group, making notes about the interactions and the order in which the participants spoke.

Focus Group Analysis: Grounded theory

Grounded theory is a highly systematic qualitative research approach which was the theoretical basis for interpreting the focus group responses. Grounded theory works differently than the traditional scientific method, in that there is no hypothesis and data are inductive rather than deductive (Glaser & Strauss, 1967). The goal is to develop a theory about social and psychological phenomena and the approach is a good compliment to other approaches to research. Grounded theory is useful as a precursor to future investigations, and to areas of

research in which little exploration has been done (Glaser & Strauss, 1967). In these cases, theories cannot be analyzed because the variables applicable to the concepts have not yet been fully recognized (Stern, 1980).

Verbatim responses were transcribed from the taped recordings of the focus group discussions and from these responses a theory will emerge. There are three steps in coding the data. The first step in analyzing the transcribed data according to grounded theory is called open coding. It is the process in which data are "broken down into discrete parts, closely examined, and compared from similarities and differences" (Strauss & Corbin, 1998, p. 102). Key points were marked with codes, and the codes were grouped into similar themes which were noted based on recurring statements in the group, or between the two groups, or by the verbal or nonverbal agreement or disagreement to a comment made by a member in the groups. The next step in analysis is axial coding. This is the process of connecting the categories and themes derived from the open coding (Strauss & Corbin, 1998). The last step is selective coding, in which the theory that has begun to emerge with axial coding begins to be analyzed. The theory is presented in a conditional/consequential matrix in order to explain the relationships in the themes (Strauss & Corbin, 1998).

The results from the focus groups were verified using a method of triangulation. This technique compares the observations to the existing literature (Creswell, 1994). Another method of verification is to use an unbiased external auditor to review the findings and make sure they came from the data (Creswell, 1994). This technique was done by principle investigator and a member of the Thomas Jefferson University staff who is familiar with interprofessional

education. Further end of year course evaluations were reviwed to see if student comments

reflected the focus group themes.

Table 4.1: Methodology and Timeline

Date	Tool	Participants
April 2008	Pilot Study: IEPS and RIPLS	(n=474) medicine, nursing, occupational and physical therapy students
September 2008	Pretest: IEPS and RIPLS	(n=561) medicine, nursing, physical therapy, occupational therapy, couple and family therapy, public health and pharmacy students
February 2009	Focus groups exploring attitudes toward IPHE	(n=10) physical therapy and pharmacy students
March 2009	Focus groups exploring attitudes toward IPHE	(n=12) medicine, nursing, physical therapy, occupational therapy, couple and family therapy and pharmacy students
April 2009	Posttest: IEPS and RIPLS	(n=538) medicine, nursing, physical therapy, occupational therapy, couple and family therapy, public health and pharmacy students

CHAPTER 5

RESULTS

Introduction

The purpose of this study was to determine the attitudes and readiness toward interprofessional education and the Health Mentors Program. More specifically, the goal was to answer the following research questions:

- What are the attitudes toward IPHE and how do they differ between the health education disciplines?

- Do attitudes toward IPHE change over time as a result of IPHE exposure?

- Are there differences in readiness for IPHE between the health education disciplines?

- Is there a relationship between attitudes and readiness toward IPHE?

This chapter reports the findings in sections beginning with the results of the IEPS survey, including its factors, then reports the RIPLS survey and its factors, and then reports the findings from the two focus Groups. Of the five hundred and seventy-six students participating in the Health Mentors program, only students who completed both surveys in September 2008 and April 2009 were included in the analysis to be able to conduct a true pretest posttest analysis. This resulted in a total number of four hundred and ninety-six responses, with the breakdown by academic discipline shown in table 5.1. Two focus groups were conducted in February and March of 2009 with a total of 22 students. They were analyzed using grounded theory and the themes of the focus groups are presented in the later part of this chapter.

Survey Analysis

Two survey instruments, the Interdisciplinary Education Perception Scale and the Readiness for Interprofessional Learning Scale were administered in September 2008 and again in April 2009. The Likert data from the IEPS and the RIPLS were treated as interval data, and as such parametric analyses were deemed appropriate. Despite the fact that Likert scales are technically ordinal data, and as such, non parametric statistics should be used, research on the topic has suggested that it is acceptable to treat them as interval data (Carifio & Perla 2007; Glass, Peckham, & Sanders, 1972; Lubke & Muthen, 2004).

Table 5.1: Number and percentage of students who completed the IEPS and RIPLS by Academic Discipline

Discipline	N	Percent of sample
medicine	240	48
nursing	95	19
occupational therapy	55	11
pharmacy	62	13
physical therapy	44	9
Total	496	100

Interdisciplinary Education Perception Scale

The IEPS was administered to answer the questions: What are the attitudes toward IPHE and how do they differ between the health education academic disciplines? Do attitudes toward IPHE change over time as a result of the interprofessional education Health Mentors program?

The September Pretest data was analyzed to see if differences in attitudes existed between the academic disciplines before they started the Health Mentors program. The homogeneity of variance assumption was assessed using the Levene statistic. The result indicated that the homogeneity of variance assumption was not violated LS $(4,491) = .69$, $p = .597$. The analysis of variance revealed a significant difference between disciplines, $F(4,495) = 4.70$, $p < .01$. A Scheffe post hoc analysis showed that there were pretest differences between nursing and both pharmacy and physical therapy. Pharmacy students ($M = 4.09$, $SD = .36$) and physical therapy students ($M = 4.08$, $SD = .33$) scored significantly higher than nursing students ($M = 3.85$, $SD = .36$) on the total IEPS in September. However, a partial eta-squared suggested a very small effect size, with 3.7% of the variance in attitudes being accounted for by academic discipline.

Since there was significant variation in the pretest scores, an analysis of covariance was conducted to look at the differences in overall posttest scores by discipline. The ANCOVA resulted in a non significant difference in means by discipline at the end of the Health Mentors discipline when covarying for the variation in the September pretest scores, $F(4,490) = 2.319$, p $= .056$. This suggests that any differences in scores by discipline remained fairly constant.

Table 5.2 and Chart 5.1 show the mean pretest and posttest scores by discipline. Overall there were very little differences in the means from September to April. All means except for physical therapy decreased slightly from September to April. A paired samples t test was conducted to compare the September Pretest IEPS data and the April Posttest data to determine if differences were found in attitudes over time. There was a significant difference in the composite score for total September Pretest IEPS ($M = 3.98$, $SD = .39$) and total April Posttest ($M = 3.93$, $SD = .44$); t(495)=2.31, p = .02, d = .11. While attitudes decreased slightly from September to April, the small effect size (.11) as measured by Cohen's D suggests that there is little clinical significance to these results. Further, despite there being a significant difference when the disciplines were grouped together, paired t tests by individual academic discipline showed that there were no significant differences in attitude scores by discipline. This is most likely due to the smaller sample size of individual disciplines.

Table 5.2: Count and Mean IEPS for Pre and Posttest by Academic Discipline

Discipline	N	Mean Pretest	Mean Posttest
Medicine	240	3.99	3.94
Nursing	95	3.85	3.81
Occupational therapy	55	3.99	3.92
Pharmacy	62	4.09	4.02
Physical therapy	44	4.08	4.14

Chart 5.1: Mean IEPS for Pre and Posttest by Academic Discipline
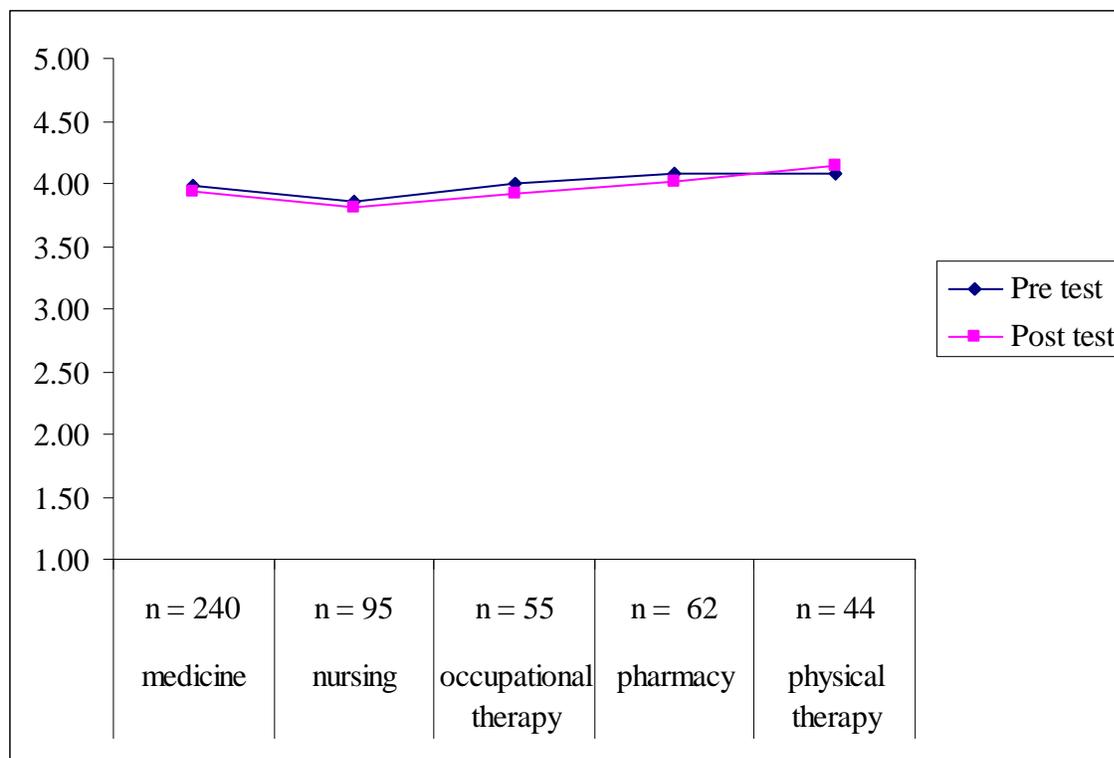
IEPS Factors

      The IEPS is divided into the following four factors: competence and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others' value. After analysis to determine if there were differences by discipline on the overall score, the following analysis on each factor was conducted. Paired samples t tests from September to April were conducted to assess if differences were found over time. Further, an ANOVA with appropriate post hoc analysis were conducted on each factor by discipline in September. The homogeneity of variance assumption was assessed using the Levene statistic. The result for the September data indicated that the homogeneity of variance assumption was not violated for factor 1 LS (4,491) =

.69, *p* = .597 and factor 4 LS (4,491) = .69, *p* = .597, but that it was for factors 2 and 3. As a result, post hoc comparisons were assessed using the Dunnett C statistic for all factors. Overall, students responded the lowest to the factor 4 'understanding others' values' and the highest to the factor 'perceived need for cooperation'. Table 5.3 shows the Pre and Posttest means for each IEPS factor by discipline. These results are presented by factor in the following paragraphs.

Factor 1

The paired samples t test revealed that there was a significant decrease in factor 1 'competence and autonomy' from September (*M* = 4.09, *SD* = .46) to April (*M* = 4.01, *SD* = .52); t(495)=3.31, p = .00. These results indicate that students felt less competent and autonomous in April than they did in September. Further, an analysis of variance showed significant differences by discipline ANOVA *F*(4,490) = 12.23, p <.05. The post hoc analysis revealed that medicine, pharmacy, and physical therapy students felt more autonomous and competent than nursing students.

Since there was significant variation in the pretest scores by discipline, an analysis of covariance was conducted to look at the differences in Posttest scores by discipline. The ANCOVA resulted in a significant difference in means at the end of the Health Mentors discipline when covarying for the variation in the September Pretest scores, *F*(4,490) = 5.09, p < .05, eta = .04.

Table 5.3: Pre and Posttest mean for each IEPS factor

Factor	Medicine n = 240	Nursing n = 95	Occupational therapy n = 55	Pharmacy n = 62	Physical therapy n = 44	Total n = 496
Competence and autonomy						
Pretest	4.20	3.83	4.00	4.11	4.11	4.09
Competence and autonomy						
Posttest	4.11	3.75	3.87	4.03	4.22	4.01
Perceived need for						
cooperation Pretest	4.42	4.28	4.29	4.44	4.49	4.39
Perceived need for						
cooperation Posttest	4.31	4.11	4.10	4.11	4.31	4.22
Perception of actual						
cooperation Pretest	3.72	4.06	4.33	4.22	4.26	3.96
Perception of actual						
cooperation Posttest	3.70	4.04	4.31	4.23	4.31	3.95
Understanding others' value						
Pretest	3.59	3.26	3.21	3.57	3.45	3.47
Understanding others' value						
Posttest	3.62	3.39	3.29	3.56	3.55	3.52

Nursing students scored lower on factor 1 in both September and April than other students. Their mean scores decreased from September to April, but not significantly t(94)=1.65, p = .102,. When looking at the items on the scale it becomes clear that nursing students perceive a lack of respect and esteem about their own profession as well as identify the fact that they do not work on their own. Some items on this factor are 'Individuals in my profession are well-trained', 'Individuals in my profession demonstrate a great deal of autonomy', 'Individuals in other professions respect the work done by my profession', 'Individuals in my profession are highly competent' and 'Individuals in other professions think highly of my profession'. These results also indicate their perception that they are thought of as less important than other professions.

Factor 2

A paired t test on the entire group showed that there was a significant decrease in scores on factor 2 'perceived need for cooperation' from September (*M* = 4.39, *SD* = .53) to April (*M* = 4.22, *SD* = .64); t(495)=5.54, p = .00, indicating that students felt slightly less need for cooperation in April than they did in September. However, an ANOVA did not reveal any significant differences by discipline in either the Pre or Posttest, indicating that students felt an equal need for cooperation among disciplines. Students feel that they need to rely on the work of people in other professions equally.

Factor 3

There was no significant difference on factor 3 'perception of actual cooperation' t(495) =.403, p = .687 from September to April. However, there were differences by discipline in September. Medicine students scored significantly lower than all other disciplines $F(4,495) = 26.98$, p = .00 in September, where nursing students were significantly lower than occupational therapy students. The items on this factor include 'Individuals in my profession are able to work closely with individuals in other professions', 'Individuals in my profession have good relations with people in other professions', and 'Individuals in my profession work well with each other'. Medicine students perceive more often than all other academic disciplines that they do not cooperate with there own or other professions.

Since there was variation in the Pretest scores by discipline, an analysis of covariance was conducted to look at the differences in posttest scores by discipline. The ANCOVA resulted in a significant difference in means at the end of the Health Mentors discipline when covarying for the variation in the September pretest scores, $F(4,490) = 7.92$, p < .05, eta = .06. The small effect size, as measured by partial eta squared, indicates that there is relatively little clinical significance to these results.

Factor 4

The results of a paired t test showed that there was a significant increase in factor 4 'understanding others' value' from September ($M = 3.47$, $SD = .58$) to April ($M = 3.52$, SD =.57); t(495)=-2.02, p = .04. As a group students began to value their profession and the roles of

other professions. The ANOVA and post hoc analysis revealed that medicine students understood other's value more than nursing and occupational therapy students $F(4,494) = 9.50$, p =.00 in September. The items in this factor is 'Individuals in my profession have a higher status than individuals in other professions', 'Individuals in my profession make every effort to understand the capabilities and contributions of other professions', and 'Individuals in other professions often seek the advice of people in my profession'. This indicates that medicine have a higher perception of others looking up to them and seeking their advice more often than nursing and occupational therapy students.

Since there was variation in the pretest scores, an analysis of covariance was conducted to look at the differences in posttest scores by discipline. The ANCOVA resulted in a non significant difference in means by discipline at the end of the Health Mentors discipline when covarying for the variation in the September pretest scores, $F(4,490) = 1.21$, p =.35. This indicates that any differences in scores remained relatively constant.

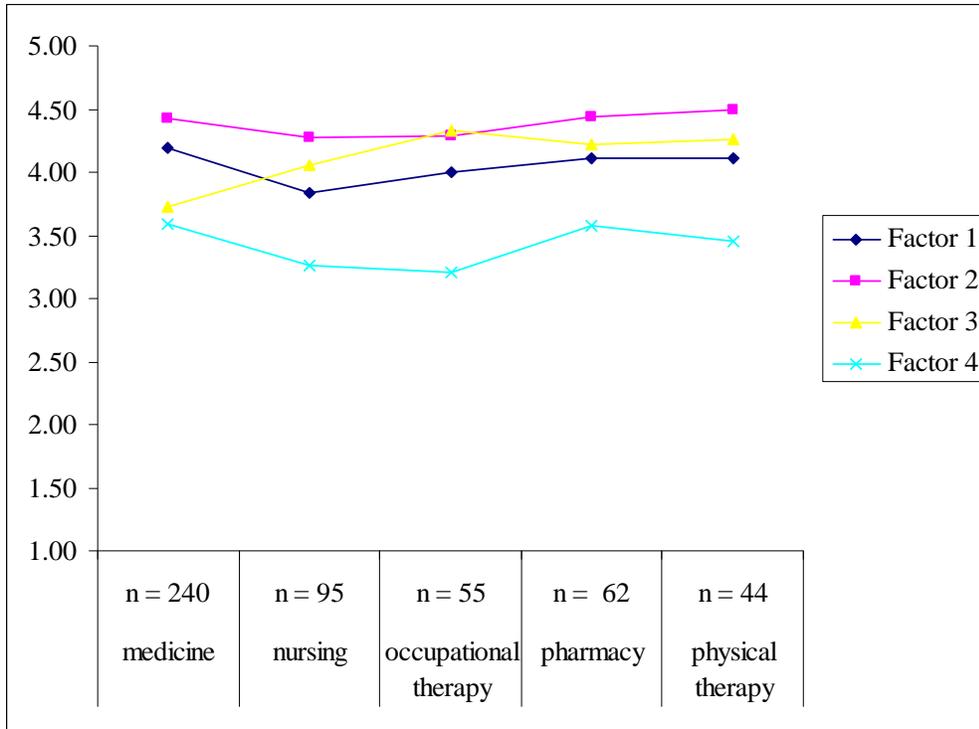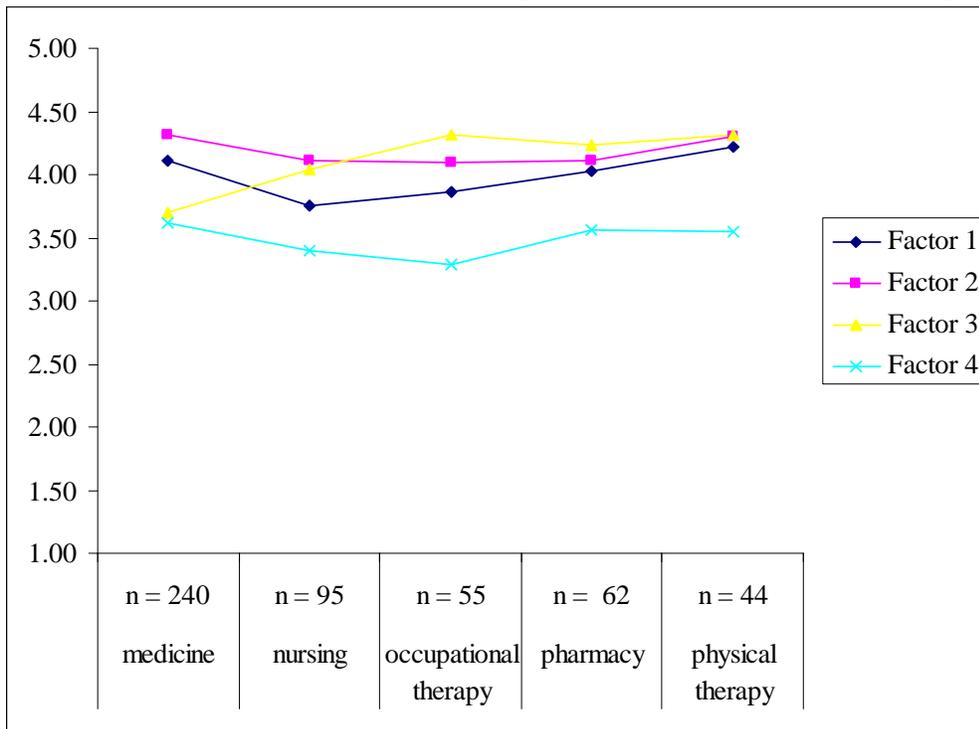**Chart 5.2 Mean Factor IEPS for the September Pretest by Academic Discipline**

Chart 5.3 Mean Factor IEPS for the April Posttest by Academic Discipline

Readiness for Interprofessional Learning Scale

The RIPLS was administered to answer the questions: Are there differences in readiness for IPHE between the health education disciplines? Are there differences in readiness for IPHE over time as a result of the interprofessional education Health Mentors program? Scores were computed for each factor by summing the responses and by reverse scoring 4 items, (10, 11, 12 and 17).

The September Pretest data was analyzed to see if differences in readiness existed between the academic disciplines before they started the Health Mentors program. The homogeneity of variance assumption was assessed using the Levene statistic. The result indicated that the homogeneity of variance assumption was not violated LS (4,491) = .79, p = .791. The analysis of variance revealed a significant difference between groups, $F(4,495)$ = 11.31, $p < .01$. A Scheffe post hoc analysis found that medicine students ($M = 3.93$, $SD = .49$) were less ready for interprofessional education than pharmacy students ($M = 4.21$, $SD = .40$) and occupational therapy students ($M = 4.29$, $SD = .41$) on the total RIPLS scale before they entered the Health Mentors program. Eta-squared suggested a very small effect size, with 8% of the variance accounted for by discipline.

Because there was significant variation in the pretest scores, an analysis of covariance was conducted to examine the differences in overall posttest scores by discipline on the RIPLS. The ANCOVA resulted in a significant difference in means by discipline at the end of the Health Mentors program when covarying for the variation in the September pretest scores, $F(4,490)$ = 5.184, p < .05. This suggests that the differences in readiness scores at the end of the program

were not a result of the variation of pretest scores. Medicine students scored the lowest on the scale in September(*M*=3.93 *SD*= .49) and again in April(*M*=3.56 *SD*= .65). Table 5.4 and Chart 5.4 show the Pretest Posttest scaled means by discipline. While the scores for medicine stayed low in relation to other disciplines, overall the means were high for each academic discipline, ranging from 3.8 to 4.1, indicating that students agreed with most items on this scale.

Table 5.4: Count and Mean RIPLS for Pre and Posttest by Academic Discipline

Discipline	*N*	Mean Pretest	Mean Posttest
medicine	240	3.93	3.56
nursing	95	4.08	3.81
occupational therapy	55	4.29	3.99
pharmacy	62	4.21	4.01
physical therapy	44	4.14	3.82

A paired samples t test was conducted on the September Pretest data and the April Posttest data to determine if the differences found in scores over time were significant. It showed that there was a significant difference in the scores for total September Pretest RIPLS (*M* = 3.73, *SD* = .60) and total April Posttest (*M* = 4.05, *SD* = .47); t(495)=12.54, p = .00, d = .56. This shows us that overall readiness decreased from September to April. There is a moderate effect size (.56) as measured by Cohen's D. Further, an analysis of variance was conducted on the total

RIPLS and significant differences were found by academic discipline for both the September and April administrations. The results are reported below.

Chart 5.4: Mean RIPLS for Pre and Posttest by Academic Discipline
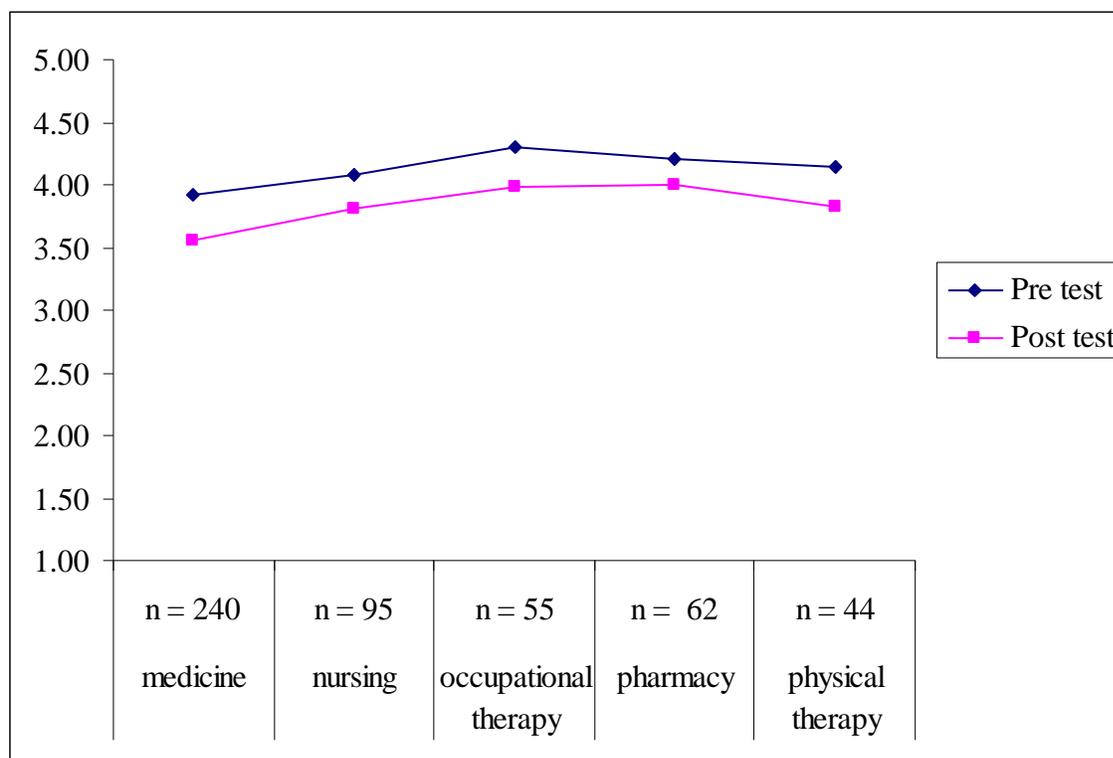
RIPLS Factors

The RIPLS survey contains 3 factors: dimensions of teamwork/collaboration, professional identity, and roles and responsibilities. After analysis to determine if there were differences by discipline on the overall score, the following analysis on each factor was conducted. Paired samples t tests were conducted to compare the different factors from September to April to determine if differences were found over time. Further, an ANOVA with

appropriate post hoc analysis were conducted on each factor by discipline. Table 5.5 shows the

Pre and Posttest means for each RIPLS factor.

Table 5.5: Pre and Posttest mean for each RIPLS factor

Factor	Medicine n = 240	Nursing n = 95	Occupational therapy n = 55	Pharmacy n = 62	Physical therapy n = 44	Total n = 496
Dimensions of teamwork/collaboration						
Pretest	4.21	4.28	4.47	4.44	4.32	4.29
Dimensions of teamwork/collaboration						
Posttest	3.79	3.95	4.14	4.28	3.89	3.93
Professional identity						
Pretest	3.88	4.01	4.24	4.21	4.05	4.00
Professional identity						
Posttest	3.42	3.64	3.82	3.99	3.68	3.60
Roles and responsibilities						
Pretest	3.19	3.66	3.90	3.52	3.80	3.46
Roles and responsibilities						
Posttest	3.20	3.78	3.95	3.43	3.95	3.49

Factor 1

A paired samples t test revealed that there was a significant decrease in factor 1 (dimensions of teamwork/collaboration) from September (*M* = 4.08, *SD* = .46) to April (*M* = 4.01, *SD* = .52); t(495)=11.85, p = .00. These results indicate that overall students felt less ready for teamwork and collaboration in April than they did in September. An analysis of variance on the September scores revealed that there was a significant difference by discipline *F*(4,490) = 4.92, p <.05. The Schfee post hoc analysis showed that medicine students scores significantly lower on this factor than pharmacy and occupational therapy students.

Since there was significant variation in the Pretest scores by discipline, an analysis of covariance was conducted to look at the differences in Posttest scores by discipline. The ANCOVA resulted in significant differences in mean scores at the end of the Health Mentors program when covarying for the variation in the September pretest scores, *F*(4,490) = 5.67, p < .05, eta = .04. As shown in table 5.5 all disciplines showed a decrease on this factor from September to April, though there was variation in the amount of difference in scores. However, the small effect size, as measured by partial eta squared, indicates that there is relatively little clinical significance to these results.

Factor 2

A paired samples t test revealed that there was a significant decrease in factor 2 (professional identity) from September (*M* = 4.00, *SD* = .58) to April (*M* = 3.60, *SD* = .72); t(493)=13.24, p = .00. An analysis of variance on the September scores revealed that there was a

significant difference by discipline $F(4,491) = 7.44$, p $<.05$. The post hoc analysis showed that medicine students scores significantly lower on this factor than pharmacy and occupational therapy students.

Since there was significant variation in the Pretest scores by discipline, an analysis of covariance was conducted to look at the academic discipline differences in Posttest scores. The ANCOVA resulted in significant difference in the means at the end of the Health Mentors program when covarying for the variation in the September pretest scores, $F(4,490) = 5.010$, p $<$ .05, eta $= .04$. Similar to factor 1, all disciplines showed a decrease on this factor from September to April, though there was variation in the amount of difference in scores. However, the small effect size, as measured by partial eta squared, indicates that there is relatively little clinical significance to these results.

Factor 3

A paired t test on indicated that there was no significant difference over time on factor 3 (roles and responsibilities) t(492)=.-1.06, p $= .289$ from September to April. However, an analysis of variance indicated that there were significant differences by discipline in September. In September, medicine students felt significantly less ready ($M = 3.19$, $SD = .66$) for their roles and responsibilities than all other students $F(4,491) = 20.96$, p $<.05$.

Since there was significant variation in the Pretest scores by discipline, an analysis of covariance was conducted to look at the academic discipline differences in Posttest scores. The ANCOVA resulted in significant difference in the means at the end of the Health Mentors

program when covarying for the variation in the September pretest scores, $F(4,490) = 14.87$, p <

.05, eta = .11. Unlike factors 1 and 2, not all disciplines showed a decrease on this factor from

September to April. In factor there were small increases on this factor by all disciplines except

for pharmacy. However, the small effect size, as measured by partial eta squared, indicates that

there is relatively little clinical significance to these results.

Chart 5.5 Mean Factor RIPLS for the September Pretest by Academic Discipline
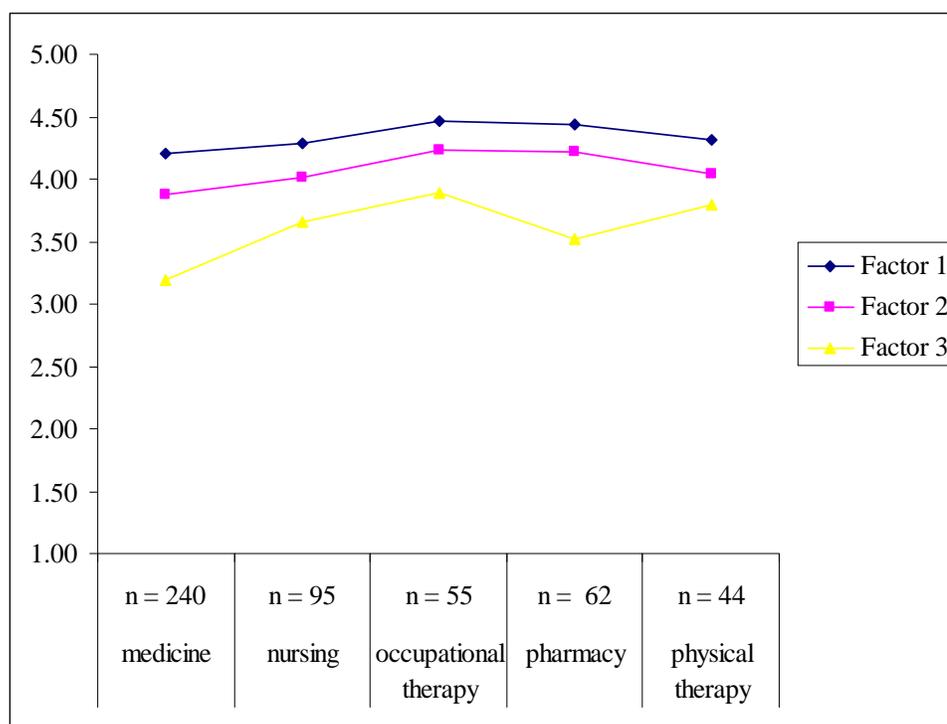
Chart 5.6 Mean Factor RIPLS for the April Posttest by Academic Discipline
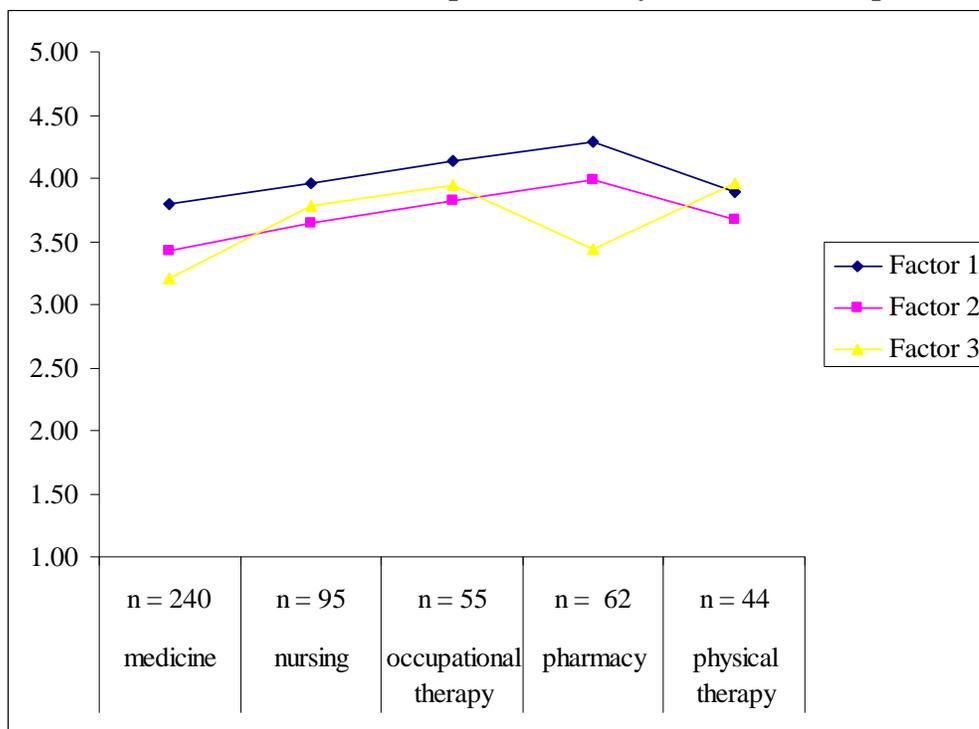
IEPS and RIPLS correlation

Scores for all students were totaled for the IEPS and the RIPLS and a Pearson product moment correlation was conducted to determine the relationship between readiness and attitudes toward interprofessional education. Overall there was a weak positive correlation between readiness scores and attitudes toward interprofessional education scores in September and April ($r = .258$ $p = .000$ and $r = .141$ $p = .002$). This indicates that overall, students who are more ready for interprofessional education, also have more positive attitudes for interprofessional education.

Table 5.6: Correlations between IEPS and RIPLS

		Pretest RIPLS	Posttest RIPLS
Pretest IEPS	Pearson Correlation	.258[**]	.074
	Sig. (2-tailed)	.000	.099
Posttest IEPS	Pearson Correlation	.141[**]	.211[**]
	Sig. (2-tailed)	.002	.000

**. Correlation is significant at the 0.01 level (2-tailed).

Focus Group Analysis

Ten first year students participated in a focus group on February 13, 2009, nearly five months after they started their discipline. The mean age was 26, there were seven females and 3 males, 8 of the students were from the pharmacy discipline and 2 were from the Physical Therapy discipline. Twelve first year students participated in a focus group on March, 2009, nearly six months after they started their discipline. The mean age was 24, there were 8 females and 4 males, 7 of the students were from medicine, 2 from pharmacy discipline, 1 nursing, 1 OT and 1 PT discipline. The mean IEPS score was 76 for the February group and, 69 for the March group.

An independent t test on the IEPS scores showed that participants in the February focus group scored significantly higher than participants in the March group. t(19) 2.6377, $p < .05$, d = .95. Though a Cohen's d resulted in a large effect, results should be interpreted with caution given the small sample size. Table 5.7 shows the mean IEPS scores by group.

Table 5.7: Mean IEPS score for each focus group

	February	March
Mean	69.5	75.5
Standard deviation	6.9	3.9
N	11	10

A brief survey was given out at the beginning of the focus group asking demographic questions and two questions about their experiences with the health mentor program and interprofessional education.

Table 5.8: My overall experience so far in the "Health Mentors" program has been:

	February	March
	N	*N*
Positive	4	4
Neutral	4	7
Negative	2	1

Table 5.9: My overall past experience in interprofessional education has been:

	February	March
	N	*N*
Positive	1	2
Neutral	3	4
Negative	0	0
Not Applicable	6	6

The focus groups began with a general discussion of interprofessional education. When asked, students described IPHE in terms of collaboration and teamwork, climate of trust, and patient centered care. The data in table 5.10 contains the labeled themes that emerged from each focus group regarding their definition of interprofessional education.

The focus groups moved from a general discussion of interprofessional education, to a more focused discussion of the Jefferson Health Mentors program. When asked to name a positive experience in the Health Mentors program, students said that they enjoyed working with their mentor, recognized that this experience will help them as a future health care professional, and enjoyed learning how to work as part of a team. These were classified into two themes, preparation for future professional experience and personal enjoyment from working with their Mentor.

Table 5.10 Focus Group description of IPHE

List	Label
"able to work with other professions and trust what they are doing."	Climate of Trust
"developing trust"	
"develop a respect for what the other professions do"	
"make sure the patient gets the best care"	Patient Centered
"educating you on what the different goals are in the different professions so that you better understand who should be accomplishing what in order to benefit the patient."	
"it's a collaborative team to provide the best care for patients and to improve quality"	
"Being able to work and collaborate with everyone to accomplish one goal."	Collaboration/ Team work
"Working together as a team"	
"Teaches you team work"	
"Cooperation"	
"Collaboration"	

Table 5.11 Focus Group positive experiences with the Health Mentors program

List	Label
"It has opened up a conversation so we can at least think about these things and we realize that we are going to need this in the future."	Preparation for future professional experiences
"Learning about what everyone does and how they can be useful to each other"	
"Helpful for future team work"	
"I think it's good because it makes you more aware that there are people in other professions that can be a resource for you."	
"learn a lot about roles of different professions and how they have evolved."	
"I see that there definitely has to be an open communication between the different departments and areas in what people do and what they don't do."	
"I just really enjoyed working with my mentor and learning the different experiences she "has had with doctors over the years."	Personal enjoyment working with Mentor
"I feel like what I've gained most from it was just the interaction with our mentor."	
"I think one of the big benefits have been from the health mentor themselves."	
"I feel like I do this for her[Health Mentor] and cause its part of my grade, but that is one of the positives, meeting this wonderful woman who encourages me. And I've learned a lot from her."	

When asked what the negative experiences of the Health Mentors program were, students were much more vocal and animated in their responses. Students disliked having to travel to visit their mentor, disliked the logistics of the program such as scheduling conflicts and time constraints on top of a heavy course load, and reported a disconnect between being a student and a professional, and cited frustration of being unsure of their professional roles at this stage in their education.

While most stated that they did not yet know their own roles, when asked to explain specifically what each of their roles were in the program most students, asides from medicine, could recite each disciplines goals and requirements. This suggested that students may know what their roles are, but they are not yet confident in those roles at this time. Medicine students on the other hand were much more uncomfortable with the question, and gave much more ambiguous answers such as 'to make people feel better'. This aligns with the results from the RIPLS survey in that medical students scored lowest on that survey.

Finally there was confusion toward the course grading of this program, and many students perceived as it 'counting' less for medicine students than other academic disciplines. There was also a general complaint toward the program was that students felt some assignments were 'busy work', didn't understand the relevance, and how all goals and objectives related to their future as a Health Care professional. Table 5.12 cites the negative themes that emerged from the focus groups.

Table 5.12 Focus Group negative experiences with the Health Mentors program

List	Label
"I think if it was more convenient it would be more positive."	Schedule conflicts
"I feel like it has been very difficult though, getting everyone together, because no ones schedule is the same."	
"I would say that is one of the most frustrating things also not getting together with ourselves (group) but when we try to get together with our mentor. When we find a time that works for our group, finding a time that works with them is also very difficult. "	
"The timing of things matter, we had an exam and we didn't want to be there(visiting mentor)."	
"Our schedule is so different, because the med students only have one class at a time."	
"Making meetings is tough because of tests."	

Table 5.12 (Continued)

List	Label
"It's overwhelming because we are all first year students, so we have a lot of other things to get used to and this is thrown into the mix and we don't know enough about, well some of us don't know enough about our own professions to start learning about other peoples professions." "We don't know our professional identities enough to portray it to others" "It's tough because we don't know our roles, so we can't even tell other people"	Unknown roles
"Some of the Health Mentors assignments program gives us seems more like busy work that anything that would promote better understanding and cooperation between us." "We met with our health mentor once or twice and then after that it was just all busy work." "Well I feel like the assignments are really not that beneficial." "We are just given assignments and we don't know why or what it's for, or what's supposed to come out of it ." "It's like the busy work, we have to look things up online and find out the prices of things in the health plan. It was completely useless."	Program assignments seen as 'Add on' or 'Busy Work'

Focus Group Validation

The themes listed in the three tables above were validated by a second researcher and a member of the first focus group who listened to the audiotapes and concluded the comments were accurate. Similar themes have emerged in other focus groups of Thomas Jefferson students as well as students not in the Health Mentors program but who are attending other universities that have interprofessional education courses (Howell, Lyons, & Giordano, 2009). Finally, the themes also are nearly identical to statements made during the end of year Health Mentors course evaluations from students in both the first and second year of the program.

CHAPTER 6

DISCUSSION

In the United States there is an emerging trend toward a more collaborative model of education as a means of improving the quality of patient care. As a result of this study, student attitudes toward interprofessional education and the Health Mentors program have been made clearer. The methods section highlighted the rationale for choosing a mixed method approach. This methodology was extremely useful in finding a deeper meaning from the survey results and finding clearer meanings from the focus groups. The current chapter synthesizes the results from the survey and focus groups, highlights the benefits and challenges to the Health Mentors program, discusses the limitations of this study, introduces ideas for future research, and discusses applications and the importance of this study.

Chapter 1 discussed the barriers to implementing successful interprofessional education disciplines. These included cultural and historic differences between the academic disciplines, different course schedules, challenges to professional identity, funding, logistics, and clinical liability (Headrick, Wilcock, & Batalden, 1998; Rafter, Pesun, Herren, Linfante, Mina, Wu, & Casada, 2006; Reeves & Pryce, 1998). Some of these barriers were faced in the implementation of the Health Mentors program as well. The academic disciplines involved in the Health Mentors program have a varied course schedule, and finding a common meeting time has been a challenge. Exam and clinical schedules often vary greatly from discipline to discipline. This has been a point of tension for scheduling meetings, but has also been a point of learning. Students now are more aware of each other's schedules and degree requirements. Other logistical

concerns were a source of consternation. Students having to travel to meet with their mentors

caused anxiety for some, but others found the experience of seeing the mentor in their home or

living quarters very rewarding. It allowed them to understand the challenges of living with a

chronic illness more deeply. Despite some of these obstacles, the program is seen as a general

success, as the benefits to this program outweigh the barriers.

Interprofessional education has been accepted as being important to Thomas Jefferson

University's mission. Similar to other institutions, implementation of the IPHE programs, such

as the Health Mentors, has been both challenging and rewarding. The program forces a

multitude of departments to compromise on curriculum and educational goals, which requires

great cooperation. The faculty involved in the various IPHE committees have found new

opportunities to collaborate with each other and to learn more about how the disciplines differ

and how they are the same. From the student perspective, changing the learning environment

from the classroom to the patients' living quarters, and changing the teachers from traditional

faculty to the Health Mentor volunteers themselves, has been an eye opening experience.

Students' traditional perspectives toward learning and the goals of education have been

challenged. This program is seen as more than just a passing grade, but as a new way to learn,

and a meaningful experience.

The Health Mentors program is a rewarding first step in introducing the students to

working in interdisciplinary teams. Both the qualitative and quantitative data showed that

attitudes toward the theory of interprofessional learning were generally positive and remained

fairly consisted over the course of the program. These first year students are learning their own

identities, in conjunction with learning about the identities of the other students around them. There were very few differences found in attitudes between the disciplines over the course of the year. While some the quantitative data suggested that different professions thought differently toward some IPHE concepts, according to the focus group, students stated that they did not perceive stereotypes or hierarchies existed between the different professions. Learning about professional identities before concrete stereotypes are formed may be another benefit to this program.

The largest difference in scores between programs was found in the nursing students who scored significantly lower than other students on the IEPS. This academic discipline is slightly different than others in that it starts its clinical experiences much earlier. The reason for this difference may be an effect of 'reality' setting in for these students who are asked to participate in a real clinical team much sooner. Future research assessing all students at a later stage after each one has had clinical experiences will help elucidate this finding.

The focus group revealed that most students had positive attitudes toward IPE, but negative attitudes toward the specific logistics of the program. These were not discipline specific. The logistical concerns toward the programs did not overshadow the fact that they like the idea of IPE and recognize its benefits. These concerns were only discovered through the focus groups and validate the use of mixed methodology.

Students enjoyed meeting and learning from their Mentor and also enjoyed being exposed to other disciplines on campus. Prior to the program, students from other disciplines did not interact with each other on campus. Beyond academics, students enjoyed meeting other students

on a personal level. Interprofessional networking adds enjoyment of the student's college experience, as well as providing future professional networking opportunities.

The focus group revealed that students do not yet know their roles confidently and feel unable and uncomfortable teaching other students their roles. This was reiterated more clearly by the medical students who, unlike the other disciplines attending the focus group, were unable to give a clear definition of their role to the group. This relates to medicine students scoring lowest on the RIPLS scale than any other program on factor 2 professional identity, and factor 3 roles and responsibilities on the readiness toward interprofessional education scale. The results showed that medicine score significantly lower on the professional identity subscale than occupational therapy and pharmacy students, and scored significantly lower than all other disciplines on factor 3, roles and responsibilities.

After reviewing data from the Readiness in Interprofessional Education Survey and the focus groups the Health Mentors faculty needs to educate students on the different roles of each health professional before the start of the program. The lack of knowledge about ones role directly impacts the readiness toward interprofessional education. Students did not have a clear understanding of their roles and how they related to each other going into this program. This lead to students feeling insecure in front of other students and the mentor and not getting the most out of the experience. Despite this, as a result of this program some students expressed that they learned about their and other roles over time.

When conducting research on an educational program that one is heavily invested in, confirmation bias and selective thinking may be a cause for ignoring some negative results and

emphasizing some more favorable outcomes. The Health Mentors program however evaluated their program thoroughly through numerous quantitative survey measures, and qualitative measures such course evaluations and reflection papers. They have used those results to shape the future of their program. As of 2009, the program is in its third year, and from student and faculty feedback, they have re-tooled the program to address some logistical concerns. They have made strides to have a more uniform meeting time, have reduced the number of interactions with the Mentors, and have made efforts to bring the Mentors to campus to meet the students. It is hoped that these efforts do not dilute the program greatly.

Limitations

Limitations to this study included a pre-determined non-random population, a lack of control group, self reported measures, and lack of knowledge about specific patient benefits. All students at Thomas Jefferson University are enrolled in the Health Mentors program, and as such there was no student population on campus that was not involved in formal interprofessional education to compare if this program improved attitudes. Administering the survey to health care students and neighboring universities who have not gone through an interprofessional education program would have served to help this bias.

A further limitation of this study and a need addressed by the literature is the lack of knowledge about how interprofessional education actually benefits patients in a clinical setting, outside of a hot house environment. Measuring actual patient satisfaction and improved patient care is needed. Future research may involve focus groups with the Health Mentors to gauge their feelings toward the program and to see what, if any, benefits there are to participation.

Future Research

Ultimately, it is hoped that the interprofessional skills learned by students can be better transferred into clinical practice. This is a large goal of future research. Following these students longitudinally throughout their educational and academic careers and comparing them to students who had not gone through this program will be the best way to determine if the skills they have learned have translated to better team health care members. Measuring patient benefits and better defining these benefits would also be a focus of future research.

The issue of compliance and attitude change was addressed in Chapter 2. This idea suggests that forcing students to participate in programs, may not lead to attitude change. The results of this current study support this idea. Students' attitudes remained fairly stable over the year indoctrination of the program. Future research to studying students who volunteer to work in interprofessional teams rather than are forced to participate would tease out this issue.

There are many dedicated faculty members involved in the Health Mentors program, and many more who are not involved in any planning or curriculum activities of this program. Many of these faculty members work in additional clinical settings, and have 'real world' experience with interprofessional education. Surveying and interviewing both types of faculty members across disciplines is also an important future step in understanding the educational process and to determining barriers and challenges to this program. The Jefferson Center for InterProfessional education has begun surveying all faculty members in both the College of the Health Professions and the Medical College with the IEPS and RIPLS tools. Preliminary results of 61 faculty members in the College of the Health Professions reported a mean of 3.98 on the total IEPS and

a mean of 4.25 on the RIPLS survey. Students scored a mean of 3.96 on the IEPS posttest, which is very close to the faculty score. This may indicate that the faculty and students share fairly positive attitudes and serve to reinforce those attitudes. Faculty and student scores differed on the RIPLS however. At the end of the program the student mean RIPLS score was 3.8, .45 points lower than the faculty scores. While there is a difference in scores, it would be hoped that faculty are more 'ready' for interprofessional education and practice than students. In order for the Health Mentors to be a success, faculty needs to 'buy in' to the ideas of interprofessional education and teach it outside of the Health Mentors program. They need to become a champion for the process as well as the program and highlight the benefits of learning with, from, and about each other. The relatively high scores on both scales indicate that they are supportive of the ideas of interprofessional education.

To illustrate the relevancy and importance that interprofessional education is gaining in the United States, in August 2009, the Jefferson Center for Interprofessional Education are testifying to the US Advisory Committee on Interdisciplinary, Community-Based Linkages, on the evolution and creation of the center as well on the documented outcomes. The data presented in this dissertation was presented to this committee to highlight the successes and challenges of this program. It is hoped that results from this dissertation highlight student experiences in the Health Mentors program and can be used to improve curriculum, workshops, and health education practices both locally and nationally.

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APPENDIX A

Interdisciplinary Education Perception Scale

We are asking you to complete this voluntary, confidential survey so that we can enhance the
ways that students learn about inter-professional team care at Jefferson. Please enter your campus key so that we can
analyze responses in relation to other information such as demographics, academic progress, and career choice.

All responses are CONFIDENTIAL. The results will be reported only in aggregate statistical summaries.
The data will not be reported in any way that makes it possible to identify individuals. Thank you.
Jefferson Center for Interprofessional Education

Using CAPITAL letters (e.g., ABC123), please print your Campus Key.

Please use the scale below to indicate your level of agreement or disagreement with each of the following
statements by blackening the appropriate circle.

Response Definition: SD=Strongly Disagree D=Disagree N=Neutral A=Agree SA=Strongly Agree	SD	D	N	A	SA
1. Individuals in my profession are well-trained.	○	○	○	○	○
2. Individuals in my profession are able to work closely with individuals in other professions	○	○	○	○	○
3. Individuals in my profession demonstrate a great deal of autonomy.	○	○	○	○	○
4. Individuals in other professions respect the work done by my profession	○	○	○	○	○
5. Individuals in my profession are very positive about their goals and objectives.	○	○	○	○	○
6. Individuals in my profession need to cooperate with other professions	○	○	○	○	○
7. Individuals in my profession are very positive about their contributions and accomplishments.	○	○	○	○	○
8. Individuals in my profession must depend upon the work of people in other professions	○	○	○	○	○
9. Individuals in other professions think highly of my profession.	○	○	○	○	○
10. Individuals in my profession trust each other's professional judgment	○	○	○	○	○
11. Individuals in my profession have a higher status than individuals in other professions	○	○	○	○	○
12. Individuals in my profession make every effort to understand the capabilities and contributions of other professions.	○	○	○	○	○
13. Individuals in my profession are extremely competent	○	○	○	○	○
14. Individuals in my profession are willing to share information and resources with other professionals	○	○	○	○	○
15. Individuals in my profession have good relations with people in other professions	○	○	○	○	○
16. Individuals in my profession think highly of other related professions.	○	○	○	○	○
17. Individuals in my profession work well with each other	○	○	○	○	○
18. Individuals in other professions often seek the advice of people in my profession.	○	○	○	○	○

PLEASE CONTINUE ON THE BACK

APPENDIX B

Readiness for Interprofessional Learning Scale

Please use the scale below to indicate your level of agreement or disagreement with each of the following statements by blackening the appropriate circle.

Response Definition: SD=Strongly Disagree   D=Disagree   N=Neutral   A=Agree   SA=Strongly Agree

	SD	D	N	A	SA
1. Learning with other students will help me become a more effective member of a health care team	○	○	○	○	○
2. Patients would ultimately benefit if health-care students work together to solve patient problems...	○	○	○	○	○
3. Shared learning with other health-care students will increase my ability to understand clinical problems.	○	○	○	○	○
4. Learning with health-care students before would improve relationships after qualification	○	○	○	○	○
5. Communication skills should be learned with other health care students.	○	○	○	○	○
6. Shared learning will help me to think positively about other professionals.	○	○	○	○	○
7. For small group learning to work, students need to trust and respect each other.	○	○	○	○	○
8. Team-working skills are essential for all health care students to learn.	○	○	○	○	○
9. Shared learning will help me understand my limitations.	○	○	○	○	○
10. I don't want to waste my time learning with other health care students.	○	○	○	○	○
11. It is not necessary for undergraduate health-care students to learn together.	○	○	○	○	○
12. Clinical problem-solving skills can only be learned with students from my own department.	○	○	○	○	○
13. Shared learning with other health-care students will help me to communicate better with patients and other professionals.	○	○	○	○	○
14. I would welcome the opportunity to work on small-group projects with other health care students.	○	○	○	○	○
15. Shared learning will help to clarify the nature of patient problems.	○	○	○	○	○
16. Shared learning before qualification will help me become a better team worker.	○	○	○	○	○
17. The function of nurses and therapists is mainly to provide support for doctors....	○	○	○	○	○
18. I'm not sure what my professional role will be..	○	○	○	○	○
19. I have to acquire much more knowledge and skills than other health care students	○	○	○	○	○

APPENDIX C

FOCUS GROUP SCRIPT

Thank you for participating in today's focus group.

I'd like to start off by seeing what you think interprofessional health education is.

Can someone define it for me?

What is the first thing that comes to mind when you hear the words interprofessional health education?

I'd now like to read some definitions from the literature on IPHE to make sure we are all on the same page and have the same definition in our heads.

Interprofessional health education (IPHE) is generally defined as the interactive education and cooperation among various health care professions. The World Health Organization states that it is "Occasions when two or more professions learn with, from and about each other to improve collaboration and quality of care."

What do you think of that definition?

Do you agree or disagree with that definition?

What are some interprofessional health education experiences you have had either at Jefferson, or before you entered the program

Can you see yourself working in an interprofessional team as a professional?

One of the goals of the Jefferson Health Mentors program is to have students work in highly functioning teams and the learn roles of other health care professionals.

Do you think that you are achieving this goal?"

How would you describe your role to another individual at this point?

Can you cite a specific example of how you may have learned about roles of other health care professionals?

Can you cite a specific example of a positive outcome of this experience?

Can you cite a specific example of a negative outcome of this experience?

Do you like the Health Mentors program?

Did you ever talk to your family or friends about your experiences in IPHE?

Were those conversations positive or negative?

How do you think that this program will help your professionally?

APPENDIX D

FOCUS GROUP VERBATIM RESULTS

Focus Group number 1

February 13, 2009

Thomas Jefferson University, Philadelphia, PA

S = Student response

Moderator: I'd like you to name one or two words that come to your mind when I say IPHE

S   working together as a team
S   collaboration
S   cooperation
S   communication
S   learning a little bit about the other professions to see what they are responsible for, what they do
S   develop a respect for what the other professions do
S   make sure the patient gets the best care
S   learn how we are going to be interacting with each other (professions) in the future
S   developing trust with each other and other professions
S   able to work with other professions and trust what they are doing.
S   develop and foster a relationship with other professions since you usually don't get a chance to do that.

Moderator: Where did you learn this definition?

S   through the program
S   heard of it before but never really work with each other in other professions so this program gives you the opportunity to work with each other

Moderator: Can you see yourself working in an interprofessional team after graduating Jefferson?

S   yes

Moderator: In what capacity? How do you see yourself? What are the team members?

S   Hospital setting – with doctors doing rounds
S   Relations with surgeons and occupational therapists, physical therapists

Moderator: Is this program helping you learn about their roles?

S   not as much through the Health Mentors program
S   as much as previous jobs, for example, pts don't have ots in mentor group so learned about pts through past experiences

Moderator: Did your mentor know what your different roles are?

S   yeah
S   our guy knew
S   They are familiar with the practices of the profession. This program helps them understand what we do
S   at least in our group I feel our mentor didn't know, and didn't really care too much. Through me and the program, that it is so mixed it because we address her as a group its not clear.
S   I get that feeling too.
S   I think it was a plus – not only to hear his stories – but for him to see us interacting.
S   my mentor I am not sure if she knows a difference – I mean I 'm sure she knows pharmacists, pharmacy people, but she told us that we really really hope that we have these interprofessional groups because she said that in her hospital life there have been a lot of miscommunications because the one person didn't talk to the other one. Like you know, they weren't communicating. So this program helps communication better. To help the patients better.

Moderator: Do you agree and think you will be better communicators and help the patient?

S   ((Nods)) Yes.
S   our health mentor knew the difference between the professions and knew more than we did because she had seen them all before.
S   ((Laughter))
S   She knows because she's seen all of them before.

Moderator: Two stated goals – one about chronic illness. But I'm focusing on their other goal – 'to have the students work in highly functioning teams and learn the roles of other health care professions'.

Moderator: Are you working well together?

S   ((nods in agreement)) Yes.
S   it's a step toward it. You can't say it's perfect. But it's a step toward it. I'm sure in the future it will become better

Moderator: Is there any hierarchy that you notice? Is everyone respectful of each other?

S   I think it depends on who is in your particular group. different personal stories, particularly from pharmacy hear different things.

Moderator: It's a personal rather than professional?

S   ((nods in agreement)) Yeah.
S   It's a personality trait.
S   If someone is more dominating or more domineering(doesn't matter what profession)
S   I also think it has to do with the person's personality in general. Like some people don't care if they show up for meetings. But the majority of the group does care. Like there is a specific person who doesn't show up to meetings. this person is also older in age so maybe he might not understand that I think he just thinks we are being babied by having to have all these group meetings and stuff. But most of us always meet and there is no hierarchy.

Moderator: Everybody respects each others decisions and has an equal voice:

S   Yes. ((nods in agreement))
S   I think people are influenced also not by their personality, but by their school. For instance, the medical school doesn't have organized way of calculating the Health Mentors program. I know that the pharmacy and OT group – I don't know about he pt group assignments but we all have other assignments that we get school credits for outside of the Health Mentors program. Med students don't.
S   It provides more of an I guess incentive
S   Right because we need to get our work done and they are just like just something they are we are supposed to be involved in.
S   And that really hinders the group
S   So it makes it completely rely on the personality – and is not something – there no outside reason for them to do it.

Moderator: What happens if they don't do it?

S   To them – nothing.
S   Nothing – (((Laughter)))

Moderator: So they are doing it out of the kindness of their hearts?

S   well, there has to be some kind of thing for them, but it's not a % of their grade
S   it is just assignments in some kind of group that they have (small group), so they have assignment and they have assignments. but it doesn't count into their % of grade

Moderator: How high of a percentage of a grade does it count for you?

S half
S pretty high
S half of the class we have
S one credit , half of that.

Moderator: There is pressure to do well then?

S it counts
S yeah ((nods in agreement))

Moderator: Can you cite a positive or negative example of your experience so far

S I think for me one of each is that the mentor herself has been great. Like meeting her and stuff. I feel like it has been very difficult though, getting everyone together, because no one's schedule is the same. Apparently there is a college activity time, but not everyone has off on that time. So I don't know what that means. For instance we tried to get together this past week, and apparently the med students don't have off at all during that time, or something like that, or they had something else going on. And one of the nurses, they had a clinical going on so they only have one hour of that set time. So that has been a frustrating part of it.

Moderator: Finding time

S yeah.
S ((nods in agreement))
S If there was a set activity time that everyone had off then that would be ligit – that we could meet for an hour – but [inaudible] there isn't. We have it on our schedule, but not on everyone else's.
S I would say that is one of the most frustrating things also not getting together with ourselves but when we try to get together with our mentor. When we find a time that works for our group, finding a time that works with them is also very difficult. And getting a hold of them. not everyone answers phones or is available.
S One thing I don't like at all is that we have to travel to get to our mentor. And even the half hour one hour commute, takes a lot of time out. I have to come on a Saturday or a Sunday, meet for 2 hours, and travel for one hour or two hours. And that takes up half of my day. I would like it . It would be better I think if some how the mentor could be on campus.
S ((nods in agreement))
S So maybe we could meet them at a certain time that they are all here. Like the college activity time. It would be more convenient.

Moderator: Have them come to you?

S   Yeah. There is so much going on with the schools. You don't have that much time, so it's really frustrating to meet with everybody. Then according to the time with the mentors.

Moderator: How long do you spend with the mentors in each session?

S   Half hour. Forty five minutes. Yeah. Have to travel to see them.
S   Yeah it depends on your mentor and how much they want to talk. So an hour. Hour and a half usually.
S   And like when I travel to see my mentor it is in a pretty dangerous part of Philadelphia and we have to take public transportation because none of us have a car. So when in the winter time when we were leaving it was dark and she was scared for us. and she lives there.
S   (((Laughter)) .
S   I don't know. I think it would be better if they came on campus.
S   ((nods in agreement))

Moderator: Are a lot of them mobile?

S   My Health Mentor is, but she uses a walker. But I can understand that it is hard for them to get around anywhere.
S   My Health Mentor is blind, but she is very independent. So I think she could I think it would be a strain on her.
S   My Health Mentor is wheelchair since she was a child, but she loves to go out and stuff, so she would love to come here.

Moderator: Do you think there are any benefits to seeing them in their home environment?

S   Yeah.
S   I meet my mentor at a senior community center and it was nice to see you know that is where she spends a good portion of her time.
S   Nice to see them in their element.
S   I saw my Health Mentor where she lives and she was able to show us the kitchen at Kate's place. And she was showing us why not everyone can use the kitchen because of the heights of the counter tops. She isn't in a wheelchair now, but she was a couple of times, but when she was she couldn't use the kitchen.

Moderator: I heard a lot of, heard a little bit of mixed and negative, I don't hear overwhelmingly positive experiences out of this.

S I think if it was more convenient it would be more positive.
S I think in theory it is great to its just that when you get down to it and have to schedule stuff it's a lot harder.
S Need more time
S Very frustrating.
S It's overwhelming because we are all first year students, so we have a lot of other things to get used to and this is thrown into the mix and we don't know enough about, well some of us don't know enough about our own professions to start learning about other people's professions. Maybe the timing is just a little bit off, but otherwise it is good.

Moderator: Feel like you weren't ready for it?

S Kind of.
S We don't know our professional identities enough to portray it to others.
S Yeah
S People in my group ask me, oh this is the pharmacy student, they'll ask me about what tier this drug is on, and I don't know.
S ((Laughter))
S They do that in our IPPE too. I have no idea.

Moderator: So maybe that will change next year.

S Yeah.
S I think it would be more. Better if it was second and third (all nod).
S We would know much more.

Moderator: Is it teaching you about your roles?

S Not yet.
S It's just teaching us how to be a team. Yeah
S How to be a team player and give up your time and other things like that. Which is good. But not really about our roles.

Moderator: Do you like the program?

S Do you like the idea or do you like how it is working?

Moderator: Give an answer for both

S I think the idea is really great. Wonderful idea. As soon as the kinks get worked out it will be really helpful, its just a little disorganized.

S   Like I said in theory it looks great on paper. Looks great on paper. But in practice it still needs work.

Moderator: Do you ever talk to your family and friends about your experiences?

S   It's kind of difficult because you don't know how much information you can divulge. So I don't discuss the details.

Moderator: Do they know you are part of a program like this?

S   Yes.
S   I told my friends about this program because they are in med school or about to be in pt school. I was telling them how we have this program and how it would be more helpful if it was more convenient and organized. I've talked about the program, not my mentor specifically.

Moderator: How do you think the program will help you professionally?

S   I see that there definitely has to be an open communication between the different departments and areas in what people do and what they don't do. Even if scheduling and stuff like that.
S   I think it's good because it makes you more aware that there are people in other professions that can be a resource for you.
S   I wonder. I wonder for myself if it will help me professionally. Because of some of the things that were brought up – like how our roles are not really defined. So when I go, I just feel like a group of students, I don't feel like a professional. So yeah, I wonder about that really.
S   When its all said and done. Besides being in a group, learning how to talk to other people and apply it.
S   Yeah like with the medical student, who is our team now, I can see his limitations and pick them out, but like 3-4 years from now he might be more trained and more developed and the roles might change. But its good to get a feeling for it now.

Moderator: Do you have a good idea of your clear path? What 'you'll be when you grow up'

S   ((Laughter))
S   Not yet. No
S   Still doing another program. Still learning and trying other things.
S   See what we like and go do different things in pharmacy (IPPE).

Moderator: Do you think Interprofessional teamwork benefits patient care?

S   Lower medication errors
S   Crazy that its taken this long to come into place
S   Learn a lot about roles of different professions and how they have evolved, even w/in the profession.

Focus Group Verbatim Results

Focus Group number 2

March 19, 2009

Thomas Jefferson University, Philadelphia, PA

Moderator: Thank you for participating in today's focus group. I'd like to start off by seeing what you think interprofessional health education is. Can someone define it for me? What do you think is interprofessional health education?

S   I guess getting exposure to other people
S   Being able to work and collaborate with everyone to accomplish one goal.
S   Team
S   Teaches you team work.
S   I think it also kinda focus on educating you on what the different goals are in the different professions so that you better understand who should be accomplishing what in order to benefit the patient.
S   Better understanding. I know, I don't know a lot about PTs or OTs or pharmacists, so just, explaining it to all of us so we can better know the roles.
S   In going kinda with what most people have said, finding what each person does and how you fit into it.
S   It helps prevent people from trying to do the same thing, or overlapping of efforts. That way you can make better referrals about what other professionals do. You can refer them.
S   Yeah it's like sort of along the same lines of what I was going to say. It helps you know your role, your own role, and your own limitations, and know where someone can overlap and partake.
S   I would say it's a collaborative team to kind of provide the best care for patients and to improve quality

Moderator: Very good. I think you are on target with the goals of what the Health Mentors program too.

I'd now like to read some definitions from the literature on IPHE to make sure we are all on the same page and have the same definition in our heads. Interprofessional health education (IPHE) is generally defined as the interactive education and cooperation

among various health care professions. The World Health Organization states that it is "Occasions when two or more professions learn with, from and about each other to improve collaboration and quality of care."

Moderator: Do you agree with that definition as now you are working as interprofessional teams? Do you see that you are learning with from and about each other?

S   Sort of

S   ((Laughter))

S   Theoretically it's set up to be that way. They try to but in terms of execution it's been tough because we are all in different stages of our educational careers. So for us 1st year med students we are just doing basic science so we have no idea about clinical stuff, versus nursing – they are already in the hospital or first year pharm, so it's tough because we ourselves don't know our roles, so we can't even tell other people 'oh yeah as doctors we are going to be doing this', it's hard because we are all at different levels. So it's hard to know our roles.

Moderator: Does everyone agree with that?

S   Are you talking specifically about the Health Mentors program and the stuff that we like done or learned from it?

Moderator: Yeah we can talk about that specifically.

S   I think the program could be more organized a lot better. I feel like there are some roles that were not well defined in terms of the different disciplines for at least the lectures and the stuff we got about it. There were too many questions unanswered about roles. And what they other professions still do.

Moderator: Ok. So you are still learning about your own roles and you are learning about other roles.

S   Not only that but some of the Health Mentors assignments program gives us seems more like busy work that anything that would promote better understanding and cooperation between us.

S   I agree

S   We met with our health mentor once or twice and then after that it was just all busy work.

S   Um, Well I feel like the assignments are really not that beneficial – like you said busy work – but I feel like what I've gained most from it was just the interaction with our mentor. Basically from his point of view. We asked him what he looks for in a health care provider. He told us about some situations he had and told us about how when he is looking for a doctor what he looks for and how beneficial he finds. It's nice to know a person's stand point out there, and what they think a pharmacists role or nurses role

might be. So I found that interesting. Right now we are in the beginning stages and right now we are still learning what our professional behavior might be, so we can curve it to where, cause like, honestly I know what I want to be as a health care professional, but I mean, right now still its still in the beginning phases, we are just doing class work and no clinical work, so I feel like we can still modify our behavior.

S   Yeah I totally agree with what you said, I think one of the big benefits have been from the health mentor themselves. But also I know people who have had not negative, but Health Mentors who love their doctors and just think that we are really great and for going into the health professions and they don't have a lot of criticisms to offer, but mind has which I really appreciated because I think its really helpful to hear in which ways health professionals have taken missteps and really hurt their patient in the long run. Emotionally physically whatever. And I think in terms of the work amongst the students, in my situation, it has been beneficial, but I totally agree that most of us don't know what our own roles are. And there wasn't ever in the beginning orientation stuff, I just wanted someone to sit me down and say 'the is OT and this is what they do and this is what their training consists of' and PT and the same for all the other disciplines and we never got that. And then we are looking to the students and they are like 'we don't really know', because they don't know yet so I think its kind of like we've been learning together but I think it could be much more productive if they modified certain things.

Moderator: So as a team how are you working together um, in visiting your mentor?

S   In visiting. I think the visiting is like the only useful thing I've gotten out of the program so far. It's like the busy work, we have to look things up online and find out the prices of things in the Jefferson health plan. It was completely useless. we just sat there for ten minutes and then just wrote it down. Literally. And like talk about it. There was no team aspect. We could of just done that. There wasn't any reflection. The write up for the second meeting was write down the health history there was nothing, I don't know I didn't find that helpful. And now we have to make a poster?! We're all supposed to be graduate or undergraduate students and I didn't even make a poster in college. I haven't made a poster since middle school.

S   ((nods, laughter, eye rolls))

Moderator: What do you have to make a poster on?

S   I don't know. anything.

S   ((Laughter))

S   Our health mentor.

S   We're contributing it to our mentor.

S   It's pretty much just our experience over the program.

S   Are we giving it to our mentor then?

S   ((Laughter))

S   Yeah they come in and look at it.

S   You set up… they are going to come in our last day and they all get together and look at our posters about them.

S   I think that just this speaks to the lack of direction, lack of concrete objectives. I think we are just given assignments and we don't know why or what it's for, or what's supposed to come out of it. That is an overall theme. And when we visit with our health mentor, it's a little bit better because we are trying to learn from them. But then when it's just the group of students those things kinda get lost.

Moderator: So we you visit your mentor as a team. I heard some positive things about that. Can you tell me about the visit? Who initiates the visit?

S   Each team selected a mentor to act as a liaison. And there has been some positive and negatives about that. I know some team liaisons have and have scheduled the times based on what is good for them and not the team. Some liaisons have made sure it works for everybody. But basically that is the way it is set up. A lot of mentors are not home during the day or are unable to make long distance phone calls and that has been an issue too. because almost all of us have long distance plans because we're from all over. It's been really disorganized.

Moderator: Ok. Contacting the mentor?

S   Yeah – going off of that even before you have the meeting setting up the meeting can be a huge hassle. Right now I think we still have the two hours on Monday. We didn't have a set time for Health Mentors, so trying to shove it into our schedule somewhere was kinda a problem. And we finally had a time, but that didn't work for everyone. It didn't work for all the other schools. The group is getting frustrated trying to set up a time and when you get together trying to figure out what the assignment is when you are going to turn it in, who's going to type up what and its just not organized in presenting the assignment and that just plays out in the entire process.

Moderator: So when you meet it's not really organized?

S   Yeah and there is a lot of frustration from everyone's part and at the same time we are supposed to be learning from each other but you just want to get done and get out.

S   ((nods in agreement))

S   And then you lose the point of learning from each other.

Moderator: So when you meet with your mentor is it more organized? How are the conversations? Who initiates speaking?

S   I guess that depends on your group and your mentor.

S   ((nods in agreement))

S   We've had a really good experience. It wasn't really a question/answer session. It was more a conversation and we really felt we got to know her. but um I can't say the same for other groups.

S   Yeah my mentor is a great person and we usually do conversations she goes really far off topic and

S   ((Laughter))

S   its hard to get her back on to what we are trying supposed to get out of it.

Moderator: So is their team work when you are actually meeting with your mentor? Are you working in a team?

S   ((nods in agreement))

S   Yes,

S   Yeah,

S   Usually.

S   I think when we all meet with our mentor it is focused because we know what we have to get done

S   ((nods in agreement))

S   And we know we have to act professional. But when we are doing the outside assignments, nobody cares. Everybody is frustrated. We just want to get it over with because we have so much other work. And everyone's schedule is so different. I think that if we had a specific time that everybody that all the schools had one specific hour. That would help us so much. Because my liaison doesn't do anything and I have to initiate it.

S   About the hour. Some of the mentors can't come to the school, so if we want to go see them, we have to take our own transportation and usually just going back and forth takes the hour. So by that time we've used the hour and you have a half hour or you cut into class time or you have to go in the evening to see them.

S   My group has been steadily been doing it on the weekends. Cause like my mentor lives in North Philly and can't travel at all and stuck to a wheel chair and really can't get out so we usually wind up going to her place.

S   What's interesting about my mentor is that we actually have to go to his apartment to go visit him because it's hard for him to move around. But his wife is actually part of the health mentor program as well so whenever we go there she's there and we will be directing our questions to him and she'll be answering them for herself. So basically the first time we visited our mentor it took us like 2 hours. So then the second time we made sure we had a game plan going on. So whenever his wife got off topic one of us would like come in there and redirect the question and we had to do that a few times. So that was pretty interesting.

S   I don't know what they (sic: Health Mentors) think the objectives are and stuff. She thinks it's completely organized and gets all this information. But we don't know what's going on. And sometimes we think she knows more about the program than we do. But she always has her doctor's prescriptions waiting for us. And has test results. And always wants us to review it. but. We are always coming with our own things that we have to fill

out and we don't really understand it yet. We don't really know and we really can't discuss it with you. She thinks she is giving us really useful information when we really have other goals that we need to obtain. So its something we have issues with right now. also I had way longer forms than anyone else in my group. I don't know how it is for ot, but for pt, the forms are way long. So I told my group I would fill out the forms and give them whatever information they needed.

S   Yeah, I got the same impression from my pt student in my group and the nursing student. I feel the programs aren't balanced between the schools. The pt school had to right essays and reflections.

S   Yeah we had to do so much work for it.

S   For us (med student) we had to do nothing. We have busy work assignments but that's it.

S   ((nods in agreement)).

S   It's not really required (med student). They don't check anything. We don't hand anything in. so between the schools its been so unbalanced.

S   OT student: and that's been a real issue. Especially with my group members. Because its me and my pharmacy student who really have to get these things done and in and the med students, no offence (none taken), don't have to do anything they don't hand anything in. so they are not really proactive.

S   (((Laughter))

S   I'm a liaison so its on me and its frustrating and I'm on everyone and you know, we're in grad school, I shouldn't need to be on your back everyday getting these things done. So I'm trying to make sure I get it done and who ever else in the group needs to get it done.

S   Med student: And also just to go back to your point about the forms. I remember it was a big controversy in our group because the nursing student the form itself (intake form) seemed not to apply to our health mentor. It seemed redundant and basically he had one question to ask and that was do you have a dnr. And that was all he was able to ask because the form itself didn't give him any help. Where as for the med student the form applied fairly well, for our ot, her form was 5 pages long and

S   ((Laughter))

S   it was the same questions over and over.

S   Pharm student: the medical students and the pharmacy students had the same form. So as a team we had to divvy it up ourselves. It could have big more organized where they could have stated "ok pharm you do this". As it is we are just doing it as we like. And there is no organization what so ever.

Moderator: The time management is up to you. So that's tough?

S   Med student: It's so, and this isn't something that they can control for, but its so based on who's in your group. My groups on top, my liaison is great, everyone responds fairly quickly and that hasn't been an issue. But in the meetings, there are definitely stronger personalities than others and you have a limited amount of time, and I feel bad, but I can't force someone to talk. And so I definitely feel like our nursing and pharmacy student who are more soft spoken, and I haven't learned as much from them because they

are not fighting for their time. Me and the pt student have bigger personalities and try to include them but it's tough.

Moderator: So you don't think its discipline based, its more personality?

S   I think it's definitely a mix. The forms they were all over the place and some of them seemed inapplicable to what we were doing, but I think another part of it is we don't have the knowledge because we don't know exactly what our fields are and on top of that if you have stronger personalities they're going to dominate the meeting.

S   Med student: Just as an aside, we have a couples and family therapy person, and nothing we do has anything to do with the couples and family therapy student whatsoever. Its very frustrating for her. Most things we do veers off on a tangent from what she is doing and throws the group off balance. And her form was an extremely personal one and she couldn't ask half the questions at the meeting, she had to call the mentor later and ask if she could find these things out. It was too personal for that setting.

Moderator: Are you learning through frustrations about each others roles? like are you learning about couple and family therapy issues from her frustrations and the other long forms like PT? are other members of the team now aware of PT's issues?

S   PT student: I think so yeah, cause that was like a big thing. A lot of people didn't understand what PT was and even Pharmacy either so we've learned through that too. I don't feel like they been frustrated, but yeah we've learned each other's roles in that particular way.

S   Med student: But at the same time I think it is also detrimental because our OT didn't ask half the questions so I wasn't able to learn as much as like I might have been able to because the questions went on forever.

Moderator: Can you see yourself working in an interprofessional team as a professional when you graduate?

S   Yeah
S   Oh yeah
S   We have to
S   ((Laughter))
S   There is no choice
S   I have no choice

Moderator: Do you think this program is helping you as a professional?

S   I think its good I think it can be better though
S   The idea is good, the application of the idea has not gone over well.
S   ((Laughter))

S It's relatively new, and there are a lot of things that they have to work on. Like the whole program pretty much.

S ((Laughter))

S Med student: It's a great idea, I want to go into emergency medicine, and that's a team, and you can't do it with out teamwork and interprofessional skills, so its something we all have to learn, its just like the way we are trying to learn it is not working.

S Med student: You have to know each other's role to work in an interprofessional team, and not to offend anyone, but I don't know what an OT does. We need a 30 minute lecture or slides on this is what this person does. This is the role of this person. This is the role of you.

S Med student: And how it's different from PTS – cause I don't know.

S And there has to be team building exercises, because looking things up and writing things down together doesn't in any way build a team.

Moderator: One of the goals of the Jefferson Health Mentors program is to have students work in highly functioning teams and the learn roles of other health care professionals. Do you think that you are achieving this goal?

S ((Laughter))

S Med student I don't think either of those goals were achieved. They don't function highly and I don't know the roles.

S Yeah.

S Pharm student I think our group does. We're all pretty enthusiastic about it and even our med students they know they don't have to do it, but they realize its what you make of it and they want to make the best experience for everyone. They are pretty into it and it makes it better for all of us who have a little bit more riding on it and makes it a little more enjoyable.

Moderator: How would you describe your role to another individual at this point?

S ((Quiet Laughter))

S Pharm student ok. I can. I would say that we cover medication aspects we look at prescriptions and what they are taking, if its suitable, if they have any interactions, if they are misusing medicines, we counsel people on how to take medicine, what would be the right therapy for their disease state, different devises to use and how to use them.

S Med student: to make people better. That's seriously the most I know. we really have no idea.

S ((Laughter))

S OT student: It's hard to give a concrete definition, but its evaluating their environment (patient) and look at their safety. We go to their houses and evaluate safety, we look at cognition, we asses, screen and evaluate cognition, we will be able to offer the assessment and figure out a treatment. We figure out what they want to do, because it has to be meaningful. If they don't want to do it, they won't do it, and nothing will get

accomplished. We upgrade and downgrade activities based on physical and mental ability.

S Nursing: generally, 'the nurses are the patient's advocate', I find from that, we have a general knowledge of all the professions and try to feather it together. Pretty much make sure the patient gets the best care possible from all the other professions.

S Pharmacy: the pharmacists can benefit patients as far as medication adherence goes. The pharmacist can educate the patient on how you are supposed to take the medication and if they are having a lot of side effects from it they can possibly recommend another medication that can benefit the patient more.

S Med student: I feel that everyone knows what a doctor is, but it is so hard to define.

S PT: basically we do a lot of gross motor skills and rehabilitation and we do activities to get them back to daily living. Anything that limit their function, we try determine what is limiting their function, what we can do to make it better, strengthen and stretch muscles, capsules, joints and stuff, put them through a treatment regime and then put them on home exercise programs. Basically making their quality of life better for whatever the issue was. We can also do preoperative and postoperative stuff. We do a lot with gait and walking devices, how to position yourself in bed... We treat children, elderly, athletes, the gamut.

Moderator: Can you cite a specific example of a positive outcome of this experience?

S OT: Although my group has not functioned well at all, looking into the future, everyday my supervisor she has an interdisciplinary meeting every Thursday, so there are always different kinds of people coming to this meeting, and I'm like 'oh look everyone is functioning together. Everyone is talking!' even though my group isn't the best, in the future it's all going to work out. So this is a good experience.

S PT: I just really enjoyed working with my mentor and learning the different experiences she has had with doctors over the years. And she is thrilled when we come and I like visiting her. She's always like 'get me those A's I'm so proud of you'. She's so motivating. I feel like I do this for her and cause its part of my grade, but that is one of the positives, meeting this wonderful woman who encourages me. And I've learned a lot from her.

S Med: It's definitely opened up the communication, so we at least thinking about this stuff. If we didn't have it I wouldn't have even thought about working with OTs PTs and that is important. It has open up a conversation so we can at least think about these things and we realize that we are going to need this in the future. We can start with somewhere.

S Learning what everyone does and how they can be useful to each other

S Yeah.

S Med: Meeting people that you would have never met before has been a good thing. Whether you like them or not.

Moderator: Can you cite a specific example of a negative outcome of this experience?

S   The poster. It's almost demeaning. Obviously you want to do something nice for the mentor and that's fine but to have that and a paper …

S   I think it would be nicer to write a paper about our experience thanking them.

S   Right yeah

S   It would be more mature

S   Right, exactly.

S   It's their name in puffy paint and glitter honoring them.

S   One negative thing is that my mentor had a heart attack before thanksgiving. And I just found out. I think we should have more interaction with our mentor than we do.

S   But it does get hard because that brings us back to visiting our mentor and the travel.

S   Yeah

S   Calling the mentor up cold to set up the initial meeting was awkward, it would have been nicer to have met them first. If they were all their at the initial meeting.

S   Another negative experience was the orientation thing, the passport. The quiz was on 2 different floors. The pa system was horrible. It was so poorly organized. There was supposed to be two hours set for this but you only needed to be there for 2 minutes. Complete waste of time.

S   ((Laughter))

S   Going off that – the timing of things matter. We had an exam and we didn't want to be there. And one time we had a group meeting, but the nursing student had an exam that night, so they were so frustrated. The timing… just putting it when it's a little favorable to most people, like not right before an exam.

S   For pharmacy its hard because we have 1 test per week all year pretty much.

S   PT: We get slammed too.

S   Pharm: For us to make meetings it's tough because of tests.

S   Pharm: And our schedule is so different because the med students only have one class at a time

S   Med: YEP – YEAH

S   Pharm: and we have like 7

S   PT: We have like 8.

S   Med: thaaaat's right.

S   ((Laughter))

APPENDIX E

PILOT STUDY

From September 2007 to April 2008, 474 first-year students in medicine, nursing, occupational and physical therapy participated in a year of the Jefferson Health Mentors program. In April 2008, during a Health Mentors workshop these students were asked to complete the two survey instruments (RIPLS and the IEPS). Of the 474 in the program, 417 completed the survey (85%). The total raw scores on these instruments were computed. Items 10,11,12 and 17 on the RIPLS were reverse scored.

An analysis of variance showed that there was no significant difference by program or gender on the total score on the RIPLS. There was no significant difference across programs or sex on the Teamwork/Collaboration and Professional Identity subscales of the RIPLS. However, there were differences across programs for Roles/Responsibilities where medical students scored higher ($p<.01$) than students in the other three programs. The Roles/Responsibility factor results suggest that medical students believed more strongly that the function of nurses and therapists is mainly to provide support for doctors. Both nursing and occupational therapy students also scored higher than physical therapy students on this factor. Medical students also appeared to have a better understanding of what their professional role would be. Finally, it was found that medical students have a stronger belief that they need to acquire more knowledge and skills than other health care students

There were significant differences on the factors on the IEPS survey instrument by program but not by sex. Further, overall total scores were not clinically significant by program or sex. There were no differences among the programs on the factors Teamwork and Collaboration and Professional Identity.

The results of Scheffe comparisons indicated that the medical students' mean ratings were significantly higher ($p<.01$) on Need for Cooperation as compared to the nursing and occupational therapy students' but not physical therapist. Further medical students' mean ratings were significantly higher (p<.01) on Competence / Autonomy factor as compared to the nursing and occupational therapy students' but not physical therapist. The mean for the medical students' ratings was significantly lower (p<.01) than the ratings made by each of the other three groups in Actual Cooperation, indicating that the other groups report actually cooperating more than first year medical students. Finally, medical students' ratings were only significantly higher (p<.01) than occupational therapists on the Understanding Others' Values factor. To summarize the results, medical students consider themselves more well trained, autonomous and well thought of by other professions than nursing and occupational therapy students. Physical therapy students consider themselves more well trained, autonomous and well thought of by other professions than occupational therapy students. Medical students perceived that there was greater need to cooperate with other professions and must depend on the work of other professions than did nursing and occupational therapy students. Table 1 shows the means by program for the total score on the IEPS and the RIPLS.

Table 1: Means and Count by program for the IEPS and RIPLS

	N	IEPS Mean Total Score	RIPLS Mean Total Score
Medicine	243	4.04	3.83
Nursing	92	3.98	3.84
Occupational Therapy	43	3.95	3.77
Physical Therapy	39	4.19	3.99

A Pearson correlation was computed to determine if the two instruments correlated with each other to see if there was a relationship between readiness for IPHE and attitudes toward IPHE. Small significant correlations were found between the two instruments on most factors. Total scores on the IEPS and RIPLS did have a significant correlation $r(415) = .27$, $p < .01$. Table 2 shows the correlation coefficients for the factors and total scores.

Table 2: Correlation Coefficients on the RIPLS and Total IEPS survey

Relationship of Total IEPS and:	r	Sign
Teamwork/Collaboration: willingness and a need to share knowledge	.32	.0001
Importance of establishing a professional identity	.22	.0001
Attitudes that some roles should be subservient to others	.01	ns
Total RIPLS score	.27	.01

A regression analysis was conducted to investigate if scores on the RIPLS predicted scores on the IEPS showed that the teamwork factor on the RIPLS was the only significant predictor β= -.12, t(415) = 3.98, $p < .05$, and it accounted for 10% of the variance, $R^2 = .10$, F(2, 415) = 47.78 $p < .01$. These results are not surprising given that the highest correlations between the IEPS and the RIPLS factors was found in the area of teamwork.

The pilot study was a posttest design and it found that after students went through the Health Mentors program there were generally positive attitudes toward interprofessional education on all subscales. The findings also suggest that students participating in an IPHE program have positive attitudes about the experience and that there is a slightly positive relationship between readiness for interprofessional learning and attitudes toward interprofessional education.