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An Exploratory Study Examining Interprofessional Collaboration Between Occupational Therapy and Physical Therapy Practitioners and Students

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AN EXPLORATORY STUDY EXAMINING INTERPROFESSIONAL COLLABORATION BETWEEN OCCUPATIONAL THERAPY AND PHYSICAL THERAPY PRACTITIONERS AND STUDENTS

by

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A Scholarly Project

Submitted to the Occupational Therapy Department

of the

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In partial fulfillment of the requirements

for the degree of

Master’s of Occupational Therapy

Grand Forks, North Dakota

May 15, 2010
This Independent Study, submitted by Matthew Cappetta and Roberta Carrlson in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

[Signature]

Faculty Advisor

4-21-2000

Date
Permission

Title
An Exploratory Study Examining Interprofessional Collaboration Between Occupational Therapy and Physical Therapy Practitioners and Students

Department
Occupational Therapy

Degree
Master’s of Occupational Therapy

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Abstract

Purpose: The purpose of this research was to explore the relationship between occupational therapy and physical therapy students and practitioners. Historically there has been limited research conducted that pertains specifically to the interprofessional collaboration of occupational and physical therapy students and practitioners. For the purposes of this study the researchers examined the relationships between occupational and physical therapy students, the relationships between practicing occupational therapists and physical therapists, and differences and similarities of their relationships with respect to variables thought to impact interprofessional collaboration.

Methods: A non-experimental survey research design was used to gather and analyze information from the participants. All of the participants completed a demographic survey which sought information pertaining to variables related to interprofessional collaboration such as time spent with other profession, physical environment of departments, interprofessional education, etc. Students completed the Readiness for Interprofessional Learning Scale, a survey with questions pertaining to their readiness to learn about interprofessional collaboration. Practitioners completed the Index of Interdisciplinary Collaboration, a survey intended to gather information regarding the effectiveness and extent of collaboration between therapists. Six-hundred and thirty-six participants completed the survey and included 305 occupational therapy students (OTS),
256 physical therapy students (PTS), 47 occupational therapists, and 28 physical therapists. Following data collection, descriptive and inferential analyses of data were completed.

**Conclusions:** Relationships were discovered between OTS and PTS readiness for interprofessional learning and gender, time spent with other profession, class size, degree sought, and physical distance between occupational and physical therapy departments. Relationships were also found between the therapists' extent and effectiveness of interprofessional collaboration and age, work experience, time spent with the other profession, and physical distance between occupational and physical therapy offices. Greater readiness for interprofessional learning was demonstrated by OTS when compared to PTS. There was no difference for extent and effectiveness of interprofessional collaboration between occupational and physical therapists.
Chapter I

Introduction

In the diverse field of health care, health care professionals must work together to ensure the best quality of health care for patients. Barrett et al. (2007) reported collaboration of healthcare workers was beneficial to patients and healthcare providers. The authors wrote that through interdisciplinary collaboration, providers are able to offer better access to more services, be more proficient with available resources, and offer shorter wait times and more inclusive patient care. Firth-Cozens (2001) also indicated that teams are important when creating safe patient care. She reported that good teamwork was associated with decreased stress levels in its members, thereby leading to fewer medical errors. However, Firth-Cozens further asserted that as in all social contexts, alliances are formed in healthcare. In alliances individuals tend to forgive mistakes of the members of their own alliance more quickly than the mistakes of others (Firth-Cozens, 2001). Strong alliances within one’s own profession may contribute to fewer errors and/or near misses being reported and increased competition between groups of professionals (Firth-Cozens, 2001). Reporting of fewer errors and competition between professionals may lead to decreased patient safety. Therefore, it is important to understand the dynamics between professionals who are often included on the interdisciplinary team. Although there exists a large body of research on interprofessional health care, little study has been conducted within the field of allied
health, more specifically, the relationship between occupational therapists and physical therapists.

In a study examining the roles of health care workers, Nancarrow (2004) found that occupational and physical therapist roles were “most closely aligned.” (p. 141). Although it has been identified that occupational and physical therapist work closely together, the research examining this relationship is limited. Of the existing research, the majority of it has been dedicated to the relationship between occupational and physical therapy students. Since, occupational and physical therapists’ roles are aligned closely and they tend to work in similar settings, a need for research examining this relationship exists. Researchers must examine the relationship between the two professions exploring such things as roles of each profession, the extent of collaboration, and factors impacting the relationship. Research in these areas could be used to improve the collaboration between the professions and thereby improve patient care.

**Purpose of Study**

The purpose of this research study was to explore the relationship of occupational therapists and physical therapists in clinical and university settings. We were interested in researching the relationship between occupational therapists and physical therapists in the clinic, the relationship between occupational therapy students (OTS) and physical therapy students (PTS), and differences and similarities in the relationships between members of each profession with respect to their work or academic environments.

**Research Questions**

Throughout this study, we sought to answer the following questions: What is the relationship between readiness for interprofessional learning and: degree sought, physical
proximity of therapy departments, number of classmates, year in program, age, and time spent interacting with the other profession. Is there a difference in readiness for interprofessional learning when considering profession, gender, or completion of Interprofessional Health Care (IPHC) course/workshop? What is the relationship between reported extent and effectiveness of interprofessional collaboration and: work setting, patient population, college degree, physical proximity of therapy departments, number of therapists per facility, years of clinical experience, age, and time spent interacting with the other profession? Is there a difference in extent and effectiveness of interprofessional collaboration when considering profession, gender, or completion of IPHC course/workshop? See Appendix A for a complete list of the research questions. We anticipate that exploring the perceptions of OT and PT students and practitioners will provide information that may be used to enhance the collaborative relationships between these professionals and ultimately result in improved client care.

**Population**

Occupational therapy (OT) is defined by the American Occupational Therapy Association (AOTA) as “a science-driven, evidence-based profession that enables people of all ages to live life to its fullest by helping them promote health and prevent—or live better with—illness, injury or disability” (AOTA, n.d., ¶ 1). According to the United States Department of Labor (USDOL) (2009), in 2008 there were approximately 104,500 occupational therapists in the U.S. and 29 percent worked in ambulatory healthcare services. Other major areas of employment for occupational therapists include hospitals, offices of other health practitioners, public and private educational services, nursing care facilities, home healthcare services, outpatient care centers, offices of physicians,
individual and family services, community care facilities for the elderly, and government agencies (USDOL, 2009).

Physical therapists “are healthcare professionals who diagnose and treat individuals of all ages, from newborns to the very oldest, who have medical problems or other health-related conditions, illnesses, or injuries that limits their abilities to move and perform functional activities as well as they would like in their daily lives” (USDOL, 2009, ¶5). “Physical therapists examine each individual and develop a plan using treatment techniques to promote the ability to move, reduce pain, restore function, and prevent disability” (USDOL, 2009, ¶5) In 2008, there were approximately 185,500 physical therapists with about 60 percent working in hospital settings (USDOL, 2009). Other work places for physical therapists include healthcare services industry, nursing care facilities, outpatient care centers, offices of physicians, self-employed in private practices, rehabilitation centers, nursing care facilities, home healthcare agencies, adult day care programs, and schools (USDOL, 2009).

OTS and PTS are enrolled in professional/graduate programs throughout the U.S. According to AOTA, there were 150 accredited OT entry-level master programs in the U.S. in 2009 (AOTA, 2009). According to American Physical Therapy Association (APTA), there were 201 accredited PT entry-level programs in 2010 (APTA, 2010). Both AOTA and APTA have council/commission dedicated to regulating and accrediting programs in the United States. Our sample included occupational and physical therapy students from universities across the United States with both accredited occupational and physical therapy programs. Occupational and physical therapists were selected and contacted through university fieldwork sites.
Theory

As a foundation for this independent study, we utilized social psychology’s Contact Theory. Barr, Koppel, Reeves, Hammick, and Freeth (2005) identified Contact Theory as a theoretical viewpoint to aid in the “development and evaluation of interprofessional education” (p. 126). Contact Theory was used initially to examine the beginnings of prejudice between racial groups (Allport, 1979). A premise of Contact Theory is that group members will identify with their own group to the extent that it will damage relationships with persons outside of their group (Barr et al., 2005).

Occupational and Physical therapists are often closely linked in multiple hospital and rehabilitation settings. Overlap in services by these two professions has sparked conflict between them and lead to the prevalence of stereotypes (Parker & Chan, 1986a). Contact Theory is relevant to OT and PT as it seeks to explain the effect of contact between different social groups and the influence of contact on attitudes of people in one group towards different groups (Allport, 1979).

Definitions

The following definitions are important to understanding aspects related to interprofessional collaboration, interprofessional education, and elements impacting readiness for interprofessional learning. These definitions have been provided to ensure readers a consistent understanding of this study.

Flexibility- refers to “the deliberate occurrence of role blurring” (Bronstein 2002, p. 114).

Collective ownership of goals- refers to “shared responsibility in the entire process of reaching goals, including joint design, definition, development, and achievement of goals” (Bronstein 2002, p. 114).
Interdependence- refers to “the occurrence of and reliance on interactions among professionals where all are dependent on the others to accomplish their goals and task” (Bronstein 2002, p.114).

Interprofessional Education – refers to [t]he process by which a group of students (or workers) from 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, preventative, curative, rehabilitation and other services” (WHO, 1988, p. 6-7).

Newly Created Professional Activities- refers to “collaborative acts, programs, structures that amount to more than what is created when the same professionals act independently” (Bronstein 2002, p. 114).

Professional Identity- is a construct measured by the RIPLS. The items in this subscale “reflect the importance attached to the acquisition of professional identities by students as a means of defining their lives, and the power of individual professional cultures” (Johnson, 1984 as cited in Parsell & Bligh 1999, p. 97).

Reflection on Process- refers to “collaborators’ attention to their process of working together” (Bronstein 2002, p.114).

Roles and Responsibility- is a construct measured by the RIPLS. The items in this subscale suggest that “the boundaries which delineate roles in professional practice and the role of academic training in supporting these divisions, are key issues” (Areskog, 1988 as cited in Parsell & Bligh 1999, p. 97).

Team-work and Collaboration- is a construct measured by the RIPLS. This subscale “demonstrates a strong link between the positive outcomes of team-working and
the adoption of a team-based approach to learning before qualification” (Parsell & Bligh, 1999, p. 97).

Summary

Chapter I was composed of an introduction to this independent study, an introduction prologue to the literature to support the study, an overview of the research questions, populations involved in the study, and definitions of terms. The purpose of this study was to examine perceived collaboration between OT and PT students and practitioners in the clinical and university settings. In Chapter II we have a more complete and specific presentation of the literature. Chapter II includes detailed literature pertaining to interprofessional collaboration, and the relationships between OT and PT students and practitioners. Chapter III consists of the research methods used in this independent study. Specifically, Chapter III includes a description of the study design, ethical measures to protect participants, sampling procedures, a description of the participants involved in the study, instruments used, and data collection procedures. Chapter IV includes the following information: pre-analysis data screening, results from instrument reliability analyses, descriptive analyses, and the inferential statistical analyses used to answer the research questions in this study. Chapter IV consists of a detailed presentation of results from the descriptive and inferential statistical analyses performed. Chapter V consists of the written discussion of the researchers’ findings, the relationship of the findings with previous research and theory, and implications for practice.
Chapter II

Literature Review

The focus on interprofessional health care in the U.S. began with the Institute of Medicine’s (1999) report, To Err is Human. This report was published approximately 11 years after the World Health Organization’s (1988) recommendation that health care providers began to consider interprofessional collaboration as a means of improving patient care. Published reports indicated that between 44,000 and 98,000 deaths occurred annually in the U.S. because of errors in health care (1999). This alarming statistic highlighted the need for ongoing examination of the processes involved in patient care, including communication between health care providers and an increased focus on interprofessional health care.

According to Manser (2009), “[t]he process of providing healthcare is inherently interdisciplinary, requiring physicians, nurses, and allied health professionals from different specialties to work in teams” (p. 143). Salas, Diaz, Granados, Weaver, and King (2008) compared the teamwork in healthcare to that of a sports team; however, they concluded that a breakdown in healthcare teamwork could have far more disastrous outcomes, including client death.

Collaboration

An effective team is not guaranteed when healthcare professionals have been trained to focus only on their specific duties, but is more dependent upon the leadership of the team as a whole (World Health Organization (WHO), 1988). When they described the future of health care services delivery, Shi and Singh (2008) wrote that “[i]n many health care settings, multidisciplinary team approach, collaboration, and cross-training
will be used to improve quality and productivity” (p. 584). Shi and Singh (2008) went on to write that a team approach should be intended to provide patients with comprehensive care, improve communication, and improve productivity by reducing duplication of services. The WHO (1988) identified three characteristics important to the development of effective teams: adaptability, team identity, and the ability analyze the environmental aspects that may affect the team.

Barrett, Curran, Glynn, and Godwin (2007) reported collaboration between healthcare workers as being beneficial to patients and healthcare providers. The authors wrote that through collaboration between disciplines, providers are able to offer more services and better accessibility of those services, lessen patient wait time, utilize resources more efficiently, and increase the coordination and comprehensiveness of care provided. Firth-Cozens (2001) also indicated that interdisciplinary care was important for safe patient care. Firth-Cozens reported that effective teamwork was associated with decreased stress levels in its members which translated into fewer medical errors by the team members. Following review of incident and error reports, Manser (2009) indicated issues with communication and teamwork were a common theme. Breakdown in communication (e.g., a surgeon assumed nursing had completed a requested procedure that had not been performed) accounted for 52% of surgical errors in a study conducted by Wiegmann et al. (2007). In a study by Sutcliffe, Lewton, and Rosenthal (2004), 26 medical residents in a 600-bed teaching hospital were interviewed concerning the atmosphere at work and any medical errors in which they had been involved. Of the 70 medical errors reported during the interviews, 91% (64) involved a breakdown in communication (Sutcliffe et al., 2004). Faulty information exchanges, a reluctance to
appear inept to supervisors, and friction between the medical resident and the physician
were communication breakdowns identified by Sutcliff et al. (2004).

When multiple health care disciplines collaborate, Barrett et al. (2007) purported
that patients reported increased function, increased energy, greater feelings of
satisfaction, and had more confidence in their quality of care. Halbert et al. (2007) found
that a multidisciplinary approach reduced the number of deaths and admissions into
nursing homes following hip fractures. After implementing a policy of collaboration,
Spartanburg Regional Healthcare System reduced hospital stays from an average of 5.4
days in 2007 to 5.18 in 2008 (Roberson, 2008). Collaboration between the nursing staff
and caseworkers played a major role in the length of stay reduction.

Individual healthcare providers have also been shown to receive benefits through
interprofessional collaboration. Barrett et al. (2007) found that interprofessional team
members had higher job satisfaction, looked more favorably on working with others, had
an expanded knowledge base, and differed in areas such as referrals, follow-up care and
prevention.

**Stereotypes**

Stereotypes are cognitive frameworks and consist of knowledge and beliefs of a
specific social group (Baron & Byrne, 2004). They are often used to justify acceptance or
rejection of a particular group and their development can be influenced by the amount
and type of interaction one has with that social group (Allport, 1979). Stereotypes
influence strongly one’s judgment of and his or her interactions with others, and may
contribute to the formation of alliances (Baron & Byrne, 2004). Within alliances,
individuals tend to forgive mistakes of the members of their own alliance more quickly
than the mistakes of others (Firth-Cozens, 2001). Strong alliances within professions may contribute to fewer errors and/or near misses being reported and increased competition between groups of professionals (Firth-Cozens, 2001). Limited research on stereotypes between OT and PT students and practitioners has been conducted.

Students.

Stereotypes between OTS and PTS have been studied by multiple researchers. Cleary and Howell (2003) illustrated limited quality interaction between occupational therapy students (OTS) and physical therapy students (PTS) which may impact stereotypes between the two groups. Streed and Stoecker (1991) examined the stereotypes of OTS and PTS. Using the Health Team Stereotyping Scale (HTSS), Streed and Stoecker surveyed 42 PT and 42 OT students from a Midwestern university who completed the HTSS on with reference to both OTS and PTS. They found students rated individual in their profession better than students in another profession (Streed & Stoecker, 1991). OTS rated PTS as “overrated, narrow, strict, competitive, conventional, and conservative” (p. 29) while PTS described OTS as “passive, narrow, dull, conventional, and conservative” (p. 29) Streed and Stoecker’s research contributed important information to the literature about stereotypes between OTS and PTS, however, the sample was small and drawn from a population at one university. Streed and Stoecker (1991) recommended further research be conducted about the effects of professors’ attitudes on students’ development of stereotypes.

Kamps et al. (1996) replicated the Streed and Stoecker (1991) study on a larger scale. Kamps et al.’s (1996) sample consisted of students from the one of the 30 universities in the U.S. that had both an occupational therapy (OT) and physical therapy
(PT) program. Their sample was comprised of 372 PTS and 315 OTS from the United States. Kamps et al. (1996) results were congruent with those of Streed and Stoecker (1991) as both groups (OTS and PTS) rated themselves more positively compared to the other group. Katz, Titiloye, and Balogun (2001) replicated the studies by Streed and Stoecker (1991) and Kamps et al. (1996). However, they expected more positive attitudes towards each group as the sample was taken from a small college in New York at which OTS and PTS interacted in courses, educational activities, and extracurricular activities (Katz et al., 2001). Upon evaluation of a sample of 25 PTS and 28 OTS, Katz et al. (2001) found the PTS and OTS rated themselves better than the other group. These findings were congruent with findings of Kamps et al. (1996) and Streed and Stoecker (1991). Katz et al. (2001) found, however, that their students rated the other groups more positively compared to the previous two studies. Katz et al. (1996) attributed this to the amount of interaction between OTS and PTS in their study due to the courses in interprofessional education at the college.

Conner-Kerr, Wittman, and Muzzarelli (1998) compared OTS and PTS perceptions of the OT and PT professions in addition to speech-language therapy (SLP) students. Conner-Kerr et al.'s (1998) sample consisted of 172 OT, PT, and SLP students from a southeastern university. Conner-Kerr et al. (1998) created a survey based on a case study which was composed of a client with a diagnosis whom all three disciplines might encounter. Incorporated into this survey were questions pertaining to identifying the health care provider responsible for the specific services during the client’s hospital stay including assessment, treatment, and communicating with insurance companies. The three groups disagreed most about who was responsible for the assessment and treatment
of the client. It should also be noted that PTS and SLP students agreed more on each
group’s designated tasks when compared to OTS (Conner-Kerr et al, 1998). The noted
incongruency in perceptions that was highlighted in the aforementioned findings
illuminated one common problem encountered in health care settings: role confusion.

For an interprofessional treatment approach in the clinic to work, each profession
must know what services that profession is responsible to provide and the services
provided by other disciplines. Conner-Kerr et al.’s (1998) study presented with
limitations such as a small sample and the absence of descriptions of the instrument’s
psychometric properties. Nonetheless, the results of the Conner-Kerr et al. study provided
evidence of the need for further research to clarify the extent to which students
understand clearly their own roles as well as those of other healthcare providers.

Insalaco, Ozkurt, and Santiago (2006) explored students’ knowledge of each
profession compared to previous studies in which authors examined students’ stereotypes
of one another. Insalaco et al.’s (2006) sample was similar to Conner-Kerr et al. (1998) as
they included SLP students in the study. Instead of doing a case study, similar to Conner-
Kerr et al. (1998), Insalaco et al. (2006) asked clients questions that pertained to
responsibility for treatment of a patient who had a stroke. Also, in the study by Conner-
Kerr et al (1998), subjects could only choose OT, PT, and SLP wherein the study by
Insalaco et al. (2006), their options were not limited to those three choices. Insalaco et al.
(2006) found that the students unanimously agreed that OT was responsible for activities
of daily living (ADL), PT for remediation of motor impairment, and SLP for
communication. However, Insalaco et al. (2006) also found that students viewed the
scope of practice of their chosen profession wider than the students of other two
professions. In conclusion, Insalaco et al. (2006) and Conner-Kerr et al. found that students do not always agree on their roles in treatment of a client.

Cleary and Howell (2003) studied the interaction between OT and PT students at universities. The authors surveyed the program directors of every university in the United States that had an accredited OT and PT programs. The researcher discovered five types of interaction between students: science courses, professional level courses, clinical experiences, other courses, or they shared no courses. The results showed that 32% of PT programs and 31% of OT program directors identified their students as not having any shared courses. In addition, when the students did interact, it was most likely to be a science course compared to a professional course or clinical experience. Although one may argue that interaction in a basic science course contributed to interprofessional collaboration more than no interaction, interaction in these courses alone may not be enough interprofessional education (IPE) relevant to a clinical setting (Cleary & Howell, 2003). IPE in higher-level courses and clinical experiences may lead to increased understanding of interdisciplinary roles, an increase in suitable referrals, and a more effective intervention plan (Cleary & Howell, 2003) during the students' internships and subsequent employment.

Practitioners.

Collaboration with other health care workers is recognized by both The American Occupational Therapy Association (AOTA) and The American Physical Therapy Association (APTA) as important to their respective professions. Both AOTA and APTA have identified teamwork as an area of importance as they address it in their Code of Ethics documents. Principle Seven of the AOTA Occupational Therapy Code of Ethics
(2005) is “[o]ccupational therapy personnel shall treat colleagues and other professionals with respect, fairness, discretion, and integrity” (p.641). In addition, Principle Four of the APTA Code of Ethics (2010) has provided that “[a] physical therapist shall respect the rights, knowledge, and skills of colleagues and other healthcare professionals” (APTA, 2010, p.2). However, there has been limited research conducted on the collaboration between occupational and physical therapists.

While most prior research on the relationship between OT and PT has been conducted with students, the published reports on practicing therapists have offered discussion worthy results. Parker and Chan (1986a) examined the stereotypes occupational therapists and physical therapists had of one another. Their sample consisted of 53 occupational therapists and 53 physical therapists from five major hospitals with occupational therapists having an average of 6.1 years of work experience and physical therapists having an average 7.2 years of work experience. Parker and Chan used the HTSS, which was also used by Kamps et al. (1996), Katz, et al. (2001), and Streed and Stoecker (1991). Parker and Chan found that physical therapists gave themselves more positive attributes than when occupational therapists ranked them. These results correlated with conclusions Kamps et al. (1996), Katz, et al. (2001), and Streed and Stoecker (1991) found when surveying OTS and PTS. However, Kamps et al. (1996), Katz, et al. (2001), and Streed and Stoecker (1991) also found that OTS rated themselves higher than PTS rated them. Conversely, Parker and Chan (1986a) found that occupational therapists’ self-assessment was not statistically different when compared to the physical therapists’ rating of occupational therapists. Despite these findings, which
indicated a positive relationship, Parker and Chan reported that “between the two professions, potential sources of friction and alienation exist” (1986a, p. 671).

Parker and Chan (1986b) also examined the relationship between OT and PT in a hospital setting (1986b). They used the Allied Health Professions Prestige Rating Scale (AHPPRS) to measure not only what occupational therapists and physical therapists thought of each other's profession, but how therapists in those professions rated audiologists, dental hygienists, registered dietitians, medical record administrators, medical technologists, physician assistants, radiologist technologists, rehabilitation counselors, respiratory therapists, social workers, and SLPs. Fifty-six occupational therapists and 48 physical therapists were asked to rate each occupation on a scale of 1 to 5 on the social standing of that occupation. Parker and Chan found that PT was ranked first in terms of prestige by both OT and PT while OT was ranked fourth in terms of prestige by OT and fifth by PT. Parker and Chan purported that since both occupational therapists and physical therapists rated PT higher than OT that more research is needed to be done to explore the relationship between the two professions.

Although OT and PT stereotypes and attitudes have been examined a number of times, there continues to be a dearth of literature about the collaborative integrity of that professional relationship. All the research that involved occupational therapists and physical therapists attitudes about one another has been done on either therapists or students, but never both in the same study. Streed and Stoecker (1991) proposed that further research was needed on the relationship between OT and PT students and therapists. Also, the research on occupational and physical therapists has been limited as only five hospitals were surveyed and there was not a national representation of
occupational therapist and physical therapist relationships (Parker & Chan, 1986a).

Kamps et al. (1996) conducted a national survey of OTS and PTS, however, that occurred more than 10 years ago and has not since been replicated. During the past decade, the OT and PT professions have undergone significant transformations in terms of academic preparation. OT now requires students earn a Master’s Degree for entry-level practice while PT requires students’ to attain a Clinical Doctorate Degree. The importance of interprofessional collaboration has been well documented, however, barriers continue to exist.

**Barriers**

Despite the growing literature that has supported the benefits of interprofessional collaboration, barriers persist. While analyzing interviews during their study on integrated care pathways, Atwal and Caldwell (2002) found that time and apprehension about team member approval contributed to the lack of interprofessional collaboration between employees. Firth-Cozens (2001) attributed apprehension of team member approval to professional alliances that are formed in healthcare. In alliances, individuals tend to forgive mistakes of the members of their own alliance more quickly than the mistakes of others, which may lead to competition between groups of professionals (Firth-Cozens, 2001). Lack of communication (Atwal & Caldwell, 2005; Firth-Cozens, 2001), role separation (Atwal & Caldwell, 2005; Barrett et al. 2007), and jealousy (Atwal & Caldwell, 2005) are other barriers to interprofessional care.

There is a growing body of research on interprofessional health care. However, little research has been conducted within the field of allied health within the U.S.
Specifically, there is a deficiency of research about the relationship between OT and PT and how their collaborative pairing has influenced patient care.

As healthcare continues to become more advanced and complex, healthcare workers are working together more to improve patient care. To better prepare healthcare workers for collaboration in patient care, many colleges and universities have added interprofessional education (IPE) to their curriculum. With the growing presence of interprofessional healthcare, there has also been a growing body research on interprofessional education. In a systematic review of interprofessional education, Zwarenstein et al. (1999), reviewed 510 articles on Medline (1966-1997) and 552 articles on CINAHL (1982-1997). The authors narrowed down the 1,062 articles to 89 articles with the explicit criteria that the content included the “opportunity for members of more than one social/health care occupation to learn together” (p. 421). Zwarenstein concluded that there was no quantitative research that overwhelmingly demonstrated IPE effectiveness. Further research on the efficacy of IPE is needed to determine the influence of that education on patient care.

**Theory**

As reported in Chapter One, Contact Theory was initially developed to address stereotypes between racial groups. Occupational and physical therapists’ are not necessarily comprised of different races, however, due to the difference in theory base, language, and scope of practice we propose that each profession is its own distinct culture or social group. Upon completion of a study which examined perceptions occupational and physical therapists have of one another, Parker and Chan (1986a) stated that there is continued possibility for conflict between these two groups.
An assumption of Contact Theory is that interaction between members of different groups toward a common goal, along with a willingness to work together was effective in reducing prejudice between the groups (Allport, 1979; Barr et al., 2005; Pettigrew & Tropp, 2006). Allport (1979) reported that contact between different social groups was not enough to singularly affect prejudice and stereotypes as there were many variables within contact. Contact variables identified by Allport (1979) included: frequency, interval, amount and variety of individuals involved, status of the individuals, roles of the individuals, social environment, and the personalities of the individuals involved. The surveys used in this research project examined the attitudes of both professions towards each other along with factors such as time spent together (frequency of contact), class size, and number of therapists per facility (number of individuals in each group), and degree (status of group members).

Research Purpose

This study was intended to investigate differences in collaboration between OT and PT students and therapists. A secondary purpose of this study was to examine the variables associated with Contact Theory and their relationship with student readiness for interprofessional learning and therapist extent and effectiveness for interprofessional collaboration.

To accomplish the purposes of this study, we implemented a non-experimental survey research design in which OTS and PTS answered questions pertaining to demographics and readiness for interprofessional learning, and occupational and physical therapists answered questions related to demographics and extent and effectiveness for
interprofessional collaboration. Data collection methods, sample, and instrumentation are discussed in Chapter III.
Chapter III

Methodology

Chapter III consists of an overview of the research project design, sample procedures, and characteristics of populations. Chapter III also includes inclusion and exclusion criteria for the research population, instruments used when surveying both populations, and procedures used to collect data. This study was approved by the University of North Dakota (UND) Institutional Review Board (refer to Appendix B).

Design and Sample

A non-experimental exploratory survey design was used to gather data from occupational therapy (OT) and physical therapy (PT) practitioners and students. Data was gathered through the use of online surveys provided by the authors on surveymonkey.com from August 2009 to November 2009. Practitioner and student participants were obtained utilizing a combination of convenience and snowball sampling. The occupational therapy fieldwork coordinator at a university in the Northern Plains was contacted to obtain contact information for the physical disability and pediatric fieldwork sites affiliated with that university. Mental health fieldwork sites were not contacted as this is not a common work setting for physical therapists. Fieldwork coordinators were mailed an envelope that contained a letter which contained a description of the purpose of the study. Refer to Appendix C for a copy of letter. Also included in envelope were OT and PT specific postcards that contained the online address
for the survey (refer to Appendix D). The fieldwork educators contacted were asked to
distribute the postcards to occupational and physical therapists practicing at their facility.
Fieldwork sites were located in the following 13 states: Arizona, Colorado, Iowa, Idaho,
Minnesota, Montana, North Dakota, Nebraska, Nevada, South Dakota, Utah, and
Wyoming. We attempted to contact all universities in the continental United States
having both occupational therapy and physical therapy programs. Refer to Appendix E
for a complete list of schools contacted. Listings for universities were obtained from the
American Occupational Therapy Association (AOTA) and American Physical Therapy
Association (APTA) websites. Universities with both accredited OT and PT programs
were selected. We then e-mailed a letter containing an explanation of the study and the
survey address to the chairpersons of departments (refer to Appendix F). The letter
requested that the department Chairpersons forward the survey e-mail (which contained
the survey online address) to the students in their respective programs.

Participants

Students.

The researchers obtained a list of accredited programs from the AOTA and the
APTA. We compared the lists and removed universities and colleges that did not have
both occupational therapy and physical therapy programs. The final list consisted of 94
universities and colleges throughout the U.S. We obtained names and e-mails address for
program directors from the Universities websites. Program directors were then contacted
via e-mail and were requested to forward the link to their students. Of the 94 universities
and colleges, we were unable to locate the contact information for both OT and PT
programs at three universities and for an OT program at one additional university. In
addition, we received an e-mail alert that our initial contact email was undeliverable to both an OT and a PT program at an additional university. Two program directors requested a copy of survey prior to forwarding the link to their students; a request which was immediately fulfilled.

**Practitioners.**

The researchers accessed OT and PT practitioners through a fieldwork database in an Occupational Therapy Program in the Northern Plains. The researchers did not contact mental health fieldworks sites as physical therapists do not commonly work in mental health facilities. The researchers mailed letters containing postcards with the survey links to OT supervisors 137 facilities. Three (2%) of those letters were returned to sender without having reached the intended recipient. The letter included a request that the supervisors distribute the postcards to occupational therapists and physical therapists at their facility. Each facility received six postcards, three specifically addressed to occupational therapists and three specifically addressed to physical therapists. Located on the postcard was a website address, which the therapist was asked to type into a computer to access the on-line survey.

**Instruments**

For this study, the researchers used three instruments: two demographic surveys, the Readiness for Interprofessional Learning Scale (RIPLS), and the Index of Interdisciplinary Collaboration (IIC). The demographic surveys varied slightly from students to practitioners. The RIPLS was given to occupational therapy and physical therapy students while the IIC was given to occupational therapists and physical therapists. Both students and therapists were asked to complete the demographic survey.
Permission was obtained to utilize the RIPLS and IIC from the original instrument authors for use in this study.

**Demographic surveys.**

We created two demographic surveys: one for therapists and one for students. The student version contained eight questions while the therapist version was comprised of 11 questions. Both groups were asked questions specific to gender, age, educational level, experience with interprofessional classes or workshops, average time spent with individuals from the other professional, and the proximity of occupational and physical therapy departments. The student version contained a question pertaining to class size and year in program. Refer to Appendix G for a copy of demographic survey provided for students. The therapist version contained additional questions as well. Therapists were also asked about their years of experience, the type of population they work with, type of facility they work at, and the combined number of occupational and physical therapists who were employed at their facility. Refer to Appendix H for a copy of demographic survey given to therapist.

**Readiness for Interprofessional Learning Scale.**

The RIPLS was originally developed by Parsell and Bilgh (1999) as an instrument to assess healthcare students’ readiness for shared learning activities with other professional students. The RIPLS is comprised of three sub-scales: **teamwork and collaboration**, **professional identity, and professional roles**. Parsell and Bilgh (1999) conducted a pilot study of 120 healthcare students. Fifteen students were randomly selected from eight different healthcare professions, including OT and PT. The researchers reported a high internal consistency reliability of 0.90. The RIPLS has also
been tested with varying populations (which included healthcare professionals) and has also been evaluated for test and re-test reliability (McFadyen, Webster, & MaClaren, 2006; Reid, Bruce, Allstaff, & McLernon, 2006). Students were asked to complete the RIPLS to assess their readiness to work with therapy students of the opposite discipline.

**Index of Interdisciplinary Collaboration.**

The IIC was developed by Bronstein (2002) as a way to measure the extent and effectiveness of interdisciplinary collaboration. Bronstein (2002) proposed that a scale measuring the extent and effectiveness of interdisciplinary collaboration could be used to determine appropriate interventions to improve interdisciplinary collaboration. Bronstein (2002) used models of interdisciplinary collaboration to create the 42-item instrument with 5 sub-scales including interdependence, newly created professional activities, flexibility, collective ownership of goals, and reflection on process. Bronstein (2002) surveyed a group of 462 members of the National Association of Social Workers (NASW) and a group of 24 students who were earning their Masters of Social Work (MSW) degree two weeks apart, respectively, to address test-retest reliability. Bronstein found the IIC internal consistency was .92 and test-retest was .824. For this research, we modified the language of the IIC to reflect occupational therapists and physical therapists rather than social workers. No other significant changes were made. The researchers asked therapists to complete the IIC to assess therapists’ extent and effectiveness of interprofessional collaboration.

**Data Collection**

Within the mail or email descriptions, participants were asked to access the online survey through the web address presented in the postcard or email message. Once the
participants accessed the survey homepage, they were able to view the informed consent statement, which included the purpose of the following study, what the study involved, risks involved, and their rights as a research participant. Once the participant agreed to the informed consent statement, he or she was directed to the demographic survey. Following the demographic survey, therapists were asked to complete the 42 items of the IIC and students were asked to complete the 19 items of the RIPLS. The quantitative data collected from the surveys were compiled and analyzed using descriptive and inferential statistical measures. The results of the analyses are presented in chapter IV.

**Summary**

Chapter III consisted of an overview of the research project design, sample procedures, and characteristics of populations. In addition, Chapter III also included inclusion and exclusion criteria for the research population, instruments used to survey both populations, and procedures used to collect data. Chapter IV includes the pre-analysis data screening and results from instrument reliability analyses. Chapter IV also reports the results from the descriptive and inferential statistical analyses used to answer the research questions in this study.
Chapter IV

Results

Data was downloaded from the SurveyMonkey server into a Microsoft Excel Spreadsheet and then entered into SPSS 17.0 for data analysis. A pre-analysis data screen was first completed followed by an analysis of instrument reliability. Descriptive statistical analyses were then completed for the demographic survey. Finally, the researchers completed inferential statistical analyses to examine data to answer their research questions.

Pre-Analysis Data Screening

A pre-analysis data screen was completed to ensure the accuracy of the results and identify any outliers (Mertler & Vannatta, 2005). A pre-analysis data screen often includes looking at missing data (Mertler & Vannatta, 2005), however the researchers used an online survey which did not allow participants to continue without answering each question.

Instrument Reliability

The reliability of the Readiness for Interprofessional Learning Scale (RIPLS) and Index of Interdisciplinary Collaboration (IIC) were computed using SPSS 17.0. The results from Cronbach’s Coefficient Alphas are presented in the following sections.
RIPLS

The RIPLS is composed of three subscales: *teamwork and collaboration*, *professional identity*, and *roles and responsibilities*. The purpose of the combined subscales scores was to measure student readiness for interprofessional collaboration. A higher total score on the RIPLS represented an increased readiness for interprofessional collaboration for that participant. Internal consistency was calculated for the subscales of the RIPLS using Cronbach’s Coefficient Alpha. The range for the three subscales was from .245 to .87 with the total for the entire survey being .893 (Table 1). An alpha level of .20 to .40 represented low correlation and an alpha level from .80 to 1.00 represented a very high correlation (Kielhofner, 2006, p. 263). Although the subscale, roles and responsibility coefficient was low, Field (2005) wrote that Cronbach’s Coefficient Alpha is based on the number of items and can be lower if there are too few items which could be the cause of the lower correlation for roles and responsibility as it only had three items. Based on the results from the Cronbach’s Coefficient, the reliability for the RIPLS and the constructs were acceptable for this study.

Table 1
*Reliability (Cronbach’s Coefficient Alpha) Results for the RIPLS*

<table>
<thead>
<tr>
<th>RIPLS Subscales &amp; Totals</th>
<th>Number of Items</th>
<th>Cronbach’s Coefficient Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team-Work &amp; Collaboration</td>
<td>10</td>
<td>0.87</td>
</tr>
<tr>
<td>Professional Identity</td>
<td>6</td>
<td>0.829</td>
</tr>
<tr>
<td>Roles and Responsibilities</td>
<td>3</td>
<td>0.245</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>0.893</td>
</tr>
</tbody>
</table>

28
The IIC was composed of five subscales: interdependence, newly created professional activities, flexibility, collective ownership of goals, and reflection on process. The purpose of the IIC was to measure the extent and effectiveness of interdisciplinary collaboration (Bronstein, 2002). A higher score on the IIC represented a perceived higher extent and effectiveness of interdisciplinary collaboration from the participant. Internal consistency was calculated for the subscales of the IIC using Cronbach's Coefficient Alpha. The range for the five subscales was from .584 to .834 with the survey total being .914 (Table 2). As identified previously, an alpha level from .80 to 1.00 represented a very high correlation (Kielhofner, 2006, p. 263). In addition, an alpha level of .60-.80 represented a high correlation and an alpha level from .40-.60 was a moderate correlation (Kielhofner, 2006, p. 263). The level reliability for the IIC was adequate for the current study.
Table 2
*Reliability (Cronbach’s Coefficient Alpha) Results for the IIC*

<table>
<thead>
<tr>
<th>IIC Subscales &amp; Total</th>
<th>Number of Items</th>
<th>Cronbach’s Coefficient Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdependence</td>
<td>13</td>
<td>0.761</td>
</tr>
<tr>
<td>Newly Created Professional Activities</td>
<td>6</td>
<td>0.691</td>
</tr>
<tr>
<td>Flexibility</td>
<td>5</td>
<td>0.584</td>
</tr>
<tr>
<td>Collective Ownership of Goals</td>
<td>8</td>
<td>0.834</td>
</tr>
<tr>
<td>Reflection on process</td>
<td>10</td>
<td>0.804</td>
</tr>
<tr>
<td><strong>Total IIC</strong></td>
<td><strong>42</strong></td>
<td><strong>0.915</strong></td>
</tr>
</tbody>
</table>

**Participant Demographics**

The final sample was composed of 636 total participants. This number included physical and occupational therapy students and practitioners. Students outnumbered therapists substantially in the sample and, ultimately, students comprised over 88% of the total sample (Table 3).
Table 3
Number of Student and Therapist Participants by Profession

<table>
<thead>
<tr>
<th></th>
<th>Students</th>
<th></th>
<th>Therapists</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>305</td>
<td>47.9</td>
<td>47</td>
<td>7.3</td>
<td>352</td>
<td>55.3</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>256</td>
<td>40.2</td>
<td>28</td>
<td>4.4</td>
<td>284</td>
<td>44.6</td>
</tr>
<tr>
<td>Total</td>
<td>561</td>
<td>88.2</td>
<td>75</td>
<td>11.7</td>
<td>636</td>
<td>100</td>
</tr>
</tbody>
</table>

The frequency and percentages were calculated for students based on age and gender (Table 4). The results revealed that majority (73%) of the students were females between the ages of 18-25 years (Table 4). Of the males who participated, the majority (59%) were also in the age range of 18-25 years (Table 4).
The frequency and percentages were also calculated for therapists for the same variables of age and gender (Table 5). Similar to the student population, majority of the therapists (89%) were female (Table 5). However, the therapists’ ages were higher and more evenly spaced when compared to the students’ ages (Table 5).
Table 5
*Age and Gender Characteristics of Therapists by Discipline*

| Age in Years | Occupational Therapists | | Physical Therapists | | |
|--------------|-------------------------|---|---------------------|---|
|              | Female | %   | Male | %   | | Female | %   | Male | %   |
| 18-25        | 3     | 6.38| 0    | 0.0 | | 3     | 10.7| 0    | 0.0 |
| 26-30        | 14    | 29.7| 0    | 0.0 | | 6     | 21.4| 1    | 3.5 |
| 31-35        | 10    | 21.2| 0    | 0.0 | | 6     | 21.4| 1    | 3.5 |
| 36-40        | 5     | 10.6| 2    | 4.2 | | 1     | 3.5 | 1    | 3.5 |
| 41-45        | 5     | 10.6| 0    | 0.0 | | 2     | 7.1 | 1    | 3.5 |
| 46-50        | 4     | 8.5 | 1    | 2.1 | | 1     | 3.5 | 1    | 3.5 |
| 51-55        | 3     | 6.3 | 0    | 0.0 | | 1     | 3.5 | 0    | 0.0 |
| 56-60        | 0     | 0.0 | 0    | 0.0 | | 1     | 3.5 | 0    | 0.0 |
| 61-65        | 0     | 0.0 | 0    | 0.0 | | 2     | 7.1 | 0    | 0.0 |
| Total        | 44    | 93.6| 3    | 6.3 | | 23    | 82.1| 5    | 17.8|

We then surveyed students and therapists and asked about the amount of time in hours the participants interacted with individuals from the other profession. The frequency and percentages were calculated for both students and therapists based on their
profession (Table 6). A majority of students (91%) reported that they spent less than five hours a week with students from the other profession (Table 6).

Table 6
_Hours of Interaction Per Week By Profession_

<table>
<thead>
<tr>
<th>Hours</th>
<th>OT</th>
<th></th>
<th>PT</th>
<th></th>
<th>Therapists</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>0</td>
<td>146</td>
<td>47.8</td>
<td>165</td>
<td>64.4</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>1-5</td>
<td>126</td>
<td>41.3</td>
<td>78</td>
<td>30.4</td>
<td>10</td>
<td>21.2</td>
<td>4</td>
</tr>
<tr>
<td>6-10</td>
<td>20</td>
<td>6.5</td>
<td>7</td>
<td>2.7</td>
<td>4</td>
<td>8.5</td>
<td>4</td>
</tr>
<tr>
<td>11-15</td>
<td>5</td>
<td>1.6</td>
<td>4</td>
<td>1.5</td>
<td>5</td>
<td>10.6</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>4</td>
<td>1.3</td>
<td>1</td>
<td>0.3</td>
<td>4</td>
<td>8.5</td>
<td>3</td>
</tr>
<tr>
<td>More Than 21</td>
<td>4</td>
<td>1.3</td>
<td>1</td>
<td>0.3</td>
<td>24</td>
<td>51.0</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>100.0</td>
<td>256</td>
<td>100.0</td>
<td>47</td>
<td>100.0</td>
<td>28</td>
</tr>
</tbody>
</table>

Using demographic survey data, we also examined the number of students and therapists who had attended at an IPHC course or workshop. The frequency and percentages were calculated to determine whether the participants had taken a course and workshop, taken only course or only a workshop, or neither a course nor workshop (Table 7). The results revealed that the majority (59%) of the participants had taken neither an IPHC course nor workshop.
Table 7

Therapists’ and Students’ Attendance at an IHPC Course or Workshop

<table>
<thead>
<tr>
<th>Attended Course and Workshop</th>
<th>Students</th>
<th>Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OT</td>
<td>PT</td>
</tr>
<tr>
<td></td>
<td>n  %</td>
<td>n  %</td>
</tr>
<tr>
<td>Attended Course and Workshop</td>
<td>44 14.4</td>
<td>21 8.2</td>
</tr>
<tr>
<td>Attended Workshop, but not</td>
<td>25 8.2</td>
<td>16 6.2</td>
</tr>
<tr>
<td>Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended Course, but not</td>
<td>53 17.3</td>
<td>61 23.8</td>
</tr>
<tr>
<td>Workshop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not attended Course or</td>
<td>183 60.0</td>
<td>158 61.7</td>
</tr>
<tr>
<td>Workshop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>305 100.0</td>
<td>256 100.0</td>
</tr>
</tbody>
</table>

We then asked students questions pertaining to year in school and degree they were working to complete. Three-hundred and four OTS were working towards a Master’s Degree and one OTS was working towards a Clinical Doctorate Degree. The opposite was found for PTS where 255 students were working towards a Clinical Doctorate Degree in physical therapy while one student was working towards a Master’s Degree. Similarly, we asked therapists what was the highest degree they had achieved. Frequency and percentage were calculated and found the majority of occupational therapists had either a Bachelor’s or Master’s Degree, of which differs from OTS. For
physical therapy, all but one student was working towards a Clinical Doctorate Degree
compared to physical therapists in the clinic where only 10 (35.71%) had a Clinical
Doctorate Degree (Table 8).

Table 8
Highest Degree Earned by Therapist Compared to Degree Sought by Students

<table>
<thead>
<tr>
<th>Degree</th>
<th>Students</th>
<th>Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OT n %</td>
<td>PT n %</td>
</tr>
<tr>
<td>Bachelor's</td>
<td>0 0.0</td>
<td>0 0.0</td>
</tr>
<tr>
<td>Master's</td>
<td>304 99.7</td>
<td>1 0.4</td>
</tr>
<tr>
<td>Clinical Doctorate</td>
<td>1 0.3 255 99.6</td>
<td>2 4.3 10 35.7</td>
</tr>
<tr>
<td>Total</td>
<td>305 100.0</td>
<td>256 100.0</td>
</tr>
</tbody>
</table>

Frequency and percentage were calculated for students based on their year in their
program of study (Table 9). The results revealed that the majority (88%) of the students
were in the first three years of their program (Table 9).
Table 9  
*Current Year in Program for Students by Discipline*

<table>
<thead>
<tr>
<th>Year</th>
<th>Occupational Therapy Students</th>
<th>Physical Therapy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1st</td>
<td>105</td>
<td>34.4</td>
</tr>
<tr>
<td>2nd</td>
<td>113</td>
<td>37.0</td>
</tr>
<tr>
<td>3rd</td>
<td>47</td>
<td>15.4</td>
</tr>
<tr>
<td>4th</td>
<td>19</td>
<td>6.2</td>
</tr>
<tr>
<td>5th</td>
<td>21</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>100.0</td>
</tr>
</tbody>
</table>

When surveying the therapists, we examined years of work experience. Frequency and percentages were calculated and revealed that the majority (65%) of the therapists had less than 10 years of clinical experience (Table 10).
We then asked students to report on their class size. Frequency and percentages were calculated for both occupational and physical therapy students (Table 11). The majority of OTS reported that their classes had 35 students or less (76.39%). PTS reported that the majority of their classes had 36 students or more (83.98%).
Table 11
Number of Classmates by Profession

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Occupational Therapy Students</th>
<th>Physical Therapy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>0-5</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>6-10</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>11-15</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>16-20</td>
<td>31</td>
<td>10.1</td>
</tr>
<tr>
<td>21-25</td>
<td>73</td>
<td>23.9</td>
</tr>
<tr>
<td>26-30</td>
<td>62</td>
<td>20.3</td>
</tr>
<tr>
<td>31-35</td>
<td>62</td>
<td>20.3</td>
</tr>
<tr>
<td>36-40</td>
<td>35</td>
<td>11.4</td>
</tr>
<tr>
<td>41-45</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>46-50</td>
<td>18</td>
<td>5.9</td>
</tr>
<tr>
<td>51-55</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td>More than 55</td>
<td>8</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>100.0</td>
</tr>
<tr>
<td>Number of Therapists</td>
<td>Occupational Therapists</td>
<td>Physical Therapists</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>0-5</td>
<td>6</td>
<td>12.7</td>
</tr>
<tr>
<td>6-10</td>
<td>10</td>
<td>21.2</td>
</tr>
<tr>
<td>11-15</td>
<td>6</td>
<td>12.7</td>
</tr>
<tr>
<td>16-20</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>21-25</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>26-30</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>31-35</td>
<td>7</td>
<td>14.8</td>
</tr>
<tr>
<td>36-40</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>41-45</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>46-50</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>51-55</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>More than 55</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 12
*Combined Number of Therapists per Facility*
Instead of looking at class size when surveying therapists, we asked how many therapists, both occupational and physical, worked in their department. The frequency and percentages were calculated for both professions and revealed no difference across groups (Table 12).

For the final demographic question for students, we asked about the physical distance between the occupational and physical therapy departments at their university. The frequency and percentages were calculated for both programs and majority of the students (55%) reported they shared the same building but were not on the same floor (Table 13).

Table 13  
Physical Environment of Students’ Departments by Profession

<table>
<thead>
<tr>
<th>Environment</th>
<th>Occupational Therapy Students</th>
<th>Physical Therapy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Share Classroom</td>
<td>33</td>
<td>10.8</td>
</tr>
<tr>
<td>Share a Floor</td>
<td>77</td>
<td>25.2</td>
</tr>
<tr>
<td>Same Building</td>
<td>151</td>
<td>49.5</td>
</tr>
<tr>
<td>Different Building</td>
<td>44</td>
<td>14.4</td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>100.0</td>
</tr>
</tbody>
</table>
When surveying therapists, we also examined the physical environment regarding the distance between occupational and physical therapy offices. The frequency and percentages were calculated and revealed that majority of therapists (75%) shared offices (Table 14).

Table 14  
*Physical Environment of Therapists’ Departments by Profession*

<table>
<thead>
<tr>
<th>Environment</th>
<th>Occupational Therapists</th>
<th>Physical Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Shared Office</td>
<td>32</td>
<td>68.0</td>
</tr>
<tr>
<td>Same Hallway</td>
<td>7</td>
<td>14.8</td>
</tr>
<tr>
<td>Same Floor</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Same Building</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Different Building</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>OT &amp; PT Not at Facility</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

For the final two questions on the demographic survey for the therapists, we asked about the therapists’ patient population and work setting. The results from patient population question revealed no differences between populations (Table 15). When the results from work setting question were examined, the results revealed that just over half of therapists (53%) worked in two or more settings (Table 16).
<table>
<thead>
<tr>
<th>Population</th>
<th>Occupational Therapists</th>
<th>Physical Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>Adult</td>
<td>11</td>
<td>23.4</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>Adult &amp; Geriatrics</td>
<td>14</td>
<td>29.7</td>
</tr>
<tr>
<td>All Three Populations</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 16  
Setting Therapists Work in by Profession

<table>
<thead>
<tr>
<th>Setting</th>
<th>Occupational Therapists</th>
<th>Physical Therapist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Skilled Nursing</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>Outpatient</td>
<td>16</td>
<td>34.0</td>
</tr>
<tr>
<td>Inpatient</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>Acute</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>2 settings</td>
<td>15</td>
<td>31.9</td>
</tr>
<tr>
<td>3 settings</td>
<td>6</td>
<td>12.7</td>
</tr>
<tr>
<td>4 settings</td>
<td>3</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Research Question Analysis

To answer the research questions, analysis was conducted to determine the overall means and standard deviations for the RIPLS and IIC. The means and standard deviations for the RIPLS and IIC subscales were also calculated. Descriptive and inferential statistics were used to determine relationship that exist and differences between groups.

**Students' attitudes towards interprofessional collaboration.**

Means and standard deviations were calculated to answer the following research question: What is the readiness for interprofessional learning overall for occupational
physical therapy students? A higher score on the RIPLS indicated greater readiness for learning interprofessional learning. Students scored highest on professional identity and lowest on team-work and collaboration (Table 17).

Table 17
Means and Standard Deviations for RIPLS and Constructs by Profession

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Number of Items</th>
<th>Occupational Therapy Students</th>
<th>Physical Therapy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Team-Work &amp; Collaboration</td>
<td>10</td>
<td>3.6</td>
<td>±4.1</td>
</tr>
<tr>
<td>Professional Identity</td>
<td>6</td>
<td>4.5</td>
<td>±3.7</td>
</tr>
<tr>
<td>Roles and Responsibilities</td>
<td>3</td>
<td>4.0</td>
<td>±1.5</td>
</tr>
<tr>
<td>Total RIPLS</td>
<td>19</td>
<td>4.0</td>
<td>±7.8</td>
</tr>
</tbody>
</table>

Therapists’ extent and effectiveness of interprofessional collaboration.

Means and standard deviations were calculated to answer the research question: What is the extent and effectiveness of interprofessional collaboration overall for occupational and physical therapist? A higher score on the IIC represented a greater extent and effectiveness of interprofessional collaboration. Therapist scored highest on collective ownership of goals and lowest reflection on process (Table 18).
Table 18
*Means and Standard Deviations for IIC and Constructs by Profession*

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Number of Items</th>
<th>Occupational Therapists</th>
<th>Physical Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdependence</td>
<td>13</td>
<td>4.2 ± 6.2</td>
<td>4.2 ± 4.7</td>
</tr>
<tr>
<td>Newly Created Professional Activities</td>
<td>6</td>
<td>3.9 ± 2.9</td>
<td>4.0 ± 2.9</td>
</tr>
<tr>
<td>Flexibility</td>
<td>5</td>
<td>4.1 ± 2.4</td>
<td>4.0 ± 2.3</td>
</tr>
<tr>
<td>Collective Ownership of Goals</td>
<td>8</td>
<td>4.2 ± 3.6</td>
<td>4.3 ± 2.8</td>
</tr>
<tr>
<td>Reflection on Process</td>
<td>10</td>
<td>3.7 ± 4.8</td>
<td>3.9 ± 5.1</td>
</tr>
<tr>
<td>Total IIC</td>
<td>42</td>
<td>4.0 ± 16.7</td>
<td>4.1 ± 13.8</td>
</tr>
</tbody>
</table>

**Correlations between demographics and instrument scores.**

Correlations were calculated to answer research questions examining the relationship between variables from the demographic survey and results from RIPLS and IIC. Spearman rho was used when one of the variables is measured on an ordinal scale (Kielhofner, 2006). For data where both variables measured on a ratio or interval scale, Pearson’s $r$ correlations were used (Kielhofner, 2006). Both the RIPLS and IIC were measured using a ratio scale.
A Spearman rho was calculated to answer the research question: Is there a relationship between students’ scores readiness for interprofessional learning and the physical environment of occupational and physical therapy departments at students’ university? A negligible, positive correlation was found (rho (559) = .112, p < .01), indicating a significant relationship between the two variables. Students who had attended universities with departments that were within closer physical proximity tended to have higher RIPLS scores. These results indicated that physical proximity was related to readiness for interprofessional learning.
A Spearman rho was calculated to answer the research question: Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and physical environment of OT and PT offices at therapists’ facilities? A low positive correlation was found ($\rho(73) = .324, p < .01$), indicating a significant relationship between the two variables. Therapists who worked at facilities with therapy departments that were within closer physical proximity tended to have higher IIC scores. These results indicated that physical proximity of therapy department is related to the extent and effectiveness of interprofessional collaboration.

A Spearman rho was calculated to answer the research question: Is there a relationship between students' readiness for interprofessional learning and degree the students were working to complete? A low, inverse correlation was found ($\rho(559) = -.298, p < .01$), indicating a significant relationship between the two variables. Students who were working towards a higher degree tended to score lower on the RIPLS. These
results indicated that level of degree that students were working to complete was related to readiness for interprofessional learning.

A Spearman rho was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness of interprofessional collaboration and highest degree earned? A non-significant negligible, inverse correlation was found (rho (73) = -.137, p > .05). These results indicated degree earned by practitioners was not related to the extent and effectiveness of interprofessional collaboration.

A Spearman rho was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness of interprofessional and patient populations? A non-significant negligible, inverse correlation was found (rho (73) = -.055, p > .05). The results indicated the population therapist reported working with was not related to the extent and effectiveness of interprofessional collaboration.

A Spearman rho was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness of interprofessional collaboration and work setting? A non-significant negligible, inverse correlation was found (rho (73) = -.041, p > .05). These results indicated that extent and effectiveness of interprofessional collaboration was not related to therapist work setting.

A Pearson’s r correlation was used to examine the relationship between the results RIPLS and IIC for the following demographics. Pearson’s r correlations were calculated for time spent interacting with other profession, age, year in program, and number classmates with the scores from the RIPLS (Table 21). Pearson’s r correlations were also
calculated for time spent interacting with other profession, age, work experience, and number of therapist per facility with the scores from the IIC (Table 22).

Table 21
Pearson $r$ Correlation Coefficients for Demographics and RIPLS Scores

<table>
<thead>
<tr>
<th>Demographics</th>
<th>$r$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interact with other profession</td>
<td>0.200</td>
<td>0.000</td>
</tr>
<tr>
<td>Age</td>
<td>0.006</td>
<td>0.883</td>
</tr>
<tr>
<td>Year in Program</td>
<td>0.080</td>
<td>-0.057</td>
</tr>
<tr>
<td>Number of Classmates</td>
<td>0.146</td>
<td>0.001</td>
</tr>
</tbody>
</table>

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between students’ readiness for interprofessional learning and time spent with students from other profession? A low positive correlation was found ($r (559) = .200, p < .01$), indicating a significant relationship between the two variables. Students who spend more time with individuals from other professions tended report higher RIPLS scores. These results indicated a greater readiness for interprofessional learning occurred when spending more time with students from the other profession.
A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness and time spent with therapists from the other profession? A low, positive correlation was found ($r (73) = .344, p < .01$), indicating a significant relationship between the two variables. The results indicated a greater extent and effectiveness of interprofessional collaboration took place when therapist spent more time with therapists from the other profession.

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between students’ readiness for interprofessional learning and their age? A non-significant negligible, positive correlation was found ($r (559) = .006, p > .05$). This means that readiness for interprofessional learning was not related to students’ age.

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness and their age? A low, positive correlation was found ($r (73) = .313, p < .01$), indicating a significant relationship.
between the two variables. Practitioners’ of a higher age tended to have a higher IIC score. Based on these results, therapists who are older reported a greater extent and effectiveness of interprofessional collaboration.

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between students’ readiness for interprofessional collaboration and current year in program? A non-significant negligible, positive correlation was found ($r(559) = .008, p > .05$). Students’ year in program was not related to RIPLS score. The results indicated that students who reported spending more years in their program were not related to readiness for interprofessional learning.

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between therapists’ extent and effectiveness of interprofessional collaboration and number of years of work experience? A low, positive correlation was found ($r(73) = .323, p < .01$), indicating a significant relationship between the two variables. Practitioners who reported more years of experience tended to have higher IIC scores. These results indicated clinical experience was related to extent and effectiveness of interprofessional collaboration.

A Pearson’s $r$ correlation was calculated to answer the research question: Is there a relationship between students’ readiness for interprofessional collaboration and class size? A negligible, inverse correlation was found ($r(559) = -.146, p < .01$), indicating a significant relationship between the two variables. Students who reported fewer classmates tended to have higher RIPLS scores. These results indicated students who had classes with less students reported higher levels of readiness for interprofessional learning.
A Pearson's $r$ correlation was calculated to answer the research question: Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and number of therapist working at facility? A non-significant negligible, positive correlation was found ($r (73) = .036, p > .05$). Number of therapists working at a facility was not related to practitioners' IIC scores. The results indicated that the number of therapists working at a facility was not related to the extent and effectiveness of interprofessional collaboration.

**Comparison of RIPLS scores by discipline.**

An independent-samples $t$ test was conducted to answer the research question: Is there an overall difference between occupational and physical therapy students' attitudes towards interprofessional collaboration? In addition, an independent-samples $t$ test was conducted for each of the three constructs for the RIPLS (Table 23).

An independent-samples $t$ test comparing the RIPLS mean scores of the two groups of students found a significant difference between the means of the two group ($t(559) = 6.987, p < .05$). The mean of the OTS was significantly higher ($M = 76.86, SD = 7.806$) than the mean of the PTS group ($M = 71.82, SD = 9.276$). These results indicated that OTS reported higher levels of readiness for interprofessional learning collaboration than PTS.

An independent-samples $t$ test comparing the RIPLS construct of team-work and collaboration mean scores of the two groups of student found a significant difference between the means of the two group ($t(559) = 5.072, p < .05$). The mean of the OTS was significantly higher ($M = 36.89, SD = 4.196$) than the mean of the PTS group ($M = 34.92, SD = 4.991$). These results indicated that OTS reported a higher “willingness and a need
to share knowledge and skills with other undergraduates as a way of understanding
clinical problems in the workplace” compared to PTS (Parsell & Bligh, 1999, p. 97-98).

Table 23
Independent-Samples T-Test Analysis of the RIPLS Total and Subscale Scores by Discipline

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Occupational Therapy Students</th>
<th>Physical Therapy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (n = 305)</td>
<td>M (n = 256)</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>RIPLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team-Work &amp; Collaboration</td>
<td>36.8</td>
<td>34.9</td>
</tr>
<tr>
<td>Professional Identity</td>
<td>27.4</td>
<td>25.4</td>
</tr>
<tr>
<td>Roles and Responsibilities</td>
<td>12.0</td>
<td>11.4</td>
</tr>
<tr>
<td>Totals</td>
<td>76.8</td>
<td>71.8</td>
</tr>
</tbody>
</table>

An independent-samples t test comparing the RIPLS construct of professional identity mean scores of the two groups of student found a significant difference between the means of the two group (t(559) = 7.292, p < .05). The mean of the OTS was significantly higher (M = 27.49, SD = 3.743) than the mean of the PTS group (M = 25.45, SD = 4.36). This finding indicated that OTS reported higher levels of readiness for interprofessional learning from lower levels of retention of professional identity compared to PTS (Parsell & Bligh, 1999).
An independent-samples $t$ test comparing the RIPLS construct of roles and responsibility mean scores of the two groups of student found a significant difference between the means of the two group ($t(559) = 4.337, p < .05$). The mean of the OTS was significantly higher ($M = 12.03, SD = 1.548$) than the mean of the PTS group ($M = 11.45, SD = 1.591$). This finding indicated that OTS showed higher levels of readiness for interprofessional learning from having a greater understanding of roles and responsibility of health care professionals compared to PTS (Parsell & Bligh, 1999).

**Comparison of IIC scores by discipline**

An independent-samples $t$ test was conducted to answer the research question: Is there an overall difference between occupational and physical therapists' extent and effectiveness of interprofessional collaboration? An independent-samples $t$ test was also conducted for each of the five constructs for the IIC (Table 24).

An independent-samples $t$ test was calculated comparing the IIC mean scores for occupational therapists to the IIC mean scores for physical therapists. No significant difference was found ($t(73) = -0.729, p > .05$). The mean for occupational therapists ($M = 171.09, SD = 16.75$) was not significantly different from the mean for physical therapists ($M = 173.82, SD = 13.82$). These results indicated that the reported extent and effectiveness of interprofessional collaborations was not different between occupational and physical therapists.

An independent-samples $t$ test was calculated comparing the IIC construct of interdependence mean scores for occupational therapist to the mean scores for physical therapists. No significant difference was found ($t(73) = -0.481, p > .469$). The mean for occupational therapists ($M = 54.70, SD = 6.20$) was not significantly different from the
mean for physical therapists ($M = 55.36$, $SD = 4.75$). These results indicated that occupational and physical therapists reported no difference in “the occurrence of or reliance on interactions among professionals where all are dependent on the others to accomplish their goals or tasks” (Bronstein, 2002, p. 114).

Table 24

<table>
<thead>
<tr>
<th>Instrument</th>
<th>OT</th>
<th>PT</th>
<th>$df$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdependence</td>
<td>54.7</td>
<td>55.3</td>
<td>73</td>
<td>-0.481</td>
<td>0.632</td>
</tr>
<tr>
<td>Newly Created Professional Activities</td>
<td>23.9</td>
<td>24.3</td>
<td>73</td>
<td>-0.563</td>
<td>0.575</td>
</tr>
<tr>
<td>Flexibility</td>
<td>20.5</td>
<td>20.2</td>
<td>73</td>
<td>0.569</td>
<td>0.571</td>
</tr>
<tr>
<td>Collective Ownership of Goals</td>
<td>34.0</td>
<td>34.3</td>
<td>73</td>
<td>-0.391</td>
<td>0.697</td>
</tr>
<tr>
<td>Reflection on process</td>
<td>37.8</td>
<td>39.5</td>
<td>73</td>
<td>-1.14</td>
<td>0.154</td>
</tr>
<tr>
<td>Total</td>
<td>171.0</td>
<td>173.8</td>
<td>73</td>
<td>-0.729</td>
<td>0.469</td>
</tr>
</tbody>
</table>

An independent-samples $t$ test was calculated comparing the IIC construct of newly created professional activities mean scores for occupational therapists to the mean scores for physical therapists. No significant difference was found ($t(73) = -0.563$, $p > .05$). The mean for occupational therapists ($M = 23.96$, $SD = 2.97$) was not significantly
different from the mean for physical therapists \( (M = 24.36, SD = 2.98) \). These results indicated that occupational and physical therapists reported no difference in participation of “collaborative acts, programs, and structures that amount to more than what is created when the same professional acts independently” (Bronstein, 2002, p. 114).

An independent-samples \( t \) test was calculated comparing the IIC construct of flexibility mean scores for occupational therapists to the mean scores for physical therapists. No significant difference was found \( (t(73) = 0.569, p > .05) \). The mean for occupational therapists \( (M = 20.57, SD = 2.42) \) was not significantly different from the mean for physical therapists \( (M = 20.25, SD = 2.34) \). These results indicated that there was no difference between occupational and physical therapists in flexibility, which according to Bronstein (2002) is “the deliberate occurrence of role blurring” (p. 114).

An independent-samples \( t \) test was calculated comparing the IIC construct of collective ownership of goals mean scores for occupational therapist to the mean scores for physical therapists. No significant difference was found \( (t(73) = -0.391, p > .05) \). The mean for occupational therapists \( (M = 34.04, SD = 3.64) \) was not significantly different from the mean for physical therapists \( (M = 34.36, SD = 2.87) \). These results indicated that there was no difference in occupational and physical therapists participation in the “shared responsibility in the entire process of reaching goals” (Bronstein, 2002, p. 114).

An independent-samples \( t \) test was calculated comparing the IIC construct of reflection on process mean scores for occupational therapists to the IIC mean scores for physical therapists. No significant difference was found \( (t(73) = -1.14, p > .05) \). The mean for occupational therapists \( (M = 37.81, SD = 4.81) \) was not significantly different from the mean for physical therapists \( (M = 39.50, SD = 5.10) \). These results indicated that
there was no difference in occupational and physical therapists “attention to their process of working together” (Bronstein, 2002, p. 144).

**Comparison of RIPLS and IIC scores by IPHC courses and workshops.**

Two separate independent-samples \( t \) tests were conducted to answer the research question: Is there a difference between students’ attitudes toward interprofessional collaboration for students who have completed formal interprofessional education and those who have not? In addition, another two independent-sample \( t \) tests were also conducted to answer the research question: Is there a difference between therapist attitudes toward interprofessional collaboration for therapists who have completed formal interprofessional education and those who have not?

An independent-samples \( t \) test was calculated comparing the RIPLS mean scores for students who had attended an IHPC workshop to students who had not attended an IPHC workshop. No significant difference was found \((t(559) = 1.14, p > .05)\). The mean for students who had attended an IPHC courses \((M = 75.44, SD = 7.595)\) was not significantly different from students who have not attended an IPHC course \((M = 74.35, SD = 9.129)\). These results indicated that student who attended an IPHC workshop did not show an increase in readiness for interprofessional collaboration.

An independent-samples \( t \) test was calculated comparing the IIC mean scores for practitioners who had attended an IHPC workshop to practitioners who had not attended an IHPC workshop. No significant difference was found \((t(73) = -0.107, p > .05)\). The mean for practitioners who had attended an IPHC courses \((M = 171.86, SD = 15.797)\) was not significantly different from practitioners who had not attended an IPHC course \((M = 172.26, SD = 15.778)\). These results indicated that therapists who had attended an IPHC
workshop did not demonstrate an increase in the extent and effectiveness of interprofessional collaboration.

Table 25
Independent T-Test Analysis of the RIPLS Total and IIC Total Scores by IPHC Workshop

<table>
<thead>
<tr>
<th>Completed IPHC Workshop</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIPLS Score</td>
<td>75.4</td>
<td>74.3</td>
</tr>
<tr>
<td>IIC Score</td>
<td>171.8</td>
<td>172.2</td>
</tr>
</tbody>
</table>

An independent-samples $t$ test was calculated comparing the RIPLS mean scores for students who had attended an IHPC course to students who had not attended an IHPC course. No significant difference was found ($t(559) = .294, p > .05$). The mean for students who had attended an IPHC courses ($M = 74.72, SD = 8.198$) was not significantly different from students who had not attended an IPHC course ($M = 74.48, SD = 9.169$). These results indicated that students who had taken an IPHC course did not show improvement readiness for interprofessional collaboration.

An independent-samples $t$ test was calculated comparing the IIC mean scores for practitioners who had attended an IHPC course to practitioners who had not attended an IHPC course. No significant difference was found ($t(73) = -0.495, p > .05$). The mean for practitioners who had attended an IPHC courses ($M = 171.06, SD = 14.960$) was not significantly different from practitioners who had not attended an IPHC course ($M = 172.88, SD = 16.326$). These results indicated that extent and effectiveness of
interprofessional collaboration of therapists did not improve based on completion of an IPHC course.

Table 26

<table>
<thead>
<tr>
<th>Completed IPHC Course</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>RIPLS Score</td>
<td>74.7</td>
<td>74.4</td>
</tr>
<tr>
<td>IIC Score</td>
<td>171.0</td>
<td>172.8</td>
</tr>
</tbody>
</table>

Comparison of RIPLS and IIC scores by gender

We conducted two independent-sample t tests to examine if gender influences students’ readiness for interprofessional collaboration and the extent and effectiveness of practitioners’ interprofessional collaboration. The first independent-sample t test was used to determine if there was a difference in RIPLS scores between genders. The second independent-sample t test was used to determine if there was a difference in IIC scores between genders.

An independent-samples t test was conducted to answer the research question: Is there a difference between gender and students’ attitude towards interprofessional collaboration? An independent-samples t test comparing the RIPLS mean scores for male and female students found a significant difference between the means of the two group (t(559) = 3.935, p < .05). The mean of the female students was significantly higher (M = 75.1, SD = 8.329) than the mean of the male students group (M = 70.61, SD = 11.42).
These results indicated that female students reported higher levels of readiness for learning about interprofessional collaboration compared to male students.

An independent-samples \( t \) test was conducted to answer the research question: Is there a difference between gender and therapists’ extent and effectiveness of interprofessional collaboration? An independent-samples \( t \) test was calculated comparing the IIC mean scores for female and male practitioners. No significant difference was found \((t(73) = 0.4, p > .05)\). The mean for female practitioners \((M = 172.36, SD = 16.161)\) was not significantly different from practitioners who have not attended an IPHC course \((M = 170, SD = 11.439)\). These results indicated that there was no difference reported by female and male practitioners of the extent and effectiveness of interprofessional collaboration.

Table 27

*Independent T-Test Analysis of the RIPLS Total and IIC Total Scores by Gender*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
<th>( M )</th>
<th>( M )</th>
<th>( df )</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIPLS Score</td>
<td>75.1</td>
<td>70.6</td>
<td>559</td>
<td>3.935</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IIC Score</td>
<td>172.3</td>
<td>170.0</td>
<td>73</td>
<td>0.4</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary**

Chapter IV included the following information: pre-analysis data screening, results from instrument reliability analyses, descriptive analyses, and inferential statistical analyses.
used to answer the research questions in this study. The findings from Chapter IV are explored in further detail in Chapter V.
Chapter V

Discussion

Medical errors continue to be a primary concern in healthcare. In an effort to reduce medical errors, many healthcare facilities and educators have focused on improving interprofessional collaboration, which in turn may decrease communication breakdowns, increase productivity, and lead to improved patient satisfaction. Though there has been a great deal of research conducted on interprofessional collaboration, little has focused on allied health and more specifically occupational therapy (OT) and physical therapy (PT). This study provided an important examination several factors that influence interprofessional collaboration among OT and PT practitioners and students.

A limited number of researchers of previous studies have reported on the interprofessional collaboration between OT and PT practitioners, and no study had included both students and practitioners. Participants in this study consisted of 636 occupational therapy students (OTS), physical therapy students (PTS), occupational therapists, and physical therapists. Students accounted for over 88% of the sample. Factors affecting student readiness for interprofessional learning and therapist extent and effectiveness of collaboration, along with limitations of the study, have been described in the following section.
Students

Overall differences between OTS and PTS readiness for interprofessional learning were examined. Data analysis indicated that OTS exhibited more readiness for interprofessional learning than PTS. This result elicited several questions. We questioned if the differences between OTS and PTS were due to personal traits of students in each profession, however; we were unable to find data to support or negate this hypothesis. Differences in educational content and structure were also identified as potential causes. Cleary and Howell (2003) surveyed program directors of entry-level OT and PT programs. Barriers to interprofessional education between OT and PT programs included resource constraints, differences in curriculum, faculty attitude, and failed prior attempts to integrate classes (Cleary & Howell, 2003). We hypothesize that these are the not only barriers to interprofessional education. Rather, perceived differences in these areas between programs may also affect students’ readiness for interprofessional learning.

No differences in readiness for interprofessional learning were noted when students’ year in program was considered. Of the students who participated in this study a majority (71%) of OTS and (62%) PTS reported being enrolled in either the first or second year of their respective programs. Even though students’ year in their program was not a significant factor in the total Readiness for Interprofessional Learning Scale (RIPLS) score, it may contribute to the low Cronbach’s Alpha score of 0.245 on the Roles and Responsibilities subscale of the RIPLS. Due to the short length of time students had been in their respective programs, they may not yet have fully comprehended therapist roles. Conner-Kerr, Wittman, and Muzzareli (1998) examined student role perceptions. Several areas of perceived role discrepancies were noted
between OTS and PTS. A majority of OTS identified passive/active range of motion (91%), muscle strengthening and coordination (91%), transfer training (71%), and bed-mobility (77%) as shared responsibilities, while less than two thirds of PTS identified these as shared tasks.

The effect of participation in an interprofessional education (IPE) course or workshop on student readiness for interprofessional learning was examined. An independent-samples t test was performed and results indicated IPE participation was not a factor in student readiness for interprofessional learning. Current evidence on the benefits of IPE is inconclusive. Hoffman and Harnish (2007) reported increased knowledge of roles, awareness of interprofessional collaboration, and improved attitude towards IPE in pre-health professional students following a one-time IPE course. However, after conducting a systematic review of the literature on IPE Zwarenstein et al. (1999) reported a lack of rigorous evidence to support the effectiveness of IPE.

A majority of students (73%) who participated in this study were female. The relationship between gender and readiness for interprofessional learning was examined and yielded an interesting result. An independent-samples t test was conducted and females scored significantly higher on the RIPLS than males. We found no literature that pertained to the effects of gender on collaboration. However, communication has been identified as a main component of teamwork and collaboration (Manser, 2009; Sutcliffe, Lewton, and Rosenthal, 2004); & Wiegmann et al., 2007). Brizendine (2006) reported that females are able to correctly understand emotions, hear changes in intonations, and develop empathy at a younger age than males. We hypothesize that our result may be due, in part, by differences in brain development.
A majority of the research questions pertaining to students have been discussed in this section. More student results are discussed in the contact section. The following section discusses results pertaining to therapists.

**Therapists**

Of the 636 participants in this study, 75 were practicing therapists. We examined the overall difference between occupational therapists and physical therapists’ extent and effectiveness towards collaboration. An independent-samples t test was conducted and found no significant difference in collaboration between the professions. This finding revealed a direct contrast to the student results. We rationalized that the differences between students and practitioners were, in part, due to collaborative experiences gained through working with a healthcare team. Sumption and Lencucha (2009) found that interprofessional aspects such as role clarity and collaboration were important to teamwork and contributed to client-centered care.

Similar to the students, a majority of the therapists (89%) were female. The effect of gender on the extent and effectiveness of collaboration were examined. Unlike students, there was no statistical difference between gender and extent and effectiveness of collaboration in therapists. This difference may have multiple explanations. As discussed previously, Brizendine (2006) reported females develop communication skills at an earlier age. The age/maturity differences between the student and therapist populations brought to mind a possible developmental consideration for this difference. Another possible explanation is that the difference between students’ and therapists’ results may be due in part to the differences in life/work experience between the two populations.
Examination of the relationship between therapists’ age and the extent and effectiveness of interdisciplinary collaboration revealed interesting results. A positive relationship was discovered indicating that the older the therapist, the greater the interdisciplinary collaboration. There are several potential reasons for the presence of this finding. First, older therapists may be more secure in their roles as occupational therapists or physical therapists; a proposition which may parallel Erickson’s description of role identity versus role confusion found in adolescence (Cole, 2005). During the period of adolescents (age 18-22 years) individuals experiment with social and career roles (Giroux-Bruce and Borg, 2002). It may be argued that therapists’ with greater life experience may be aware of the possibilities and constraints within their profession. In addition, it is possible that older therapists have had greater work experience and, thus, are more aware of the boundaries of their profession, have developed more secure and formalized relationships with their colleagues (including those from other disciplines), and are generally less threatened overall than their younger counterparts (AOTA, 1993).

The effect of therapists’ attendance at an IPE course on the extent and effectiveness of collaboration was examined and, similar to student results, no difference between the two was found. The content of the IPE attended by the therapists is unknown to the researchers and may play a role in this result. However, as reported in the prior section, there is not enough published significant quantitative data to substantiate the benefits of IPE and more rigorous research into the effectiveness of IPE is needed (Zwarenstein et al., 1999). Although there is not enough published data supporting IPE at this time, some effects of contact on readiness for interprofessional learning and extent
and effectiveness of interprofessional collaboration are discussed in the following section.

Contact

A great deal of literature has identified a need for teamwork in healthcare to decrease medical errors, increase patient satisfaction, and enhance worker satisfaction. A number of barriers to teamwork have also been identified in the literature such as stereotypes of team members, lack of communication, and professional alliance. Allport (1979) reported that there are several variables embedded in contact between different groups, or professions, which may affect stereotypes and alliances, thereby, having an effect on collaboration. Several of the variables identified by Allport were: frequency and duration, amount of individuals involved, individual roles or status, and location. For the purposes of this study, the relationship of these variables with the total RIPLS and IIC scores were examined.

Readiness for interprofessional learning and extent and effectiveness of collaboration were both found to be affected by the amount of time students and practitioners spent with the other profession. A Pearson correlation coefficient was calculated and indicated a significant positive relationship between time spent and score on RIPLS and IIC. No students reported spending over 30 hours per week with students of the other profession. In fact, an overwhelming majority (92%) of students reported spending five hours or less per week with the students from the other profession in an academic setting. Cleary and Howell (2003) indicated one third of OTS and PTS in universities with both programs lacked chances to interact with each other academically.
Results from our study are even more alarming in that a majority (55%) of students surveyed reported having no contact with students from the other profession. Unlike students, a majority (51%) of therapists reported spending more than 21 hours per week with the other profession and all reported at least 1 hour per week of contact. The large discrepancy of time spent with the other profession between students and practitioners may be a factor affecting initial collaboration abilities of new therapists. Due to the shortage of shared clinical experiences, professional coursework, and the overall lack of time students spend with students from other disciplines (especially when compared with therapists”) they may be graduating with a lack of necessary collaborative skills.

Examination of the relationship between class size and readiness for interprofessional learning yielded results congruent with Allport’s (1979) theory of contact. A majority (76%) of OTS reported having less than 35 students per class while a majority (84%) of PTS reported having greater than 35 students per class. These demographic details were consistent with the findings of Cleary and Howell (2003). A Pearson correlation coefficient was calculated and found a significant inverse relationship between number of students per class and readiness for interprofessional learning. Allport (1979) wrote that perceptions of individuals vary and are dependent on the population density of the “minority” group. He hypothesized that personal contact is often superficial when it occurs in large groups. Smaller class size was related to a greater readiness for interprofessional learning in our study and OTS reported smaller class sizes than PTS. Therefore, this finding was congruent with the higher total RIPLS score of OTS.
Unlike the student relationship between group size and readiness for interprofessional learning, there was no relationship between the number of therapists per facility and the extent and effectiveness of collaboration. We anticipated this may be due to the nature of the work environment. In our experiences, even though a facility may employ a large number of occupational and physical therapists, the therapists often work individually which may negate some of aspects of group perceptions. This is contrasted in the student environment where large groups of students are often working on the same tasks.

Allport (1979) identified status as a contributing factor in prejudice. The current point of entry for an occupational therapist is either a Master’s or Doctoral degree (AOTA, 2007) while physical therapists are required to obtain their Doctorate (APTA, 2010). Of the students who participated in this study, a majority (99.9%) of OTS were working to obtain their Master’s Degree while most (99.6%) of PTS were working to complete their Clinical Doctorate. A Spearman rho correlation coefficient was calculated and found a significant inverse relationship between degree students’ were working towards and their readiness for interprofessional learning. One hypothesis for this result is that students who were attempting to complete a higher degree may have more intensive, practice specific, coursework which lead them to be more concerned with their own professional identity. According to Parsell and Bligh (1999) preserving one’s professional identity may come at the detriment to interprofessional learning. We also acknowledge the difference in degree requirements between the professions. As a result, of the differences, this analysis may simply represent the overall differences in the readiness for interprofessional learning between OTS and PTS.
Differences in level of degree were also reported by therapists. Of the therapists surveyed an overwhelming majority (96%) of occupational therapists had achieved either a Bachelor’s or a Master’s degree while a large percentage (36%) of physical therapists had obtained their Doctorate. However, unlike students, there was no correlation between therapists’ highest degree obtained and extent and effectiveness of collaboration. This may be due to the increased knowledge of interprofessional roles gained through exposure and experience while working with other professionals.

The effect of offices/departments location on readiness for interprofessional learning and extent and effectiveness of collaboration were also examined. A majority of students (56%) reported sharing a building but not classrooms or floors with students of the other profession. However, a majority (75%) of therapists reported sharing an office with the other profession. A Pearson correlation coefficient was conducted and found a significant inverse relationship between student readiness for interprofessional learning and therapist extent and effectiveness of collaboration with the physical distance of offices/departments. Specifically, the closer therapists worked in relation to each other, the higher their extent and effectiveness of collaboration. This result is consistent with the theory of contact proposed by Allport (1979). Allport theorized that persons who were in close physical proximity with those who had different backgrounds perceived fewer differences (1979). These results indicate that universities and clinical settings may improve collaboration between students and therapists by implementing a more intimate physical environment. Allport’s (1979) Contact Theory was found to be consistent with several findings from our study. However, multiple limitations to our data exist.
Limitations

We recognized several limitations to our study. Students represented an overwhelming percentage of our total population. There are several factors that may have influenced this phenomenon. First, practitioners had to type in a link to the survey which was mailed to them, while students had only to click on a hyperlink in an e-mail. The link was lengthy and may have deterred therapists’ desire to access the survey. Also, the student population consisted of a nationwide sample; however, the therapist population was limited to 13 states as we utilized a universities fieldwork database to access them.

Different surveys were utilized for students versus therapists and thus, comparisons between the two populations were limited. We had no way to control for or track the distribution of responses by location and it is possible that participants could have completed the survey more than once. We also found limited reliability on the roles and responsibilities subtest of the RIPLS.

Future Research

A great deal of the literature we found for this study pertained to multiple healthcare fields; however, we noted that few articles pertained directly to occupational therapy or physical therapy. Due to the current emphasis on interprofessional teamwork in healthcare and the growing number of occupational and physical therapists in the healthcare field, we see a need for future research regarding the effects their collaboration on patient outcomes. Zwarenstein et al. (1999) identified a lack of evidence to support the benefits of IPE on collaboration and teamwork. We have noted more recent studies which identify benefits of IPE; however, more rigorous studies are recommended for continued
exploration of IPE. We also recommend future research to further explore findings from 
this study including: the effect of age, years of experience, and gender on collaboration.
Appendices
Appendix A

Research Questions

1. What is the average amount of time occupational and physical therapy students spend working together in academic settings?
2. What is the average amount of time occupational therapists and physical therapists spend working together in practice settings?
3. What is the readiness for interprofessional learning, overall, for occupational and physical therapy students?
4. What is the extent and effectiveness of interprofessional collaboration, overall, for occupational and physical therapists?
5. Is there a relationship between students' scores on the readiness for interprofessional learning and physical environment of occupational and physical therapy departments at student's university?
6. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and physical environment of OT and PT offices at therapists' facilities?
7. Is there a relationship between students' readiness for interprofessional learning and degree working to complete?
8. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and highest degree earned?
9. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and work setting?
10. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and patient populations?
11. Is there a relationship between students' readiness for interprofessional learning and time spent with students from other profession?
12. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and time spent with therapists from other profession?
13. Is there a relationship between students' readiness for interprofessional learning and age?
14. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and age?
15. Is there a relationship between students' readiness for interprofessional learning and current year in program?
16. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and number of years of work experience?
17. Is there a relationship between students' readiness for interprofessional learning and class size?
18. Is there a relationship between therapists' extent and effectiveness of interprofessional collaboration and number of therapist working at facility?
19. Is there an overall difference between occupational and physical therapy students' attitudes towards interprofessional collaboration?
20. Is there an overall difference between occupational and physical therapists' extent and effectiveness of interprofessional collaboration?
21. Is there a difference between students’ attitudes toward interprofessional collaboration for students who have completed formal interprofessional education and those who have not?

22. Is there a difference between therapist attitudes toward interprofessional collaboration for therapists who have completed formal interprofessional education and those who have not?

23. Is there a difference in students’ attitude towards interprofessional collaboration with regards to gender?

24. Is there a difference between gender and therapists’ extent and effectiveness of interprofessional collaboration?

25. Is there a difference in students’ attitudes towards interprofessional collaboration when considering time spent collaborating with each other in academic settings?

26. Is there a difference in therapists’ extent and effectiveness towards interprofessional collaboration when considering time spent collaborating with therapists of other profession at work?

27. Is there a difference between OTS and occupational therapy (OT) practitioners’ attitudes toward interprofessional collaboration?

28. Is there a difference between PTS and physical therapy (PT) practitioners’ attitudes toward interprofessional collaboration?
Appendix B

IRB Approval

September 8, 2009

Matthew Cappetta, MOTS
Roberta Carlson, MOTS
Occupational Therapy
Stop 7126

Dear Mr. Capetta and Ms. Carlson:

We are pleased to inform you that your project titled, “An Exploratory Study Examining Interprofessional Collaboration of Occupational Therapy and Physical Therapy Practitioners and Students” (IRB-200909-050) has been reviewed and approved by the University of North Dakota Institutional Review Board (IRB). The expiration date of this approval is August 11, 2010.

As principal investigator for a study involving human participants, you assume certain responsibilities to the University of North Dakota and the UND IRB. Specifically, any adverse events or departures from the protocol that occur must be reported to the IRB immediately. It is your obligation to inform the IRB in writing if you would like to change aspects of your approved project, prior to implementing such changes.

When your research, including data analysis, is completed, you must submit a Research Project Termination form to the IRB office so your file can be closed. A Termination form has been enclosed and is also available on the IRB website.

If you have any questions or concerns, please feel free to call me at (701) 777-4079 or e-mail michellebowles@mail.und.edu.

Sincerely,

Michelle L. Bowles, M.P.A.
IRB Coordinator

MLBjile

Enclosures
Appendix C

Letter sent to Fieldwork Sites

August 27, 2009

Matthew Cappetta, OT Student
Roberta Carrlson, OT Student
Occupational Therapy Department
School of Medicine and Health Sciences
Hyslop 210
2751 2nd Ave. No. Stop 7126
Grand Forks, ND 58202-7126

Rehab Administrator
Hospital/Facility Name
Address
City

Dear Rehabilitation Administrator or Supervisor,

Hello. We hope the fall season is finding you well and wonderful. We are graduate students at the University of North Dakota working on the completion of our final research project. The purpose of this research is to examine interprofessional collaboration of occupational therapy and physical therapy practitioners and students.

We are writing to request your assistance in reaching occupational and physical therapists. Included in this envelope are several postcards, which include an overview of the survey purpose and a website address at which therapists can complete our survey. We would very much appreciate your assistance in passing them out to occupational and physical therapists at your facility if you see fit.

To assist you in making your decision about dissemination of the postcards, we have included the following information about the study. Participation in our study would consist of completing an online survey which should take no longer than 20 minutes. Participation in this study is completely voluntary and all participants can refuse to participate or withdraw from participation at any time with no penalty or loss. There are no foreseeable risks or discomfort for participation. You and your therapists will not benefit directly from participation; however we hope to use the results to inform future collaboration between occupational and physical practitioners and students. Responses collected on the survey will be confidential; no individual responses will be shared with anyone except the persons identified in the next paragraph.

If you have any questions or concerns, you can contact Matthew Cappetta at (XXX) XXX-XXXX, Roberta Carrlson at (XXX) XXX-XXXX, or our academic advisor, Dr. Anne Haskins, OTR/L at (XXX) XXX-XXXX at any time. If you have questions regarding you or your therapists’ rights as research subjects, or if you have any concerns of complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279.

Thank you in advance for your time, consideration and potential involvement!

Sincerely,

Matthew Cappetta
Roberta Carrlson
THANK YOU FOR YOUR PARTICIPATION!!!

OCCUPATIONAL THERAPISTS

We are students completing our scholarly project looking at interprofessional collaboration between OT and PT and need your help. To participate in the following study, please type in the appropriate link to complete the survey:

Occupational Therapists- use the following link:

http://www.surveymonkey.com/s.aspx?sm=r42yz5bmXDmxXXaXxDkGKg_3d_3d

Participation in this study is completely voluntary and you can withdraw at any time.

THANK YOU AGAIN FOR YOUR PARTICIPATION!!!

THANK YOU FOR YOUR PARTICIPATION!!!

PHYSICAL THERAPISTS

We are students completing our scholarly project looking at interprofessional collaboration between OT and PT and need your help. To participate in the following study, please type in the appropriate link to complete the survey:

Physical Therapists- use the following link:

http://www.surveymonkey.com/s.aspx?sm=rEnkgJ1mZBjwNM8a6Hwv5Q_3d_3d

Participation in this study is completely voluntary and you can withdraw at any time.

THANK YOU AGAIN FOR YOUR PARTICIPATION!!!
Appendix E

Complete List of Schools Contacted

Alabama State University
University of Alabama at Birmingham
University of South Alabama
University of Central Arkansas
Loma Linda University
Samuel Merritt University
University of Southern California
Quinnipiac University
Sacred Heart University
Florida Agricultural and Mechanical University
Florida Gulf Coast University
Florida International University
Nova Southeastern University
University of Florida
University of St. Augustine for Health Sciences
Medical College of Georgia
St. Ambrose University
Idaho State University
Governors State University
Midwestern University
University of Illinois at Chicago
Indiana University
University of Indianapolis
University of Kansas Medical Center
Louisiana State University Health Sciences Center, New Orleans Campus
Louisiana State University Health Sciences Center, Shreveport Campus
American International College
Boston University, College of Health and Rehabilitation Sciences
Springfield College
Husson University
University of New England Grand Valley State University Wayne State University College of St. Catherine College of St. Scholastica University of Minnesota The University of Mississippi Medical Center Maryville University Rockhurst University Saint Louis University University of Missouri-Columbia Washington University University of Mary University of North Dakota Richard Stockton College of Medicine New Jersey Seton Hall University University of New Mexico Columbia University Dominican College D’Youville College Ithaca College Long Island University, Brooklyn Campus Mercy College New York Institute of Technology New York University Sage Colleges State University of New York Downstate Medical Center Stony Brook University Touro College University at Buffalo, State University of New York Utica College Cleveland State University Ohio State University University of Oklahoma Health Sciences Center Pacific University

Alvernia University
Chatham University
Duquesne University
Gannon University
Misericordia University
Saint Francis University
Temple University
Thomas Jefferson University
University of Pittsburgh
University of the Sciences in Philadelphia
University of Scranton
Medical University of South Carolina
University of South Dakota
Belmont University
Tennessee State University
University of Tennessee at Chattanooga
University of Tennessee Health Science Center
Texas Tech University Health Sciences Center
Texas Woman's University
University of Texas at El Paso
University of Texas Health Science Center at San Antonio
The University of Utah
Shenandoah University
Virginia Commonwealth University
Eastern Washington University
University of Puget Sound
University of Washington
Concordia University Wisconsin
University of Wisconsin-LaCrosse
University of Wisconsin-Madison
West Virginia University
Appendix F

E-Mail Sent to Universities

October 07, 2009

Matthew Cappetta, OT Student
Roberta Carrlson, OT Student
Occupational Therapy Department
School of Medicine and Health Sciences
Hyslop 210
2751 2nd Ave. No. Stop 7126
Grand Forks, ND 58202-7126

Dear Program Director and Administrative Assistant,

Hello. We hope the fall semester is finding you well and wonderful. We are graduate students at the University of North Dakota and working on the completion of our final research project. The purpose of this research is to examine interprofessional collaboration of occupational therapy and physical therapy practitioners and students.

We are e-mailing to request your assistance in reaching occupational therapy students. Included at the bottom of this e-mail is the website link for students to complete our survey. We would appreciate your assistance in forwarding this link to occupational therapy students in your program.

To assist you in making your decision about forwarding of the e-mail and survey link, we have included the following information about the study. Participation in our study would consist of completing an online survey which should take no longer than 20 minutes. Participation in this study is completely voluntary and all participants can refuse to participate or withdraw from participation at any time with no penalty or loss. There are no foreseeable risks or discomfort for participation. You and your students’ will not benefit directly from participation; however we hope to use the results to inform future collaboration between occupational and physical practitioners and students. Responses collected on the survey will be confidential; no individual responses will be shared with anyone except the persons identified in the next paragraph.

If you have any questions or concerns, feel free to contact Matthew Cappetta at (XXX) XXX-XXX, Roberta Carrlson at (XXX) XXX-XXXX, or our academic advisor, Dr. Anne Haskins, OTR/L at (XXX) XXX-XXXX at any time. If you have questions regarding your students’ rights as research subjects, or if you have any concerns or complaints about this research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279.

OT Student link
http://www.surveymonkey.com/s.aspx?sm=LiuHQeU0QFuhss0xUOus8w_3d_3d

Thank you in advance for your time, consideration and potential involvement!

Sincerely,

Matthew Cappetta, OTS and Roberta Carrlson, OTS
Appendix G

Student Demographic Survey

Demographic Questions

Please select the appropriate answer for each of the follow questions.

Age (in years)
____ 18-25   ______ 26-30   ______ 31-35
____ 36-40   ______ 41-45   ______ 46-50
____ 55-60   ______ 61-65   ______ Older than 66

Gender
Female       Male

How many hours a week do you interact with physical therapy students?
____ 0       ______ 1-5    ______ 6-10    ______ 11-15  ______ 16-20
____ 21-25   ______ 26-30   ______ 31-35   ______ 36-40   ______ More than 40

Have you ever taken an Interprofessional Health Care Course?
Yes          No

Have you ever taken an Interprofessional Health Care Workshop?
Yes          No

What is the degree you are currently working to complete?
____ Masters Degree  ______ Doctorate Degree

Which of the following best describes the proximity of the Occupational Therapy and Physical Therapy departments at your college?
____ Share classrooms ______ Share Floor
____ Same Building      ______ Different Building

What is the average number of students in each class in your program?
____ 0-5        ______ 6-10    ______ 11-15   ______ 16-20   ______ 21-25   ______ 26-30
____ 31-35     ______ 36-40   ______ 41-45   ______ 46-50   ______ 51-55   ______ More than 55

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Appendix H

Therapist Demographic Survey

Demographic Questions

Please select the appropriate answer for each of the follow questions.

Age (in years)

<table>
<thead>
<tr>
<th></th>
<th>18-25</th>
<th>26-30</th>
<th>31-35</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36-40</td>
<td>41-45</td>
<td>46-50</td>
</tr>
<tr>
<td></td>
<td>55-60</td>
<td>61-65</td>
<td>Older than 66</td>
</tr>
</tbody>
</table>

Gender

Female       Male

Which of the following populations do you work with consistently?

<table>
<thead>
<tr>
<th></th>
<th>Pediatrics</th>
<th>Adult</th>
<th>Geriatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Which of the following settings do you work in consistently (Check all that apply)

<table>
<thead>
<tr>
<th></th>
<th>School System</th>
<th>Skilled Nursing Facility</th>
<th>Outpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute Care</td>
<td>Inpatient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How many total years of clinical experience do you have in your profession?

<table>
<thead>
<tr>
<th></th>
<th>0-1</th>
<th>2-3</th>
<th>4-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5-10</td>
<td>11-15</td>
<td>16-20</td>
</tr>
<tr>
<td></td>
<td>21-30</td>
<td>31-40</td>
<td>more than 41</td>
</tr>
</tbody>
</table>

Have you ever taken an Interprofessional Health Care Course?

Yes       No

Have you ever taken an Interprofessional Health Care Workshop?

Yes       No

What is the combined total of occupational therapist and physical therapist at your facility?

<table>
<thead>
<tr>
<th></th>
<th>0-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>21-25</th>
<th>26-30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31-35</td>
<td>36-40</td>
<td>41-45</td>
<td>46-50</td>
<td>51-55</td>
<td>More than 55</td>
</tr>
</tbody>
</table>

What is the highest degree you have earned or are currently working to complete?

<table>
<thead>
<tr>
<th></th>
<th>Bachelors Degree</th>
<th>Masters Degree</th>
<th>Doctorate Degree</th>
</tr>
</thead>
</table>

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Which of the following best describes the location of the Occupational Therapy and Physical Therapy offices in your facility in relation to each other?

___ Shared office   ___ Same Hallway   ___ Same Floor
___ Same Building   ___ Different Building
___ Our facility does not have both occupational therapist and physical therapist (skip next question)

How many hours a week do you interact with a physical therapist?

___ 0          ___ 1-5          ___ 6-10          ___ 11-15          ___ 16-20
___ 21-25      ___ 26-30      ___ 31-35      ___ 36-40      ___ More than 40
References


American Physical Therapy Association. (2010). Doctor of physical therapy (DPT) degree frequently asked questions. Retrieved from American Physical Association Website:
http://www.apta.org/AM/Template.cfm?Section=PT_Programs1&CONTENTID=16984&TEMPLATE=/CM/ContentDisplay.cfm


http://www.bls.gov/oco/ocos078.htm


http://www.bls.gov/oco/ocos080.htm

