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SPEECH-LANGUAGE PATHOLOGISTS' REPORTS OF INTERPROFESSIONAL COLLABORATION AND EXPOSURE DURING GRADUATE SCHOOL

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SPEECH-LANGUAGE PATHOLOGISTS' REPORTS OF INTERPROFESSIONAL COLLABORATION AND EXPOSURE DURING GRADUATE SCHOOL

By

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THESIS

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ABSTRACT

Although the importance and benefits of interprofessional education (IPE) and interprofessional collaboration (IPC) in healthcare have been well demonstrated, the majority of graduate programs in speech-language pathology (SLP) only offer discipline-specific coursework and related experiences. **Purpose:** The purpose of this study is to explore SLPs' perceptions of their graduate programs' success at preparing them to be interprofessional team-members in the medical work setting. **Method:** Medically-based SLPs in five Texas cities responded to a survey addressing IPE and IPC. Responses were collected regarding: 1. Interprofessional exposure to physical therapy (PT) and occupational therapy (OT) during graduate school, 2. IPE opportunities during their graduate studies, 3. IPC in their current work setting, 4. Perceived preparedness to work as an interprofessional team member upon graduation, and 5. Suggestions for increasing graduate programs' interprofessional opportunities. **Results:** A total of 63.8% of participants reported feeling that their graduate education did not adequately prepare them for interprofessional collaboration in their workplace.

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CHAPTER 1: INTRODUCTION

The provision of quality, patient-centered healthcare is a worldwide priority. International and nationwide medical organizations enhance citizens' lives by developing health standards and facilitating advances in healthcare research. Global health is a dynamic, ever-changing entity that requires the knowledge and clinical expertise of a wide range of medical providers. In the United States, for example, the American Medical Association's *Health Care Careers Directory* (2011) estimates that the healthcare field is comprised of more than 80 different professions. Nearly all of these 80+ disciplines have their own professional organization, and they correspond to approximately 8,600 accredited training programs in the United States alone (AMA, 2011). Factors such as the rapidly growing (and aging) universal population, more patients requiring medical care, and the rising complexity of patients' needs, have implications for these healthcare disciplines and their present and future practitioners (ASHA, n.d.).

As a consequence of the issues listed above, the healthcare sector is undergoing political, economic, and theoretical changes (Adamson, Hunt, Harris, & Hummel, 1998). These changes range from increasing cost effectiveness, to transitioning to a more holistic delivery of healthcare services (ASHA, n.d.; Adamson et al., 1998). In attempts to increase cost-efficiency while simultaneously providing excellent patient care, global healthcare organizations have advocated for adaptations in medical service delivery, and in the academic training of future professionals. Among the emerging adaptations is a growing emphasis on interprofessional education (IPE) and collaborative service delivery. These practices have emerged as a result of public statements from worldwide healthcare organizations and research studies suggesting that collaboration between allied health professionals can result in more efficient use of resources, better patient outcomes, and an increase in provider fulfillment (ASHA, n.d.).

Although this growing emphasis on collaboration has been linked to positive outcomes, healthcare professionals require a working understanding of each other's scopes of practice and responsibilities, in order for successful teamwork to occur (Martin, Williams, & DeVelder, 2008). Unfortunately, researchers such as Byrne and Pettigrew (2010) have asserted that professionals in the healthcare industry are lacking this crucial knowledge of other disciplines' roles. This lack of knowledge about other professionals' roles has been linked to a decrease in the standard of patient care (Pannbaker & Meyer, 2009), and an increase in interprofessional stereotyping and contention regarding role overlap (Mandy, Milton, & Mandy, 2004). In addition, Huebler (1994) explored perceptions of seasoned healthcare professionals and hospital administrators regarding preparation of allied health students for the workplace (as cited in Hunt et al., 1998, p. 127). Identified deficits in student readiness were in the areas of general healthcare industry awareness and insufficient interprofessional skills (as cited in Hunt et al., 1998, p.127).

This regrettable reality begs the logical question, "Are healthcare training programs actually addressing IPE (and its transition to collaborative practice) in their curricula?" An introduction to the multifaceted concept of collaboration, its support base, and negative features are first required, in order to truly appreciate the current (and hopefully future) answers to this question.

Collaboration Terminology

Throughout the healthcare literature, collaboration is referred to by an assortment of names and specifications because it is not a one-size-fits-all concept. Collaboration takes many

different forms, both in the provision of healthcare services and in the context of education for allied health students. As there is not an accepted collaboration nomenclature, lack of consistent terminology often results in confusion and ambiguity for educators seeking to incorporate it into healthcare curricula (Cleary & Howell, 2003).

Frequently used terms in the health care literature include but are not limited to the following: *teamwork, integration, interprofessional, interprofessional collaboration* (IPC), *interprofessional education* (IPE), *interprofessional exposure, interdisciplinary, multidisciplinary, transdisciplinary, shared learning, joint services* and *collaborative practice*. International health organizations and allied health researchers have offered the following definitions:

- *Interprofessional Education* (IPE) occurs when two or more professionals learn about, from, or with one another to facilitate effective collaboration and improve health outcomes (Centre for the Advancement of Interprofessional Education, 2002).
- *Interprofessional Collaborative Practice* occurs when multiple healthcare professionals working together to deliver excellent comprehensive health services to patients (also referred to as the provision of joint services) (Health Force Ontario, 2008).
- *Interdisciplinary* refers to the integration of various disciplines during learning, teaching, research, or problem solving, to facilitate a joint outcome (Beggs, 1999).

- *Interdisciplinary Education and Practice* when multiple disciplines collaborate through cooperative planning, goal-development and decision-making (American Association of Colleges of Nursing, 1995).
- *Interdisciplinary* or *interprofessional* professionals representing different disciplines are familiar each other's main principles and responsibilities. Professionals recognize different disciplines' core languages and clinical priorities, and their lines of communication intersect. These professionals take other disciplines' expertise into account when making their own clinical decisions (Clark, 1993).
- *Interdisciplinary collaboration* occurs when researchers or clinicians work together to solve a problem using an integrated approach (Hoit, 2006).
- *Multidisciplinary* training, problem-solving, or research that blends disciplines but preserves their individuality (Beggs, 1999); bringing several disciplines together to understand a specific experience or problem through their unique perspectives. From a clinical standpoint, disciplines depend on phone consultations or notes in a chart, rather than on direct communication with each other (Clark, 1993).
- *Multidisciplinary Education and Practice* happens when many disciplines work together with independent goals (American Association of Colleges of Nursing, 1995).
- *Multidisciplinary collaboration* occurs when researchers or clinicians bring complementary knowledge and abilities to a problem, but do not integrate their diagnostic or treatment efforts (Hoit, 2006).

- *Transdisciplinary collaboration* happens when clinicians or researchers work together using an integrative approach that surpasses disciplinary margins (Hoit, 2006).

Although the literature is rich with terms describing collaboration, several of these terms have very similar definitions. This reflects the context-dependency of word meaning, as introduced by John Rupert Firth in 1957, as cited in Monaghan (1999), "You shall know a word by the company it keeps."

Throughout the course of this paper, the terms *interprofessional collaboration* (IPC) and *interprofessional education* (IPE) will serve as umbrella terms for collaboration. Here onward, the term IPC refers to any form of joint practice, exposure, or interaction between two or more health care professionals in the academic or work settings. Likewise, IPE will represent the varying degrees of learning that may occur between two or more students, faculty members, or health care professionals in the academic or work settings. Interdisciplinary and interprofessional will also be used synonymously throughout the present study.

Support from World-wide Healthcare Organizations

Healthcare organizations around the world have announced their support of collaboration in the delivery of patient care. The World Health Organization (WHO), the international health entity within the United Nations, has recognized collaboration as a fundamental piece of universal health. During the International Conference on Primary Health Care in Alma-Ata, Kazakhstan, WHO representatives established the goal of "Health for All." During the Declaration of Alma-Ata (1978), the WHO mandated that primary health care:

> should be sustained by integrated, functional, and mutually supportive referral systems… and relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team… (p. 2).

The WHO has also published a public document entitled the *Framework for Action on Interprofessional Education and Collaborative Practice* that showcases the present status of interprofessional collaboration across the globe (WHO, 2010). This document was developed as a tool to provide health policy-makers with strategies to facilitate collaborative practice and interprofessional education.

Within the United States, the National Institutes of Health (a division of the U.S. Department of Health and Human Services) makes significant advancements in medicine to enhance and prolong lives (NIH, n.d.) Although healthcare research has been typically undertaken by discrete specialties or disciplines, the NIH supports interprofessionalism by rewarding researchers and scientists who engage in interdisciplinary investigations (NIH, n.d.).

The Canadian Health Services Research Foundation (CHSRF) advocates for interprofessionalism by publishing systematic reviews of collaboration in Canadian primary healthcare. The CHSRF recognizes collaborative practice as a crucial component of handling the challenges of an aging population, appropriately serving co-morbid populations, and caring for those with chronic diseases (Barrett, Curran, Glynn & Godwin, 2007).

Collaboration in healthcare training programs and in professional service delivery is also of primary importance in the United Kingdom. The UK's Centre for the Advancement of

Interprofessional Education (CAIPE) acts on the notion that successfully designed IPE can improve quality of life and overall patient care (CAIPE, 2011). The CAIPE disseminates information and resources about interprofessionalism via its website, publications, and its prominent connection with the Journal of Interprofessional Care (CAIPE, 2011). The *Journal of Interprofessional Care* is published six times each year and its articles endorse collaboration (by means of education, professional practice, or research) in the domains of social services, health care, and education (CAIPE, 2011).

Support from Professional Organizations

Numerous allied health professional organizations, among them, the American Association of Colleges of Nursing (AACN) and the American Speech-Language-Hearing Association (ASHA) have recognized the importance of collaboration. According to the American Association of Colleges of Nursing (1995), nursing students must learn in an environment that fosters interdisciplinary educational experiences and teaches mutual respect and understanding. Although different healthcare fields have their own foci, healthcare professionals must work as team-members with other disciplines (AACN, 1995). In similar form, ASHA acknowledges that quality healthcare entails the constant communication and information sharing of different disciplines (ASHA, n.d).

ASHA's Position

The ASHA Code of Ethics (2010, p. 4) stipulates that speech language pathologists (SLPs) must: "…maintain interprofessional and intraprofessional relationships," thus designating collaboration between disciplines as a requirement for professional competence.

Hoit (2006) stated that the ability to "talk across disciplinary lines," also referred to as "cross talking," is essential to collaboration, and collaboration between professionals is necessary to solve complex research questions. ASHA further demonstrates its support of collaboration by providing its members with resources on IPC and IPE. Among the resources are brief introductions to the CHSRF and the CAIPE (described above) and other collaboration centers or organizations (ASHA, n.d.)

ASHA likewise demonstrates its support of collaboration through its professional involvement with other organizations. For example, ASHA belongs to *The Consultant Group on Interprofessional Professionalism*, which is comprised of the following professional organizations: American Association of Colleges of Nursing, Association of Colleges of Osteopathic Medicine, American Association of Colleges of Pharmacy, American Dental Education Association, American Psychological Association, American Physical Therapy Association, and The National Board of Medical Examiners (Brownell, Hammer, and Nunez 2008).

ASHA is also a member of the *National Joint Committee for the Communication Needs of Persons with Severe Disabilities* (NJC), an organization created in conjunction with The Association for Persons with Severe Handicaps (TASH). The NJC (1992) supports educational endeavors and research designed to help individuals living with severe disabilities to communicate more effectively. A core emphasis of the NJC is that communication treatment must occur across multiple contexts, requiring the collaboration and skills of family members and professionals from multiple disciplines (NJC, 1992).

The Joint Committee on Interprofessional Relations Between ASHA and Division 40 (Clinical Neuropyschology) of the American Psychological Association provides guidance to

SLPs and clinical neuropsychologists during diagnosis and treatment of individuals with acquired brain injuries (Joint Committee on Interprofessional Relations, 2007). The multifaceted complications of the brain-injured population require the integrated knowledge and skills of several disciplines working as a team to maximize patient recovery.

Additionally, ASHA provides its members with disorder-specific policy documents to guide and assist SLPs in important decision-making. For example, with respect to patients using augmentative and alternative communication (AAC), ASHA stipulates that the goal of AAC is to maintain or advance a "desirable quality of life," regardless of any individual therapist's professional perspective or theoretical orientation (ASHA, 2004). In addition, while treating patients with AAC, SLPs much recognize the need for knowledge of other professionals, including: physicians, teachers, vision specialists, occupational therapists, physical therapists, social workers, behavior specialists, psychologists, and engineers (ASHA, 2004).

In regards to individuals with cognitive disorders and/or developmental disabilities, ASHA states that SLPs provide assessments and interventions as members of a collaborative treatment team (ASHA, 2005). Collaborative team members serving this population include the patient with disabilities, his or her family members, caregivers, and a wide range of clinical professionals. Together, team members develop and organize holistic interventions that are family-centered, culturally sensitive, and geared to maximize patient care and enhance treatment outcomes (ASHA, 2005). ASHA's support of collaborative practice extends to patients using tracheoesophageal (TE) speech. Beginning with preoperative patient screening, the otolaryngologist and the SLP work together to assess the patient's capacity to generate voicing using tracheoesophageal speech, and work together to select and fit the TE device (ASHA, 2004).

Collaboration with other allied health professionals in the workforce is not a new development for speech-language pathologists. Various publications in the literature describe successful teamwork between SLPs and other healthcare professionals with respect to a wide range of disorders. Several publications in the healthcare literature state that IPE is essential for professional achievement, and that the most crucial time for healthcare providers to receive IPE experience is during educational training. Although ASHA recognizes the importance of collaboration between SLPs and other practitioners, the vast majority of studies on this topic are outside of the SLP journals.

Collaboration in the Literature

Eakman, Davens, Ager, Buchanan, Fee, Gollick, Michels, Olson, Satterfied and Stevenson (2002) investigated the effects of an interdisciplinary fall avoidance team on the frequency of falls and injuries in 25 elderly patients living in a long-term care setting. Members of the interdisciplinary team included representatives from the following departments: nursing, occupational therapy, pharmacy, physical therapy, speech-language pathology, and social services. Data of residents' fall history and resulting injuries was compiled before implementation of the "fall prevention team" and during the 90 days after it was executed. Members of the team completed their respective patient evaluations and reported findings to other members. Participants were prescribed one of the following four types of interventions based on recommendations from the team: clinical interventions, psychosocial interventions, environmental adaptations, or restraint-free alarms. Evaluation of the 90-days of data collection after initiation of the fall prevention team, indicated a 39.8% decrease in patient fall rates. As discussed by Eakman et al., (2002), this data suggests that the presence of an interdisciplinary

fall prevention team is a likely contributor to the reduction of patient falls and injuries. The researchers further emphasized that the different perspectives of each fall-prevention team member facilitated the comprehensive approach to each patient's fall-prevention care plan.

Musson and Silverman (1997) assessed the effect of an interdisciplinary team on improving the prescription and use of liquid nutritional supplements in a VA hospital during the treatment of dysphagia. The catalysts for this study were escalating demands from the Joint Commission of Accreditation of Hospitals (JCAH) to demonstrate how interdisciplinary monitoring can enhance patient care. Members of this interdisciplinary team included: one speech language-pathologist, pharmacists, dietitians, one home health nurse, one nurse practitioner, one social worker, a quality management team, and physicians with a variety of specialties. Together, these professionals identified the number of VA outpatients who currently had prescriptions for liquid nutritional supplements, estimated the cost of supplement provision, and developed interdisciplinary criteria for the future prescription of supplements. Supervisory backing was then obtained to establish an assessment program for patients getting the nutritional supplements. Interdisciplinary team members also reviewed patients' medical records and performed assessments to determine each patient's continued need of the nutritional supplements from each discipline's perspective. Musson and Silverman (1997) reported that implementation of an interdisciplinary quality assurance team allowed the hospital to identify the overspending of monthly funds on unnecessary supplement prescriptions.

Strasser, Falconer, Herrin, Bowen, Stevens and Uomoto (2005) examined the connection between the functioning of rehabilitation teams and results for stroke patients. Five-hundred thirty rehabilitation personnel from speech-language pathology, physical therapy, occupational therapy, social work, medicine and nursing, representing 46 VA rehabilitation units, completed a

survey addressing views of team functioning. Survey items featured the following characteristics: communication between team members, support and involvement from the physician, interprofessional relationships of team members, innovation, task familiarity, use of essential information, and overall organization, order, and effectiveness. The survey also required participants to address the following features of patient outcomes: improvement, length of rehabilitation stay, and discharge to the home or other settings. Results of the study identified that team order and organization, use of important information, and task familiarity were significantly linked ($p < .05$) to patient improvement, while team effectiveness was significantly related to length of patient stay ($p < .05$). As stated by Strasser and colleagues (2005), although further research is needed to better understand the dynamics of team-functioning and its measurement effectiveness, these results may aid rehabilitation centers in optimizing the cost-effectiveness of stroke rehabilitation service delivery.

While IPC has been widely published in the healthcare literature, Borduras, Frank, Hall, Handfield-Jones, Hardwick, and Ko (2006) state that academic institutions and their faculty members are the actual catalysts for IPE in training curricula and the use of collaborative practice in the workplace. Various researchers assert that IPE is essential to supplying future healthcare professionals with the skills and knowledge necessary to provide collaborative, family-centered, and efficient patient care (Takahashi, Brissette, and Torstad, 2010). Likewise, interdisciplinary interactions also provide an "enriched and diverse educational background" (University of Florida, 2009).

In addition to the literature review, the primary researcher did an online search of university program websites to identify collaboration efforts. Please refer to Table 1.

Table 1. International Examples of IPE

University	Professions	Overview of IPE
University of Minnesota	Dentistry, nursing, medicine, public health, veterinary science	Interprofessional courses, activities, and events to increase knowledge of other professionals' roles. (University of Minnesota, n.d.)
Oregon Health and Science University	SLP	SLP students perform interdisciplinary research and have interprofessional clinical opportunities (Oregon Health and Science University, n.d.)
Texas Tech University	SLP	Guest lectures from: OT, PT, hearing impaired education, human development and family sciences, psychology. (Sancibrian, 1990)
University of South Dakota	SLP, OT, PT, PA, social work, audiology, dental hygiene, dietetics, health services, administration, medicine, nursing	Students from the different disciplines were assigned to an interdisciplinary team. Teams interviewed a hypothetical patient and developed an interdisciplinary plan of care. (Martin, Williams, & DeVelder, 2008)
University of Florida	SLP	Doctoral candidates work choose additional courses that relate to their interests. (University of Florida, 2009)
University of Kentucky & Eastern Kentucky University	SLP, OT, PT	At Rockcastle Regional Hospital and Respiratory Care Center, students observed an evaluation, assessed a patient, designed a plan of care, and participated in a community activity. (Page, n.d.)
University of North Dakota	SLP, OT, PT, nursing, medicine, physician assistant, social work, dietetics	Students participated in two six-week sessions of an interprofessional healthcare course designed to teach communication skills necessary for the workplace. <u>Student Perspectives after IPE:</u> Social Work students reported the highest satisfaction, followed by SLP and medicine (Schill, Christian, Christianson, Hall, Haskins, Jedlicka, Offutt, & Romanick, 2008)

University College Cork, College of Medicine & Health Ireland	SLP, OT, medicine	Students were broken up into interdisciplinary groups and given a case study about a stroke victim and notes from relevant professionals. Groups discussed the case, different disciplines' roles and contributions to case management over time <u>Student Perspectives after IPE:</u> 89.1% of students: IPE should be officially included in curricula, 8.9% of students: School schedule is too busy, curriculum and IPE can be learned at work (Pettigrew, O'Sullivan, Henn, & O'Flynn, 2008)
Shriner's Hospital for Children Canada	Nursing, OT, PT	Students participated in a seminar, group discussions and group presentations. The program was developed to fit within students' clinical placement at Shriner's, a university-affiliated hospital. Students reviewed the theoretical foundation of interprofessionalism, discussed different healthcare professionals' roles, participated in interprofessional team meetings, and developed a collaborative care plan for a hypothetical patient. <u>Student Perspectives after IPE:</u> Enhanced understanding of healthcare professionals (Takahashi, Brissettte, & Torstad, 2010)

Although the literature provides examples of successful use of IPE in training curricula, as evidenced above, its implementation takes many different forms. Putting IPE into practice is also not without obstacles; and many current practitioners report little to no interprofessional exposure during their academic careers. Barriers to incorporating IPE in academia include faculty attitudes, scheduling conflicts, and cost (Larson, 1995). The educational culture of the United States also typically emphasizes individual accomplishments over teamwork successes. As explained by Clark (1993), mastering a particular discipline's pertinent knowledge is

typically the goal of university departments. According to Smith and Pilling (2007), healthcare training programs impart their graduates with discipline-specific knowledge and skills but do not sufficiently prepare them to be interprofessional team members. In like fashion, the majority of graduate and professional healthcare programs only offer coursework in the particular discipline being studied, instead of also including general healthcare knowledge and interpersonal skills (Christie, Smith, & Bednarzyk, 2007; & Larson, 1995). Master's programs in SLP frequently share this "discipline-specific" philosophy due in large part to their obligation to retain a realistic degree length (Sancibrian, 1990).

As can be expected, studies exploring allied health students' knowledge of other healthcare disciplines suggest that students as a whole have a solid understanding of their own field's role and scope of practice, but limited knowledge of the roles and scopes of practice of other healthcare professions (Smith and Pilling, 2007). Rocky transitions to successful workplace collaboration are often consequences for students in discipline-specific training programs with no emphasis on interprofessionalism (Hunt et al., 1998). This occurs because new health graduates are engrossed in gaining aptitude in their own clinical discipline (Larson, 1995).

Researchers such as Takahashi et al., (2010) assert that there is a lack of current evidence on the tangible benefits of IPE on professional practice. IPE outcomes are difficult to evaluate because there are many different ways to deliver interprofessional education. As evidenced in Table 1 above, programs vary in their method and structure of IPE. Researchers such as Zwarenstein and Reeves (2006) have also published on the lack of rigorous evidence about outcomes of IPE and IPC in the literature (e.g. different levels of evidence). Although the evidence base for IPC/IPE is beyond the scope of the current research study, the development of

such evidence levels may provide researchers and healthcare practitioners alike with knowledge regarding the best possible methods of collaborative practice for patients.

Interest in the extent to which future healthcare professionals are prepared for the work place is gaining prominence in the healthcare literature. In attempts to better understand students' preparation for work, various researchers have investigated students' views of a gap between their formal education and professional practice. Smith and Pilling (2007) reported on a program in Melbourne, Australia designed to support health care students in the transition from student to working professional. Fourteen recent graduates from Northern Health (a publically-funded healthcare provider in Australia with four training campuses) participated in the study during their first year in the workforce. Participants represented podiatry, physical therapy, physical education, occupational therapy, speech-language pathology, and social work. The study consisted of 12 two-hour sessions during a ten-month period and focused on facilitating support among peers, professional development, and also provided an interdisciplinary "round-table" to foster knowledge-sharing and work experiences. Participants reported the need for training in the context of interprofessional collaboration, specifically, how different professionals can work within their own scope of practice while simultaneously working with other professionals.

Cleary and Howell (2003) investigated the incidence of joint learning between physical therapy (PT) and occupational therapy (OT) students in health care training programs in the United States. The primary investigators mailed a survey pertaining to the educational interface between OT and PT students, to the program directors of each emerging or accredited program in their respective fields. One-hundred twenty-three surveys were returned out of total of 206 sent surveys, corresponding to a response rate of 59.7%. Results of the study indicated that

approximately one third of current OT and PT students in the United States who are currently undergoing academic training do not have occasions to engage in educational interaction.

Hunt, Adamson, and Harris (1998) assessed physical therapists' impressions of their workplace preparation upon graduating from The University of Sydney. Two-hundred and thirty-nine graduates participated in the study, and results indicated that participants perceived a gap between the knowledge they obtained during school, and the skills required of them at work, specifically in the areas of awareness of the healthcare industry and communication with clients and other professionals.

Adamson, Hunt, Harris, and Hummel (1998) assessed occupational therapy graduates' perceptions of their undergraduate preparation for the workplace. One-hundred and forty-four graduates from the School of Occupational Therapy at the University of Sydney responded to the 11-part questionnaire. Part five of the questionnaire pertained to role expectations in the work place, specifically, working in collaboration with other health professionals as members of a team. In this section, participants responded to questions concerning role expectations, engaging in collaborative practice with other disciplines, and serving as a contributing member of an interprofessional team. Participants' responses indicate that many occupational therapy graduates at the University of Sydney believe that there is a gap between their undergraduate coursework knowledge and their working environment. Larson (1995) stipulates that health care workers must think of each other as contemporaries in the pursuit of quality patient care in order for successful collaboration to occur.

Despite numerous studies depicting the fundamental importance of interprofessionalism, and ASHA's recognition of interprofessionalism as a component of best practice, the SLP literature has yet to explore if training programs are adequately preparing graduates for

workplace collaboration. The purpose of this study is to explore medically-based working SLPs' perceptions of their interprofessional collaboration and exposure during graduate school to determine if Master's programs are preparing graduates to be interprofessional team-members in the medical work setting. The hypothesis being tested is: Do SLPs feel that their graduate experience adequately prepared them for interprofessional collaboration in the workplace?

CHAPTER 2: METHODS

Participants

500 speech-language pathologists (SLPs) holding the ASHA Certificate of Clinical Competence and employed in medical work settings across five cities in Texas, were asked to participate in an online survey generated by *SurveyMonkey.™*

Procedure

A list of Texas cities, obtained from the Texas State Library and Archives Commission (2010) website was used to obtain descending city-population information from the 2000 census. The five most heavily populated cities in Texas (Houston, Dallas, San Antonio, Austin, and El Paso) served as sampling locations for SLPs participating in this research study.

The American Speech-Language and Hearing Association (ASHA) membership directory database was used to identify medically-based SLPs practicing in each of the five cities listed above. Each city was individually entered into ASHA's membership directory along with specially chosen employment facilities. This was done to ensure that the membership directory searched only for medically-based SLPs. The following seventeen employment options were used to identify SLPs practicing in medical settings: 1) all other hospitals, 2) clinic chain or franchise, 3) diagnostic/treatment residential center, 4) general medical hospital, 5) health agency, 6) home health agency/client's home, 7) medical school, 8) MR/DD/LD residential center, 9) outpatient rehabilitation center, 10) pediatric hospital, 11) physical disabilities residential center, 12) rehab agency, 13) rehab hospital, 14) skilled nursing facility, 15) subacute/transitional care, 16) university hospital, and 17) VA hospital/medical center.

According to the ASHA membership directory and the employment criteria listed above, the breakdown of medically-employed SLPs in each of the five sampling cities (at the commencement of this study) was as follows: Houston: 259, Dallas: 203, Austin: 201, San Antonio: 218, and El Paso: 102. Each city's medically based SLPs were be alphabetized by last name, in a Microsoft Excel spreadsheet and numbered sequentially. For example, the 259 SLPs in Houston were alphabetized by last name and entered into a spreadsheet numbered from 1-259, thus assigning a number to each SLP. These spreadsheet numbers served as the identifiers for the random selection methods described below. Email addresses for each medically-based SLP were included in the spreadsheet cells immediately adjacent to the "first name" cell.

Randomization procedures began after each city's medically-based SLPs were entered into their respective spreadsheet and assigned a number. One-hundred SLPs were randomly selected from each city via the true random number generating service (www.random.org). Randomization of SLPs was completed individually for each city until 100 random numbers (participants) had been randomly selected for each city.

The computerized random number generator required the entry of a minimum number value (referred to as "min") and a maximum number value (referred to as "max") into the true random number engine. Following the insertion of these respective values in the generator by city (min: 1 and max: the number of SLPs meeting medical setting criteria, for example, 259 in Houston), the electronic button marked, "generate" was selected, which resulted in the generation of random number values for each city. The primary researcher pressed the "generate" button 100 times for each city. In doing so, every medically based SLP identified in each of the five sampling cities had an equal chance of being randomly selected for the study.

The random selection of SLPs for this study was complete once the "generate" button had produced 100 random numbers per city (thus randomly selecting 100 SLPs).

The primary researcher sent two emails to each of the randomly selected 500 medically based SLPs. The first email contained a brief introduction to the study, a link to the *SurveyMonkey ™* survey protocol, and an explanation that the link would remain active for a two-week period. All informed consent information and instructions for completing the study, approved by the IRB at UTEP, were included in the *SurveyMonkey ™* survey protocol itself. A second (and final) email was sent to the SLPs after the end of the first week of survey activation. The text of this email included a brief "thank you" to those individuals who had already completed the survey, and also a reminder that the survey would remain open on *SurveyMonkey ™* for one more week.

Of the 500 emails sent on the morning of the survey's activation, 479 emails were successfully delivered. Fifteen emails were undeliverable and bounced back to the primary researcher, either because the individual's email-box was full, or because they were no longer using the email provider (e.g. yahoo, google, hotmail) that they had indicated on their ASHA membership directory page. The primary researcher received five emails from prospective participants who explained that they were no longer employed in a medical work environment and did not feel comfortable completing the survey. An additional individual emailed the primary researcher, asking to be removed from the study's email list. The six individuals who made contact with the researcher were removed from the study's email list and did not receive a second email.

With the exception of the six participants who wished to be excluded from the study, a second email was sent to the prospective participants at the end of the first week of the study. Of

these 494 prospective participants, the same 15 emails that were undeliverable during the first mass email attempt were again unsuccessful, resulting in 479 successful deliveries for the second email. Within the two-week period of data collection, a total of 70 respondents completed the survey. One respondent self-identified as a physical therapist and that individual was omitted from the study because SLPs were the target population for this investigation. ASHA allows allied health professionals and researchers to be members without certification, which may explain how a physical therapist was randomly selected for this study. Removal of the physical therapist resulted in 69 total participants, corresponding to a response rate of 14.4%.

Instrumentation

A 13-question survey protocol, developed by the primary researcher in Microsoft Word™ format, was converted to an electronic format compatible with the electronic survey engine, *SurveyMonkey.™* The introductory questions gathered background information specific to respondents' respective cities of residence, graduate-school alma mater, professional experience, and employment setting. Subsequent survey questions pertained to the nature and frequency of participants' exposure to occupational therapy (OT) and/or physical therapy (PT) professionals in their working environment, and during their graduate program in speech-language pathology. Respondents were then asked to define "interprofessional collaboration," and also describe the nature of their interprofessional collaboration with OT and PT students during graduate school. The concluding questions asked participants to judge the success of their particular Master's program at preparing them for collaboration with OTs and PTs in their workplace. Participants were asked to expand on their chosen answers ("yes," "no," "prefer not to answer," and "other") by describing how their program was successful or unsuccessful, as well as by describing their

personal recommendations for bettering their interprofessional collaboration opportunities. See Appendix A for complete survey.

Content Validity and Readability of the Survey

Five out-of-state, practicing speech-language pathologists were asked to serve as pilot participants for this study in order to determine the protocol's readability and content validity. These individuals' comments and feedback were taken into consideration during the final stages of survey development, but were not included in the final data set.

Analysis

At the conclusion of the two weeks of survey activation, the primary researcher and thesis advisor examined each survey question's specific response percentages and response counts for analysis via descriptive statistics (e.g. modal responses).

Participants' answers to free-response survey questions were evaluated using text analysis software developed by Adamovic (2009), *Online Utility,* to identify word and phrase frequency, as well as the presence of response patterns. Inter-rater reliability involved analysis of specific item content by graduate students in speech-language pathology who were familiar with the context of this study. Three raters provided reviews which were calculated for survey question #11. This specific question, *"Do you feel that your graduate experience in speech-language pathology adequately prepared you to collaborate with occupational therapists (OT) and/or physical therapists (PT) in your workplace?"* asked participants to choose one answer choice out of the following four possibilities: a. yes, b. no, c. prefer not to answer, or d. other (please specify). Participants who had selected answer choice "d. other" were then prompted by

SurveyMonkey™ to explain their response. At the completion of data analysis, the three raters were individually asked to determine if any of the "d. other" answer descriptions leaned more towards the "a. yes" answer choice, or the "b. no" answer choice. Inter-rater reliability was calculated for each "d. other" response, and responses with 100% agreement were then coded as "a. yes" or "b. no," respectively.

CHAPTER 3: RESULTS

Review of results will begin with Question 11 of the survey, which corresponds to the study's research hypothesis. Results will continue with Questions 12 and 13, which pertain to participants' descriptions of successful IPC preparation during graduate school and suggestions for enhancing IPC opportunities during graduate school, respectively. Questions 7 and 8 provide participants' descriptions of their exposure and most frequent interactions with OT and PT professionals in their work environment. Question 9 follows with participants' definitions of IPC, and Question 10 addresses respondents' descriptions of the nature of their IPC with OT and PT during graduate school. Question 4 pertains to the number of years that participants have been practicing speech-language pathology, and Questions 5 and 6 focus on employment setting information. Participants' current cities of residence and respective graduate programs in SLP are addressed in Questions 1-3, and will complete the results section.

Question 11

Preparation for Collaboration with OT and PT in the Workplace After Graduate School

Participants were asked to specify if their graduate experience in SLP adequately prepared them to collaborate with OTs and/or PTs in their workplace. Respondents selected an answer based on four choices: a. yes, b. no, c. prefer not to answer, and d. other. Based on original responses, 18 participants (26.1%) selected "a. yes," 38 participants (55.1%) selected answer "b. no," three participants (4.3%) selected answer choice, "prefer not to answer," and 10 participants (14.5%) selected "d. other." Participants who selected answer choice "d. other" were prompted by *SurveyMonkey ™* to elaborate on their response. Three raters introduced during the

study methodology section in Chapter 2, reviewed the "d. other" responses and categorized them as "a. yes" or "b. no." Inter-rater agreement was calculated individually for each "d. other" response. Participants' responses were only changed if raters had 100% agreement. Raters had 100% agreement on six of the "d. other" responses, but agreement was not sufficiently achieved on the remaining four responses, so these responses were not changed. The "Yes" column contains responses in which there was 100% inter-rater agreement. The "No" column contains responses in which there was less than 100% agreement. See Table 2 below.

Table 2. Inter-rater Reliability for the Ten "d. Other" Responses

Participant's Response Elaboration	**Yes (100% Agreement)**	**No (< 100% Agreement)**	**Changed to:**
1. Some things cannot be learned from a book or in a classroom setting. Some things come with experience working in the field only. This is what a CF year is for.	+		b. no
2. If I did not have my off-campus practicum, I would not have been prepared, but only so much can be covered in grad school. However, it would have been a great experience to collaborate with students from other disciplines at the grad school clinic, especially with neurologically involved individuals.	+		b. no
3. Not a focus 20+ years ago	+		b. no
4. Feel that I develop these skills with on job training during my internship. I had very minimal exposure during my clinical practicum and coursework.	+		b. no
5. Not necessarily an emphasized area, yet transitioning to a position where interdisciplinary collaboration happens daily was smooth for me.	+		b. no
6. Somewhat		_	No change
7. Collaboration was addressed, but not practiced.		_	No change
8. Somewhat		_	No change
9. Limited by setting for internship. I wish I had the opportunity to complete an internship in a medical setting.	+		b. no

10. The coursework had guest lectures that reviewed adaptive equipment. Any exposure to PT/OT was mostly received during off site clinical externships.		_	No change

Collapsed responses (and new response percentages) for Question 11 can be found in Figure 1 below.

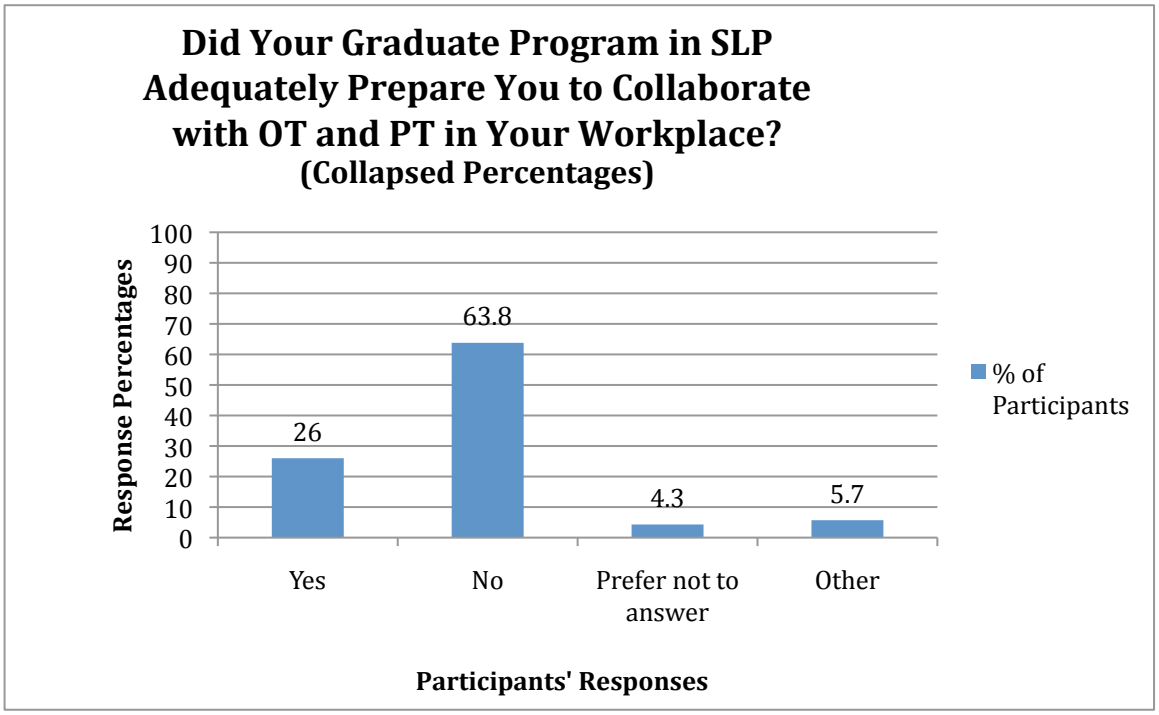

Figure 1. Did Your Graduate Program in SLP Adequately Prepare You to Collaborate with OT and PT?

Questions 12 and 13 required participants to expand on their responses for the previous survey question. Participants who selected answer choice "a. yes" were asked to describe how their graduate experience prepared them for interprofessional collaboration with OT and PT. Participants who selected answer choice "b. no" were asked to provide suggestions for how their graduate program could have enhanced their IPC opportunities.

Question 12

Reports of Successful IPC Preparation in Graduate School

Participants who indicated that they were prepared for IPC with OT and PT upon graduation were asked to describe the nature of their preparation. Of the 18 responses to this question, six participants reported that their preparation for IPC was a consequence of their clinical placements. For the purposes of describing participants' responses to this question, terms such as: *clinical practicum, practicum, graduate externships, externship, and clinical internship*, were accepted to mean "clinical placement." Five participants cited co-treatment opportunities as important to their preparation for collaboration with OT and PT in their workplace. Four patients credited "meetings" as paramount to their IPC preparation during graduate school. Terms such as*: rehab meetings, team meetings, and team conferences* were coded synonymously for the purposes of reporting participants' responses. One participant reported that daily and weekly rounds were responsible for their preparation to collaborate, one participant credited introduction to IPC during coursework, and another participant credited clinical experience during graduate school. Two participants reported being prepared in the scope of practice of an SLP, which affords them the preparation for IPC with other professionals. For example,

> 1. I understood what they did in therapy and how scheduling of OT/PT/ST back to back affected patient performance;
> 2. I was prepared in the scope of a speech-language pathologist. With that frame of reference, I was prepared for interprofessional collaboration with other professionals.

Question 13

Suggestions for Enhancement of IPC During Graduate School

Thirty participants who reported being unprepared for IPC upon graduation provided suggestions for how their graduate program could have improved their IPC opportunities. Ten participants reported that coursework or guest lectures specific to interdisciplinary patient care and the scopes of practice of different professionals, would have better prepared them for IPC. Question and answer sessions with other rehabilitation professionals were also recommended. Five participants reported that opportunities to observe OTs and PTs providing therapy would have enriched their IPC preparation. Three participants advised that interdisciplinary clinical settings would have better prepared them for collaboration with OT and PT. Two participants stated that a combined university clinic would have given them more opportunities to interact with OT and PT students during graduate school. One participant suggested that opportunities to visit with PT and OT students would have enabled them to discuss different rehabilitation professionals' roles. Two participants reported that their programs were discipline-specific and interdisciplinary exposure would have been beneficial. Finally, one participant reported that exposure to OT would have beneficial in differentiating role territory specific to feeding issues.

Question 7

Exposure to OTs or PTs in the Workplace

Respondents specified the nature of their contact with OTs and/or PTs at work, by selecting one of these five choices: a. limited to no exposure, b. a few times monthly, c. a few times weekly, d. daily, and e. prefer not to answer. See Figure 2 below.

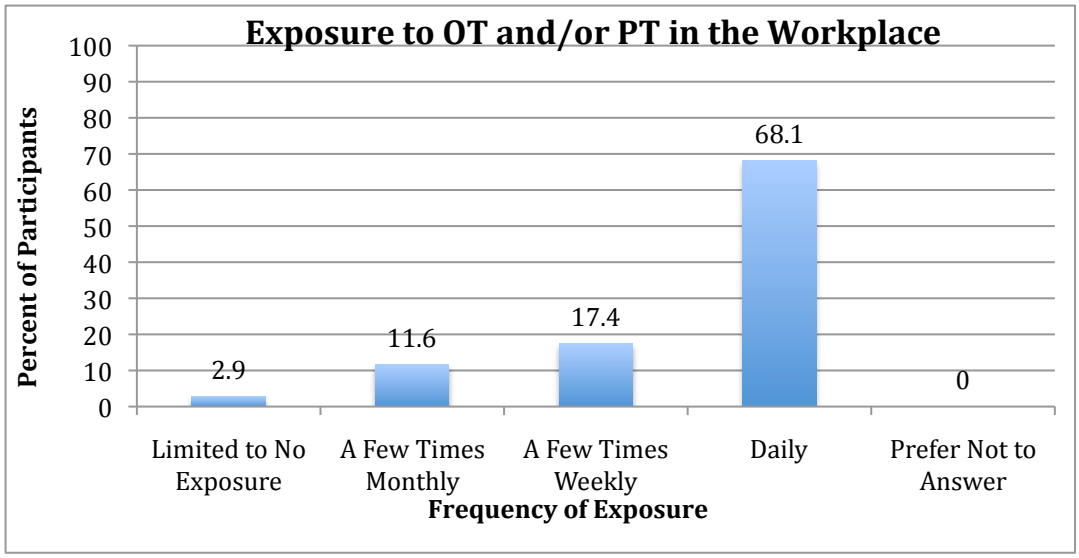

Figure 2. Exposure to OT and/or PT in the Workplace

Question 8

SLPs' Interaction with OT and/or PT at Work

When asked to address the most frequent type of interaction they have with OT and/or PT in their work setting, the participating SLPs replied accordingly: 56 (81.2%) reported interacting with OT and/or PT via collaboration, 7 (10.1%) engage in co-treatment with these professionals, four SLPs (5.8%) characterized their interaction as informal or non-professional, and two participants (2.9%) elected to answer via free response after selecting answer choice "e. Other." One of these two respondents specified that they engage in informal/non-professional interactions, collaboration, and also co-treatment with OT and PT in their work setting. The second participant who selected "e. Other," engages in occasional collaboration with these professionals.

Question 9

Participants' Personal Definitions of "interprofessional collaboration" (IPC)

As indicated by Cleary and Howell, (2003), definitions of collaboration vary according to researcher or clinician. Accordingly, study participants were asked to provide their own personal definition of IPC. The text analysis tool, *Online Utility*, developed by Adamovic (2009), was used to investigate the most frequently used words and phrases throughout participants' definitions. For the sake of identifying the most frequently used semantically-rich terms and phrases in participants' definitions, parts of speech such as articles and conjunctions were omitted from the text analysis. These discarded terms did not semantically contribute to participants' definitions of IPC.

The lemmas of each of the ten most frequently occurring words were included in the study. Lemma refers to the various forms of a word that have the same meaning. For example: synonyms (e.g. *treatment* and *intervention)*, abbreviations (*pt* for patient and *tx* for treatment), plural forms and possessives of the same word (*patient*, *patients*, and *patient's*), as well as the same word used in different tenses or parts of speech (e.g. *treat*, *treated*, *treating*, *treatment*). The terms *therapy*, *care*, and *information* were counted exclusively. Table 4 illustrates the ten most frequently occurring words in participants' definitions of IPC identified by *Online Utility.*

Table 3. The Ten Most Frequently Used Words in Participants' IPC Definitions

Order of Frequency	Word	CREDIT GIVEN TO	Number of Occurrences
1	PATIENT	client, individual, child	56
2	GOALS	goal	29
3	WORKING	work	27
4	THERAPY		25
5	TREATMENT	treat, treated, intervention	25
6	OTHER	another	20
7	CARE		18
8	TOGETHER		16
9	DISCIPLINE	disciplines	15
10	INFORMATION		12

Tables 4-11 correspond to the ten most frequently used words and provide examples of phrases used by participants.

Table 4. Participants' Contextual Usage of "Patient"

Benefit of the **patient**	Best outcome decisions for **patient**
Discussing **patient** with other disciplines	Discussing **patient** with other disciplines
Discussing **patient** plan of care	Exceptional **patient** care
Rehab benefit for our **patient**	Share that the **client** may benefit
Provide effective treatment to a **patient**	Provide optimal **patient** care
Discussing **patient** condition	Provide the **patient** the best
Enhance my **patient's** progress.	To increase **patient** care
Conferencing about **patient**	Discuss **patient** strengths and weaknesses
Enhance my **patient's** progress	Enhance **patient** performance
Discussing **patient** care	Improve quality of life for the **patient**
Provide the best **patient** care	To maximize **patient** success
Discuss **patient** status	Maximize the quality of **patient** care
Report on **patient** progress	Provide **patient** with the best possible therapy
Share that my **client** may benefit	**Patient** to reach best potential

The word "patient" in participants' IPC definitions was frequently accompanied by words such as <discuss> and <best>. The following words: <best>, <benefit>, <effective>, <exceptional>, <optimal>, <increase>, <enhance>, <improve>, and <maximize>, although not among the most

frequently used terms, have a positive connotation and are linked to helping the patient to succeed. Words such as <discuss>, <discussing>, <conferencing>, and <report> refer to exchanging information about the patient.

Table 5. Participants' Contextual Usage of "Goals"

Achieve whatever **goals** are set	Achieving the patient **goals**
Achieve common functional **goals**	Supporting each other's **goals**
Working together supporting **goals**	Supporting **goals**

The word "goal" was associated with the terms <achieve> and <supporting>.

Table 6. Participants' Contextual Usage of "Working" and "Together"

Working together with medical staff	Various disciplines **working together**
Work together to achieve maximum level	**Working together** with other healthcare
Working together to discuss ideas	**Working together**
Working together supporting goals	**Working together** supporting goals
Working together	**Working together** towards improvement
More colleagues **work together**	**Working together** with other therapists
Professionals **working together**	

The words "working" and "together" were produced in collocation a total of 13 times.

Table 7. Participants' Contextual Usage of "Therapy"

Physical **therapy**	Occupational **therapy**
Speech **therapy**	Speech **therapy**
Occupational **therapy**	Physical **therapy**
Occupational **therapy**	Physical **therapy**
Physical **therapy**	Occupational **therapy**
Physical **therapy**	Occupational **therapy**
Physical **therapy**	Occupational **therapy**
Physical **therapy**	Speech **therapy**
Occupational **therapy**	

The words <physical>, <speech>, and <occupational> were used a combined total of 17 times to describe "therapy" in terms of rehabilitation disciplines.

Table 8. Participants' Contextual Usage of "Treatment"

Co-**treatment**	Co-**treatments**
Co-**treatments**	Co-**treating**
Co-**treatment**	Planning co-**treatments**

The abbreviation, "co-" was used a total of six times to further describe "treatment." Co-treatment refers to an intervention approach where two or more therapy professionals deliver services simultaneously, while targeting their own goals for the patient.

Table 9. Participants' Contextual Usage of "Other" and "Discipline"

1. Members from **other disciplines**	2. Discussing patient with **other disciplines**
3. Reading SOAP notes from **other disciplines**	4. Carrying over goals for **other disciplines**
5. Discussing a patient with **other disciplines**	6. Actively working with **other disciplines**
7. One of the **other disciplines**	

The terms "other" and "disciplines" were produced in collocation seven times.

Table 10. Participants' Contextual Usage of "Care"

1. Discussing patient plan of **care**	2. Progress with each plan of **care**
3 Discussing plan of **care**	4. Holistic plan of **care**
5. Plan of **care**	6. Plan of **care**
13. Plan of **care**	

The term "care" was used in the context of patients' individual plans of care. Plan (in yellow) was linked to "care" a total of seven times.

Table 11. Participants' Contextual Usage of "Information"

1. Sharing medical **information**	2. Sharing ideas, techniques, **information**
3. Sharing **information** on issues	4. Sharing evaluation and therapy **information**
7. Sharing **information** on goals	8. Mutual **information sharing**
9. Sharing **information**	10. Shared **information** regarding therapy

"Information" was used in the context of knowledge-sharing (ideas, techniques, etc.)

Question 10

SLPs' IPC with OT and/or PT during Graduate Schools

Participants were asked to specify the nature of their IPC with OT and/or PT during graduate school. Figure 3 contains participants' responses.

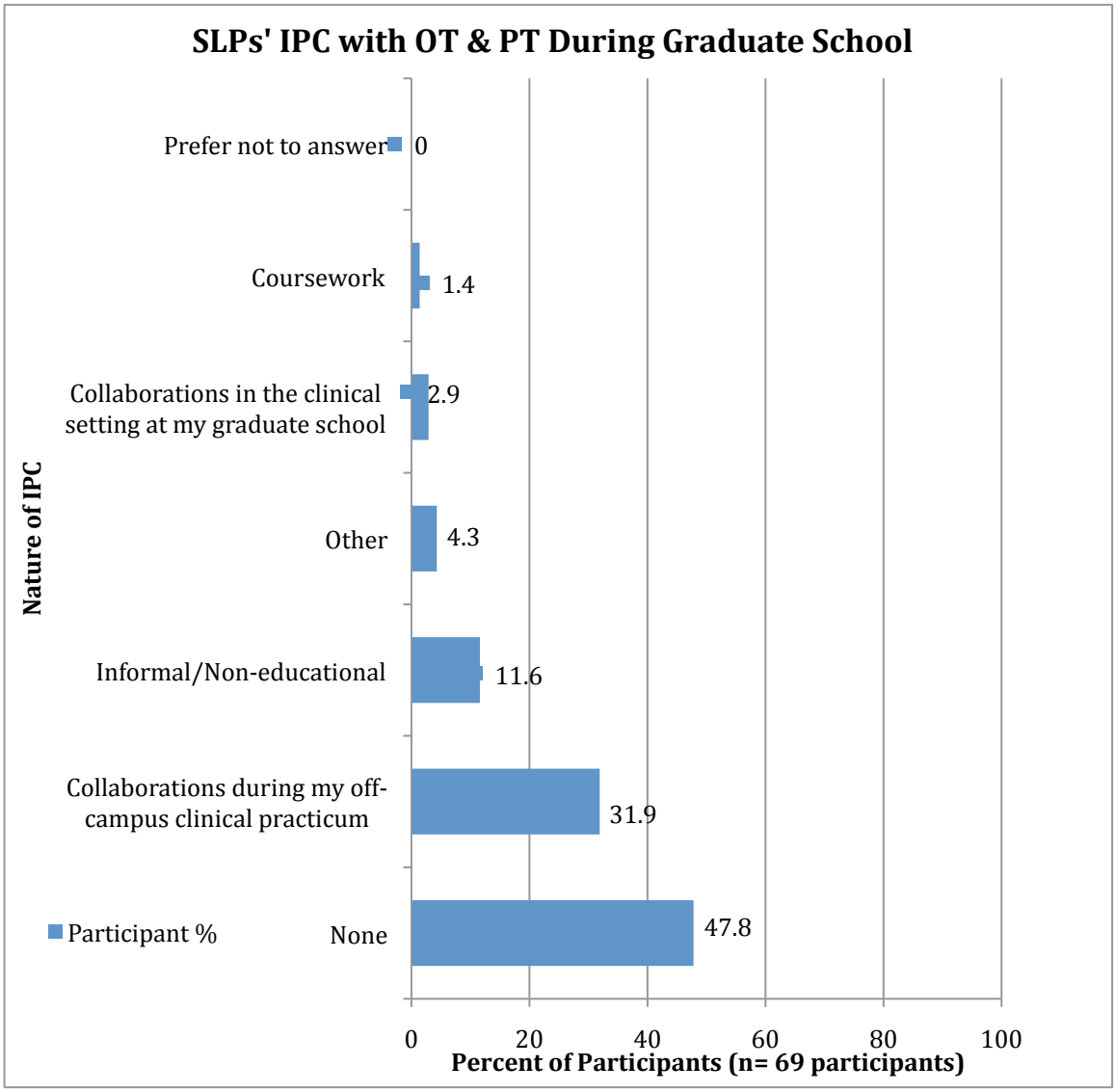

Figure 3. SLPs' IPC with OT and PT During Graduate School

Questions 4

Participants' Work Experience

In response to a question concerning the number of years that respondents have been practicing SLPs, a modal response count of 23 participants (33.3%) identified that they have been licensed practitioners for 1-5 years. Fourteen participants (20.3%) had been licensed in the field for 6-10 years, 13 participants (18.8%) for 11-15 years, and an additional 13 SLPs (18.8%) had been licensed for over 20 years. A smaller response count of 6 participants (8.7%) indicated that they had been licensed for a time range of 16-20 years.

Questions 5 and 6

Please see Table 12 for categorization of participant's medical employment settings at the time of survey completion.

Table 12. Current Medical Employment Settings

Setting	**Percent**	**Frequency (n=69)**
Rehabilitation setting	36.2%	25
Other (specified below)	30.4%	21
Acute-care	14.5%	10
Nursing home	10.1%	7
Private practice	8.7%	6
Prefer not to answer	0%	0

Respondents who selected answer choice, "Other," were asked to specify their present employment setting. Ten of these 21 participants identified home health as their medical work setting, three respondents stated that they work in multiple settings, two specified early childhood intervention, two respondents listed assisted living facilities, one participant

designated a craniofacial center, one participant listed a long-term acute care setting, one works in a pediatric hospital, and one identified their work setting as a public school. At the time of survey completion, 45 respondents (65.2%) had worked in their present setting for 1-5 years, 12 (17.4%) for 6-10 years, six (8.7%) selected 11-15 years, four (5.8%) chose 16-20 years, and two individuals (2.9%) had been in their current setting for 20+ years.

Question 1

SLPs' current cities of residence

Study participants responded to background information questions prior to addressing IPC issues. Respondents began the survey by selecting their current city of residence from a field of 6 possible answers. Participants' 6 possible answer choices (in alphabetical order) included: a. Austin, b. Dallas, c. El Paso, d. Houston, e. San Antonio, and f. Other. The most frequently occurring responses (henceforth referred to as the modal response or modal responses) were Austin and Houston, each with a response percentage of 23.2%, corresponding to response count of 16 respondents each.

Table 13: Cities of Residence

City	Percent	Frequency
Austin	23.2%	16
Houston	23.2%	16
San Antonio	20.3%	14
El Paso	17.4%	12
Dallas	15.9%	11
Other	0.0%	0

Questions 2 and 3

Participants' Respective Master's Programs in SLP

Participants were asked to designate their Master's program in SLP as either a Texas

institution or an out-of-state institution. Forty-eight respondents, corresponding to a response percentage of 69.6%, received their Master's degree in SLP from an institution in Texas, while 21 respondents, 30.4% of all participants, received their Master's degree from an out-of-state institution. As indicated by their survey responses, these 69 study participants graduated from a total of thirty-one different Master's programs in SLP, 11 of which are in Texas. See Figure 4.

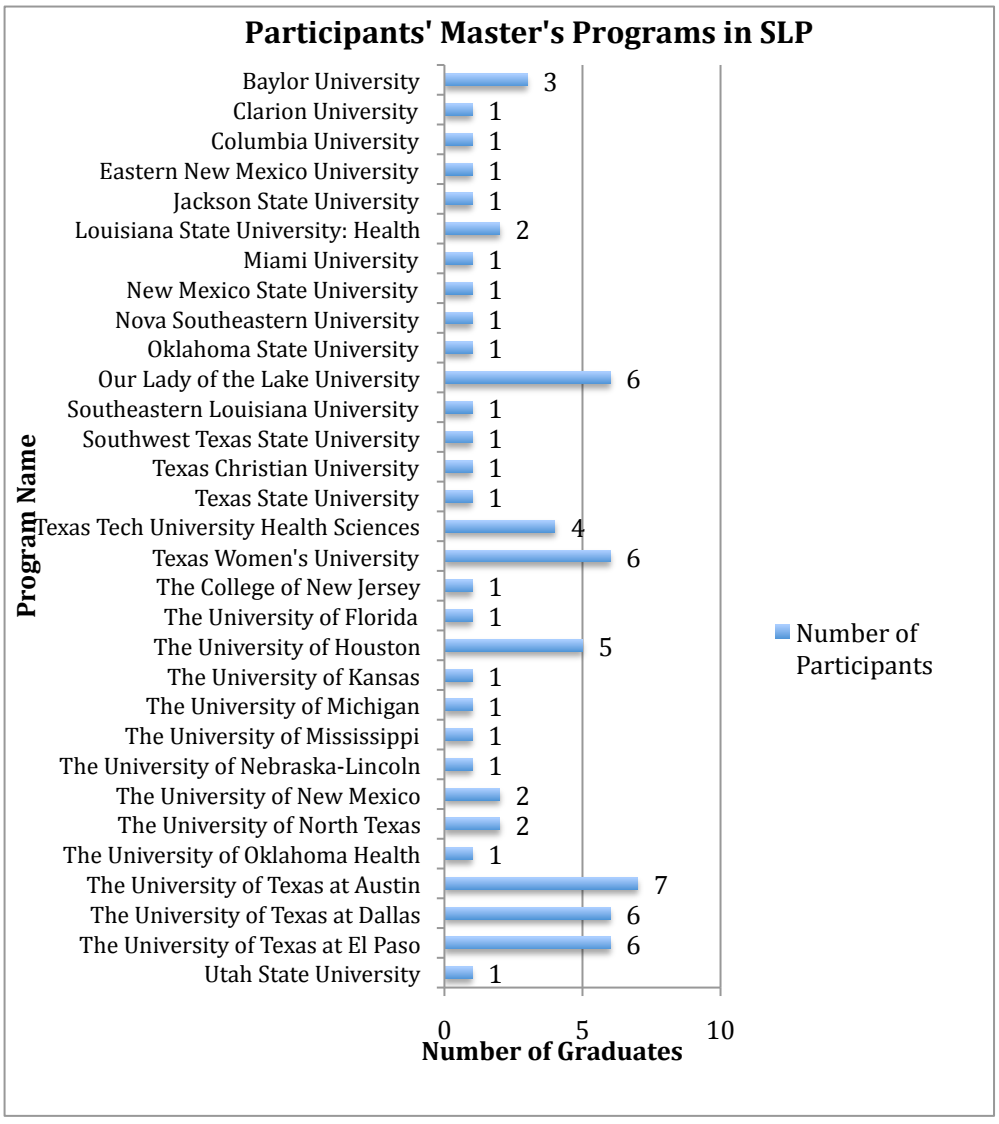

Figure 4. Participants' Master's Programs in SLP

CHAPTER 4. DISCUSSION

This purpose of this study was to evaluate medically-based SLPs' perceptions of their preparation to be interprofessional team members in the workplace after graduating. The study evaluated if university training programs in speech-language pathology are adequately training their graduates for IPC. Review of the data and SLPs' responses to open-ended questions have implications for the field of speech-language pathology as well as for graduate programs attempting to comprehensively prepare the next generation of SLPs.

Based on participants' perceptions, a clear disparity exists between the percent of individuals who indicated that they were prepared for collaboration with OT and PT after graduation (26.1%), and the percent of respondents who were not prepared (55.1%). Inter-rater reliability for answer explanations specific to the "d. other" answer choice, was calculated because initial review of these responses by the primary researcher and thesis supervisor revealed that explanations appeared to be shaded more toward the "b. no" answer choice. Collapsing the altered answer choices after inter-rater review, only further emphasized that participants in this study were unprepared for collaboration with OT and PT in their workplace after graduating.

As reported by participants who felt prepared for collaboration with OT and PT after graduation, successful preparation was characterized by interdisciplinary interactions during off-campus clinical practicum placements, co-treatment opportunities, and weekly clinical meetings with other professionals. As only one participant linked their preparation to graduate coursework, it is evident that participants' preparation for collaboration was a consequence of IPC in the community as an extension of their clinical preparation.

Study participants who felt unprepared for collaboration with OT and PT after graduating provided related suggestions for how their program could have enhanced their IPC awareness. One third of the 30 recommendations cited coursework and guest lectures pertaining to IPC and different professionals' scopes of practice, as areas that could have enriched their graduate educations. Additional participants recommended that students observe OTs and PTs providing therapy in the workplace, in order to have a more functional understanding of these professionals' roles and responsibilities during patient care. This finding suggests that these individuals had a limited understanding of the roles of other rehabilitation professionals when they graduated, and identified this lack of knowledge as a deficit in their professional educations. This lack of knowledge about other professionals directly corresponds to findings by Smith and Pillings (1997), that allied health students graduate with a body of knowledge about their own field and their professional scope of practice, but are not familiar with the skill sets and responsibilities of other healthcare professionals.

A total of 47 participants (68.1%) reported daily exposure to OTs and PTs in their immediate work environment, while only two participants (2.9%) had limited to no exposure to these rehabilitation professionals. Fifty-six respondents indicated that collaboration with other professionals was their most frequent type of interprofessional interaction. This large percentage of participants who reported daily interprofessional collaboration in their workplace, corresponds to the assertion by Martin and colleagues (2008), that although collaboration has been linked to favorable patient outcomes, professionals must actually have a working understanding of other disciplines' roles and responsibilities, in order for collaborative practice to be effective.

The variety of IPC definitions offered by participants speaks to the diversity of collaboration. As asserted in the collaboration literature, this construct takes many different

forms. No two study participants provided the same definition for collaboration, which is consistent with the statement by Cleary and Howell (2003), that there is not one accepted collaboration classification system. Although participants used different terminology to define IPC, consistent themes and discourse prosody were apparent throughout. The terminology used by participants was compatible with statements from professional organizations such as ASHA (n.d.), that collaboration in the medical field is patient-centered and leads to positive treatment outcomes. As stated in the results section, although favorably-shaded words such as *best, benefit, effective, exceptional, optimal, increase, enhance, improve, and maximize* were not among the most frequently used terms, their presence throughout the IPC definitions suggests that study respondents view IPC as related to the best, most favorable treatment outcomes.

The ten most frequently occurring terms that were woven throughout participants' definitions: *patient, goals, working, therapy, treatment, other, care, together, discipline, and information,* correlated to the priorities of the AACN (1995). According to the AACN, health care professionals have the obligation of working as interprofessional team-members; and responses from survey participants suggest that the SLPs who participated in the present study are in agreement. Based on reports from the 69 participants in the present study, IPC occurs during **goal** development, the provision of **therapy**, and the sharing of pertinent **information**. In addition, IPC involves **professionals** from different **disciplines working together** to provide the most appropriate **patient**-centered **treatment** and **care.**

Researchers including Borduras and colleagues (2006) have asserted that academic programs are responsible for providing their graduates with interprofessional opportunities to facilitate collaborative service delivery in the medical setting. Unfortunately, nearly half (48.6%) of the present study's respondents indicated that they had no opportunities for IPC

during graduate school. It is important to note, however, that 31.9% of respondents did report engaging in IPC during their off-campus clinical practicum. With such a large percentage of respondents reporting no IPC experience, and 31.9% of respondents reporting IPC exposure during their off-campus clinical opportunities, it is clear that IPC exposure mainly occurs outside of individual training programs. SLPs' lack of IPC during their training corresponds to similar research by Clearly and Howell (2003), which found that one third of OT and PT students are similarly unprepared. This lack of IPC exposure is likely linked to academic barriers such as cost, faculty opposition, and the difficult process of including another education topic in an already busy graduate school schedule (Larson, 1995). Despite this acknowledgement, the present study's findings are worth considering because they suggest that as a group, nearly half of SLP, OT, and PT students do not engage in IPE and have minimal exposure to IPC during their academic training. Together, these results suggest that academic programs are not providing opportunities to learn about or collaborate with other medical professionals. This finding corresponds to allegations by Huebler (1994), that allied health students are not prepared to practice collaboratively in the medical workplace (as cited in Hunt et al., 1998, p.127).

Responses to background information questions indicated the diversity of this study's sample of participants, based on the wide variety of Master's programs that were reported. Although the relatively low response rate cannot be denied, the group of SLPs that did respond were a heterogeneous population with unique educational experiences and exposure to IPE and IPC in their different medical employment settings.

Limitations of the Study

Due to the small response rate of 14.4% (69 SLPs responded out of 500 total SLPs who were invited to participate) this study's findings are not generalizable beyond the sample collected. Based on participants' responses to the survey, it is suspected that the individuals who did participate, feel strongly about IPC, and recognized the deficits in their academic training. It is possible that the results of the present study would have been different if the study's questions about IPC exposure pertained to allied health professionals at large, as opposed to just OTs and PTs, Likewise, participants' responses to professional experience questions indicated that 34.3% of these individuals had been practicing in the field for one to five years, while a smaller 18.6% of respondents had been licensed for over 20 years. This difference suggests that more of the survey's responses were contributed by less-experienced SLPs. This finding may indicate that results from this study pertain more to the less-experienced population of recent graduates, than to more seasoned SLPs. Future investigations on IPE and IPC implementation in SLP training programs would benefit from targeting a population of SLPs with similar work experience. Although providing participants with opportunities to elaborate on their responses made the survey exhaustive, presence of open-ended survey questions minimized opportunities for quantitative analysis. It is recommended that future studies reduce the number of free-response questions.

Future Directions

Further analysis of this data set is warranted to isolate the variables that differentiate between respondents who reported being prepared or unprepared for IPC in their workplace upon graduating. For example, were there relationships between feelings of preparedness for IPC and

years of experience in practice, or was there a relationship between the nature of SLPs' collaborative experiences (e.g. coursework, practicum) and feelings of preparedness for IPC in the workplace after graduating? Additional corpus analysis is required to further investigate patterns of responses relative to the type of IPC preparation.

Results of the present study support the belief that academic training programs in SLP are not adequately preparing their students for collaborative practice. It appears that discipline-specific preparation alone does not sufficiently prepare SLP graduate students to be competent working professionals, and interprofessional exposure is the missing link. Health Science students from the University of Texas at El Paso (UTEP) have taken a proactive approach to IPE and IPC with support and encouragement from the Chair of the Department of Rehabilitation Sciences. Student presidents from OT, PT, rehabilitation counseling, and SLP in the Department of Rehabilitation Sciences, recognized the lack of interaction between their programs and their limited awareness of each discipline's scope of practice. To remediate this lack of knowledge, the students have met bimonthly since Fall 2010 to develop IPE, IPC, and social opportunities for their different cohorts, to enhance the department's cross-disciplinary consciousness. Although additional research is needed to determine the most effective means of IPE and IPC, it is the hope of the present study's researcher that directors of SLP graduate training programs, and perhaps the directors of OT and PT programs as well, acknowledge that IPC exposure is a missing component of their curricula. It is recommended that program directors either attempt to incorporate additional collaboration opportunities into their curricula, or support their students in developing extracurricular IPE and IPC opportunities.

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APPENDIX A.

Survey: Interprofessional Exposure of SLP Students
at the Graduate-School Level

Please select the answer choice that most closely corresponds to your personal experience. There is no incorrect answer. An answer must be selected for each question.

1. Please select your current city of residence:
a. Austin
b. Dallas
c. El Paso
d. Houston
e. San Antonio

2. Where did you receive your Masters degree in speech-language pathology?
a. A Texas institution
b. An out-of-state institution

3. Please provide the name of the graduate institution that granted your Masters degree.

_____

4. How many years have you been a practicing speech-language pathologist (CCC)?
a. 1-5
b. 6-10
c. 11-15
d. 16-20
e. 20+
f. prefer not to answer

5. Please select the medical employment setting in which you are currently working:
a. rehabilitation setting
b. acute-care
c. nursing home
d. private practice
e. prefer not to answer
f. other (please specify)

6. How many years have you worked in the employment setting selected in question #5?
a. 1-5
b. 6-10
c. 11-15
d. 16-20
e. 20+
f. prefer not to answer

7. Select the answer that best describes your exposure to occupational therapy (OT) and physical therapy (PT) professionals in your work environment:

a. limited to no exposure
b. a few times monthly
c. a few times weekly
d. daily
e. prefer not to answer

8. In regards to question #7, please describe the most frequent type of interaction you have experienced with occupational therapy (OT) and/or physical therapy (PT) professionals in your work environment:

a. informal/non-professional interaction
b. collaboration
c. co-treatment
d. prefer not to answer
e. other (please specify)

9. Please provide your personal definition of "interprofessional collaboration":

10. Please describe the nature of your interprofessional collaboration with occupational therapy (OT) and physical therapy (PT) students during your graduate school experience:

a. none
b. informal/non-educational
c. coursework
d. collaborations with OT or PT in the clinical setting at my graduate school
e. collaborations with OT or PT during my off-campus clinical practicum
f. prefer not to answer
g other (please specify)

11. Do you feel that your graduate experience in speech-language pathology adequately prepared you to collaborate with occupational therapists (OT) and/or physical therapists (PT) in your workplace?
a. yes
b. no
c. prefer not to answer
d. other (please specify)

12. If you selected answer choice "a. yes" for question #11, please describe how your graduate experience prepared you for interprofessional collaboration with OT and PT professionals:

_____
_____
_____

13. If you selected answer choice "b. no," for question #11, please describe your suggestions for how your graduate program could have enhanced your interprofessional collaboration opportunities:

_____
_____
_____

Thank you for participating in this study.

CURRICULUM VITA

Carly Robalin is eager to graduate with her master's in speech-language pathology and begin her professional career. Carly was born and raised in El Paso, Texas and received her bachelor of science degree in Communication Sciences and Disorders at the University of Texas at Austin. After graduating from the University of Texas at Austin, Carly moved back to El Paso to begin her graduate studies in speech-language pathology at the University of Texas at El Paso (UTEP). Carly was elected president of UTEP's local National Student Speech-Language-Hearing Association (NSSLHA) chapter in Spring 2010. It was during her presidency that Carly became interested in interprofessional collaboration between the different programs in the Department of Rehabilitation Sciences. Beginning in Fall 2010, Carly and the presidents from OT, PT, and rehabilitation counseling initiated interprofessional efforts between their different rehabilitation disciplines. Carly is happy she wrote her thesis on a topic that she is passionate about, and is excited to expand her interprofessional knowledge and exposure after graduation.

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