

Interprofessional Education in Undergraduate & Graduate Communication Science Disorders
Programs: A National Exploratory Investigation
By

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Abstract

Interprofessional education (IPE) encourages health professionals to learn interactively with each other, on the premise that collaborative learning will have direct positive effects on patient/client health. While IPE has been a staple in the medical and nursing disciplines for quite some time, it is just starting to make an appearance in Communication Science Disorder (CSD) programs. The purpose of this study was to investigate IPE within undergraduate and graduate CSD programs. Specifically (a) how widespread it is, (b) status in programs incorporating IPE, (c) potential future status in programs not incorporating IPE, (d) demographics of IPE in programs that do incorporate it, (e) what outcomes programs are measuring, (f) how outcomes are being measured, (g) barriers programs and faculty have experienced, and (h) critical enablers to success in their IPE initiatives. This study collected data from two national questionnaires. The first questionnaire was completed by 184 undergraduate and graduate CSD Chairs or Program Directors. The second questionnaire was completed by 1,130 undergraduate and graduate CSD faculty. Analysis using descriptive statistics indicated that while IPE is taking place in undergraduate and graduate CSD programs across the country, it is in the emerging stages for most programs. Furthermore, there are some CSD programs that are not planning on incorporating IPE because it is either not a priority for them at this time, or they suffer from a lack of resources with which to implement IPE. Newly identified student backgrounds incorporated in both lecture and clinical based IPE, clinical IPE teams, curricular content and topics, strategies and IPE activities are discussed. Barriers faced by programs and faculty as well as critical enablers to the success of IPE initiatives are also addressed. The findings from this

study suggest that IPE is in the emerging stages for CSD programs across the country. While some CSD programs are incorporating IPE, many are not. Implications and recommendations for CSD programs and future research are discussed.

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The “It takes a village to raise a child” proverb postulates that a child has the best ability to become a healthy well-rounded adult if the entire community takes an active role in contributing to the upbringing and education of that child. I have found this proverb to be profoundly applicable to my life.

It started with my parents Ben and Mary Goodman. Since the day I was born, they encouraged me to create my own path, find my own strength, follow my own heart, and to live a life of continual education. Growing up they taught me to think of education not as a way to avoid failure or to secure a high paying job. Rather, education was something that could be used to help improve the lives of other people. They both worked very hard to get me where I am today. Their love and support, throughout my many years of schooling, strengthened and encouraged me in even the most difficult of times. I dedicate this work to you mom and dad. Thank you for making my education a non-negotiable. It is for all these reasons I keep my maiden name professionally. Being Dr. Goodman means the world to me because of your love, support, and encouragement.

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Introduction

“Interprofessional education occurs when students from two or more professions learn *about, from, and with* each other to enable effective collaboration and improve health outcomes. Once students understand how to work interprofessionally, they are ready to enter the workplace as a member of the collaborative practice team. This is a key step in moving health systems from fragmentation to a position of strength” (WHO, 2010, p.10). In interprofessional education (IPE), students work across disciplinary boundaries to gain experience with comprehensive patient care. They may learn collaboratively with students from other disciplines or from instructors from other disciplines in their own classes (Friberg, Ginsberg, Visconti, & Schober-Peterson, 2013).

The premise of IPE is that through improved professional education, healthcare and education fields will see improved interprofessional practice, which will result in improved health and educational outcomes. For over 40 years, IPE has been promoted in policy documents as a means to enhance collaboration, reduce service fragmentation and promote high quality client care (e.g. DHSS, 1974). The cumulative effect of these policies has been to create an impetus for developing interprofessional education. This has emerged in a variety of settings including hospitals, community clinics, and universities. IPE occurs at both the pre-licensure level, during a student’s formal training, and at the post-licensure level, in the form of professional development (Freeth, Hammick, Reeves, Koppel, & Barr, 2005).

Literature Review

The Need for Interprofessional Education

Professional education is a process of socialization, a means by which students come to identify with their intended profession, its values, cultures, roles and expertise. Students entering programs for different professions in the same college may have limited knowledge about the roles, scopes of practice, philosophies, or even professional language used by other disciplines, which consequently may lead to significant barriers to successful interprofessional collaboration (Howell, English & Page, 2011). Unfortunately, this may be modified little by the end of a student's program of study. Poor and/or incorrect stereotypes about other professions have little ability to improve or change within uniprofessional education (Barnes, Carpenter, & Dickinson, 2000).

It has been widely speculated that the root of these problems are anchored within education more than in practice. "If education is part of the problem, it must also be a part of the solution," (Barr, Koppel, Reeves, Hammick, & Freeth, 2005, p.8). "The health care system will not be able to keep pace with the explosive changes unless it moves to a team-based care model. But the delivery system cannot make that shift effectively until the education system begins to train new health professionals in collaborative practice" (IPEC, 2011a, p. 9). These constraints have driven the development and promotion of interprofessional education within undergraduate and graduate programs across the country.

Even though IPE has been a staple in the education of nurses and doctors, it is just starting to make an appearance in Communication Science Disorders (CSD) programs and other

allied health programs. This can partly be attributed to President Barack Obama's healthcare reform initiatives, including the Affordable Care Act (Public Law No: 111-148). Health professionals are tasked with changes such as demonstrating more accountability, and providing evidence based and team based care in an increasingly integrated healthcare system. According to Stephen Shannon, DO MPH (CEO and President of American Association of Colleges of Osteopathic Medicine), the common element in the majority of healthcare proposals is the need for a primary care-focused system that relies on prevention and evidence. He asserts *team-based care* is the way to achieve this (Shannon, 2009).

Even though IPE has been around in the medical community for a long time, there is not an abundance of evidence for its effectiveness. Reeves, Goldman, Burton, & Sawatzky-Girling (2010) conducted a systematic review that found only six studies that addressed the effectiveness of IPE as an intervention compared to uniprofessional or non-integrated education. Four of these studies showed positive outcomes in knowledge and skills of students, increased collaborative behavior, increased patient satisfaction, and a decrease in the amount of errors made (Reeves et al., 2010). While evidence is indeed lacking, "...clinical effectiveness research is seen as a means to develop the evidence," (Shannon, 2009, para. 4). However, a review of the literature demonstrates that a number of allied health professions such as speech language pathology, audiology, occupational therapy, and physical therapy are grossly underrepresented in the research on interprofessional education (IPE) and practice (IPP) (Barr et al., 2005; Zwarenstein, Goldman, & Reeves, 2009). This begs numerous questions. Why aren't these fields being

included? Are they not viewed as having a place in IPE? Are allied health fields exposing their students to IPE in their education and training?

It seems unlikely that allied health fields would not be viewed as having a place in IPE. Allied health professionals play important roles for a wide range of patients (e.g., those with communication and speech exceptionalities, activities of daily living difficulties, delays in gross motor functioning, etc.). They represent an integral part in collaborative teams during their education and training as well as far after they obtain licensure. With the goal of IPE being centered on increased patient outcomes via more integrated patient experiences; it becomes quite clear that allied health fields must incorporate IPE. Furthermore, they have to advocate for the need and importance of their presence in IPE.

The Case for the Involvement of Speech Language Pathologists

U.S. News & World Reports ranked audiology and speech pathology as the 18th and 19th, respectively, top healthcare jobs for 2016 (U.S. News & World Reports, 2016). These fields are expected to grow faster than average through the year 2022. The job outlook for audiology (29%)(Bureau of Labor Statistics, 2016-2017a), and speech pathology (21%)(Bureau of Labor Statistics, 2016-2017b) provide further justification that undergraduate and graduate CSD programs need to consider incorporating IPE. These rapidly growing cohorts have the capacity to positively impact healthcare and educational reform.

The American Speech Language-Hearing Association (ASHA) has strongly supported and endorsed the implementation of IPE in CSD programs in order to educate future speech-language pathologists and audiologists in how to engage in collaborative clinical practices and to

improve client outcomes. In the spring of 2013, ASHA created an ad-hoc committee in order to develop specific actions that addressed education and core competencies of IPE related to reimbursement models for students and members (ASHA, 2013). Past ASHA president, Patricia Prelock, and Ken Apel, a committee member on the ad- hoc committee for IPE, argued that IPE facilitates student preparation and engages them in integrated and coordinated health care. Furthermore, IPE fosters student interest in pursuing jobs on interdisciplinary teams in medical settings (see Figure 1) as well as educational settings (see Figure 2). Working on such teams facilitates achieving the best standard of intervention possible for clients, and thus, leads to better client outcomes, a desired outcome for healthcare and educational reform (Prelock & Apel, 2013). While this premise of IPE has only been supported in the research literature on a small scale, it remains a driving force for the importance of IPE, as well as the involvement of SLPs.

In the ASHA Leader, Prelock addressed the field about the excitement and concerns revolved around IPE. She referred to IPE as not just a “nice-to-have”, but a “need-to-have” component for CSD programs. In recognition of the logistical challenges that often accompany IPE, Prelock suggested, “IPE may be just the magic we need to advocate for change and create teamwork to ensure innovation in education!” (Prelock, 2013).

Figure 1. Interprofessional Healthcare Team



Figure 1. Examples of professionals who may be included on an interprofessional healthcare team. Adapted from "The Why, What, and How of Interprofessional Collaboration," by D. Dixon, E. Fagan, L. McNeilly, & L. Nunez, 2015, online webinar.

Figure 2. Interprofessional Education Team

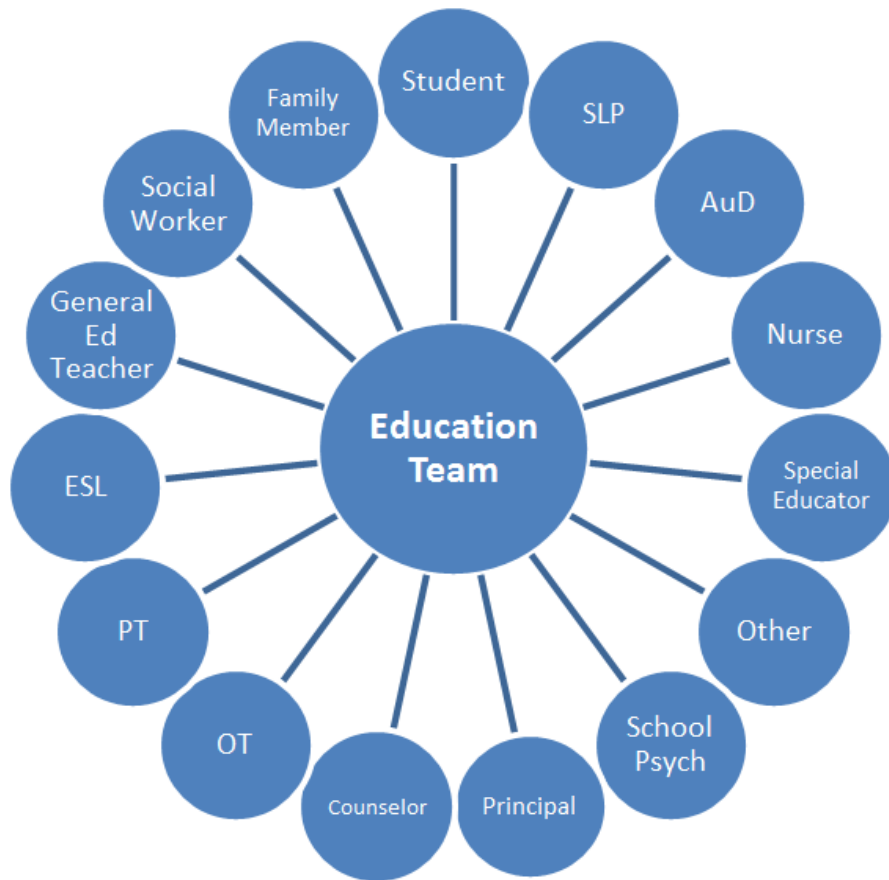


Figure 2: Examples of professionals who may be included on an interprofessional educational team. Adapted with permission from “The Why, What, and How of Interprofessional Collaboration,” by D. Dixon, E. Fagan, L. McNeilly, & L. Nunez, 2015, online webinar.

As stated previously, new healthcare initiatives have been a driving force for IPE. The shift away from fee for service to pay for performance and value based service delivery affects SLPs across the country (Prelock & Apel, 2013). Furthermore, changes in the healthcare industry and societal demographics have affected clinical education across healthcare professions due to factors such as an increased demand for healthcare practitioners, an increased number of healthcare practitioners expected to retire in the near future, increased complexity of patient care resulting in greater demands being placed on existing healthcare professionals, increased cost-cutting measures in healthcare resulting in greater workload demands on clinical staff and managers, and reduced time devoted to the clinical education of students (ASHA, 2008).

There are over 300 ASHA accredited undergraduate and graduate Communication Science Disorders programs in the United States (ASHA, 2016a). Unfortunately, it is not known how many of these programs incorporate in IPE. CSD programs must recognize the importance of incorporating IPE. If they fail to do so, it will be hard to convince other professionals that contributions made by SLP team members are necessary on a team. Worst-case scenario, the need for SLP team members goes unrealized and unrecognized (Prelock & Apel, 2013). These programs also run the risk of turning out graduates with weak interprofessional team skills.

One factor that may be inhibiting CSD programs from implementing IPE initiatives is that the research literature pertaining to IPE in CSD is grossly underrepresented. Evidence that IPE does, in fact, lead to better patient outcomes in speech-language pathology and audiology is lacking. A few notable CSD programs that have implemented IPE into their students' training (See Table 1) will be discussed in subsequent sections.

Interprofessional Education Curriculum: Demographics, Content, Implementation, & Strategies

With the implementation of IPE being fairly new in the field, little is known about what IPE looks like for students in undergraduate and graduate CSD programs. Information on demographic characteristics such as classification of IPE, experience of CSD students, other professions involved, group size, and duration of IPE is lacking. Furthermore, information on content and curricular topics, implementation, strategies utilized, and types of IPE activities are also underrepresented in the literature. However, a few CSD programs have shared what IPE looks like in their implementation (see Table 1).

Demographic characteristics. As illustrated in Table 1, IPE occurring in CSD programs is mainly classified as medical IPE. However, some IPE is classified solely as education based (Kerins, Tignor, & Reinhardt, 2015), while others dedicate time to both classifications (Mulvey & Fahy, 2015; Neubauer, Dayalu, Shulman, & Pinto Zipp, 2014). For example, Mulvey & Fahy (2015) described lecture based IPE, in which 50% of the course (8 weeks) concentrates on education related IPE, while the other 50% concentrates on medical based IPE.

Table 1
IPE in CSD Programs

Authors	Howell, English, & Page, 2011	Jackson, Johnston, Swagerty, Searl, Daniels & Zarifa, 2015*	Kerins, Tignor, Reinhardt, 2015*	McCarthy, Moore, DiGiovanni, & Ekpe, 2015*	Bierman Mulvey & Fahy, 2015*	Neubauer et al., 2014	Rossi-Katz, Curran, Parker & Hetzel, 2015*
Setting of IPE Activity	Clinical (Medical)	Clinical (Medical)	Clinical (Education)	Lecture (project based learning)	Lecture: 50/50 Educational/Medical IPE	Clinical & Lecture (Medical & Education)	Lecture (case, problem, and project based learning)
Duration	4 weeks	Two 4-hour IPE events. Level 1: Jan 2015 Level 2: Oct. 2015	Intervention: 5 days a week across 4 weeks (90 minute sessions). Students met outside of intervention to plan sessions	2 credit hour course	Elective 2 credit hours course (over 16 weeks)	Varying activities and length of time	3 credit hour course: "Speaking Voice in Performance" (over 16 weeks)
Fields Involved	SLP, OT, PT N= 3	SLP, Nursing, Med, Aud, RT Care, Health Inf. Mgmt, N~1,070 students across 3 campuses	SLP, Reading specialist	SLP, Aud, Nursing, DPT, SW, Nutrition, Music Therapy	SLP Planning to include school psych & nursing programs in the future.	SLP, OT, PT, AT, Nursing, PA	SLP & theater and broadcasting students
CSD student background	Graduate, varying stages of education & clinical prep	Graduate: all years.	Graduate (mixed in terms of place in program)	Graduate (mixed in terms of place in program)	Graduate students (1 st & 2 nd year, some undergraduate)	Graduate (across first 4 semesters of program)	Undergraduate

<p>IPE Activities</p> <ul style="list-style-type: none"> • Orientation • Observation • IPE team: examine patient, evaluate findings, create care plan • Team meetings/presentation • Community IPE activity (educate others about their role on team) 	<ul style="list-style-type: none"> • Level 1: Small group (20-30 students) of varying student backgrounds. • IPE Pictionary • Paper Chain exercise to highlight Team STEPPS concepts • Viewing and discussion of videos portraying stronger and weaker examples of teamwork behaviors. • Level 2: Students from different schools and disciplines working together on an Interprofessional case study. 	<ul style="list-style-type: none"> • Orientation (in person) before program started • Online Moodle Course • Collaborative lesson planning • Co-teach materials 	<ul style="list-style-type: none"> • Learn about other professions • Educate others on one's profession (e.g., elevator speech, use of Padlet, Pinterest) • Reflection (student journals) 	<ul style="list-style-type: none"> • Emphasis on roles and responsibilities of SLPs with those of allied professionals & professional communication. • Guest lectures from varying professionals (both educational and medical fields). • Selected IPE Readings (content knowledge) • Case analysis & discussion • Written analysis of IPE • Simulated team meetings (skills/abilities) 	<ul style="list-style-type: none"> • Orientation • Course work • Clinicals • Community events 	<ul style="list-style-type: none"> • Collaborative teaching between theater & CSD dept. • Guest lectures • Case-based & problem based learning • Voice screening projects • Play to educate community on dangers of hearing loss
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Note: *Information presented at the annual ASHA Convention in November 2015.

While IPE appears to be more common in graduate CSD programs than in undergraduate programs, past educational and clinical experience of the CSD student is a common variant amongst these CSD programs. Some students are exposed to IPE from the very beginning of their program, while others may be involved throughout their entire program. Tunstall-Pedoe, Rink and Hilton (2003) found that the more mature and experienced learners were, the more favorably disposed they were towards IPE than the younger and less experienced learners. Thus, past education and clinical experience of students is an important factor for CSD programs to consider.

Another demographic that varies amongst the general IPE literature as well as within CSD programs, are the professions involved. The most commonly incorporated fields include medical, nursing, occupational therapy, and physical therapy. Given that IPE is so heavily based in the healthcare system, this is to be expected. However, some programs are able to include students from other healthcare fields, such as health information management, pharmacy, and social work, as well as professions that are based in education such as reading specialists, and even performing arts.

Knowing which other professions CSD programs are incorporating in IPE may help others identify where they can forge partnerships. Programs should consider partnerships among academic institutions, health care providers, government agencies and consumer groups (IPEC, 2011a). Looking more widely at the fields, there is some information on what other disciplines CSD programs are incorporating in their IPE initiatives. Prelock and Apel, in collaboration with the Council of Academic Programs in Communication Sciences and Disorders, found there are a

number of disciplines that CSD programs are engaging with to accomplish IPE (see Table 2) (Prelock & Apel, 2013). While this list is extensive, it doesn't offer detailed information pertaining to whether this is happening at the undergraduate and/or the graduate level, how these disciplines are being incorporated, what the IPE activities include, or the length of the IPE learning opportunities. This list does however, suggest that CSD programs are including education based disciplines. In fact, according to this list, roughly 40% of the disciplines involved in CSD programs' IPE include education. Given that the IPE literature incorporating education based professions is so limited, this is a surprising, albeit welcome finding.

Table 2

Disciplines Involved in CSD Program IPE Initiatives (Prelock & Apel, 2013)

● Adaptive PE	● Health information management	● Physician Assistants (PA)
● Applied behavioral analysis (ABA)	● Health management	● Pre-Physical therapy
● Audiology	● Health sciences research	● Pre-Social work
● Biostatistics	● Kinesiology	● Prosthetics and orthotics
● Clinical & health psychology	● Laryngology	● Psychology
● Counseling	● Medical laboratory science (MLS)	● Public health
● Deaf educators	● Medicine	● Radiation therapy (RADT)
● Dental	● Music education	● Reading/literacy education
● Dietetics	● Nursing	● Rehabilitation science and technology
● Education	● Nutrition	● Social Work
● Engineering	● Occupational therapy	● Special education
● Families	● Optometry	● Sports medicine
● Geriatrics	● Pharmacy	
● Healthcare Admin	● Physical therapy	

Group size in IPE activities is something that also varies quite a bit, as it is contingent upon what professions are involved in IPE. Group size can vary from as little as three group members to as many as thirty (see Table 1). This is an important demographic for planners of IPE to keep in mind, because in order for interactive learning to take place, there is a need to attain and maintain a ‘balance’ within learning groups. A crucial element is to ensure that there is an equal mix of professionals (Oandasan & Reeves, 2005a). It is argued that if the group make-up is skewed too heavily in favor of one profession; it will inhibit interaction, as the larger professional group can dominate. Furthermore, for effective learning to occur, it is recommended that a learning group should consist of around 8-10 members (Gill & Lang, 1995). When groups are over 10 members, problems related to poorer quality interactions can be encountered (Hughes & Lucas, 1997).

Looking more widely at the literature, IPE initiatives generally report positive feedback when group sizes are between 5-10 learners (Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011; DePoy, Wood, & Miller, 1997; Dumont, Briere, Morin, Houle, Illoko-Funcid, 2010; Freeth & Nicol, 1998; Reeves 2000). Interaction is enhanced if students work together within a group where there is stable membership with little turnover. This can be difficult given the variation of students’ courses and clinical practicums. Effective timetabling and scheduling across programs is the key to creating group stability (Oandasan & Reeves, 2005a).

Another common variant in IPE is the duration of courses and activities. In Barr et al., (2005) systematic review of 107 studies, the duration of the IPE lasted between two to seven

days. The majority of studies included IPE that lasted longer than 2 days (54%), while 24% of studies included IPE that lasted between 2-7 days.

Some CSD programs have a half day to a couple days set aside each semester, while others have semester long (8-16 week) courses in which they implement IPE (see Table 1). For example, at the University of Kansas Medical Center (KUMC), students from speech-language pathology, audiology, respiratory care, physical therapy, and health information management are required to participate in a four hour IPE seminar each year (Jackson, et al., 2015). IPE is the expectation at KUMC, and many departments are incorporating IPE in their didactic and clinical learning. However, KUMC allocates certain days where students from various professional backgrounds come together once a year for a system wide IPE experience. Similarly, the University of North Texas and Texas Christian University provide students with cross institutional IPE seminars on prescheduled dates (Watson & Farmer, 2015). On the other side of this spectrum, some CSD programs offer lecture based IPE. Eastern Illinois University, Ohio University and the Metropolitan State University of Denver offer CSD students the opportunity to enroll in a semester long elective class ranging from 2-3 credit hours (McCarthy, Moore, DiGiovanni & Ekpe, 2015; Mulvey & Fahy, 2015; Rossi-Katz, Curran, Parker, & Hetzel, 2015).

Some studies have reported positive findings with activities that last anywhere from a total of 10 to 45 hours (Nisbet, Hendry, Rolls & Field, 2008; Dumont, et al., 2010). Given the variation and limited research, it is hard to know the amount of IPE needed in order to impact students' approach to interprofessional care. Furthermore, duration of IPE activities affects the amount of content that is delivered. Barr (1996) asserts the shorter the activity/IPE experience

lasts, the more selective its content and methods must be, and the more specific its objectives. Interactive learning must be accelerated, intensive and contrived. The longer an activity/IPE experience lasts, the more diverse the content, learning methods, and objectives can be. Interactive learning can be less pressurized, allowing relationships between professions to unfold and mature more naturally (Barr, 1996). It would benefit the field to have an understanding of the average amount of IPE exposure students receive and how that relates to content and interprofessional practice.

Content. Interprofessional education requires students and faculty to learn about not only their own role, but also the roles of other disciplines. Curricular topics include (a) scope of practice, (b) training and specializations, (c) professional cultures, and (d) treatment practices of other disciplines. This calls for careful consideration in the planning and development of curricular content. It is recommended that curricular content include areas of *common content*, *specialist content*, and *comparative content* (Barr, 2002).

Common content. Starting with what disciplines have in common can help students understand how their roles and responsibilities might resemble those of other team members. Though at first students may not understand the complexities of the relationships between their profession and others, it is important to develop a common framework early in their education that describes a best practice model of interprofessional interaction (Bridges et al., 2011). Furthermore, this information can provide guidance on team roles. For example, both speech language pathologists and occupational therapists can practice feeding therapy as outlined in their scopes of practice. IPE provides the opportunity for students from these disciplines to

understand what they and other team members bring to the table. Post licensure, these students may find themselves on a medical or educational based interprofessional team where both disciplines can provide insight to facilitate the best possible care for the patient/student.

Determining common content can be difficult. It requires effective collaboration between all professionals from differing backgrounds. Delivering common content can also be difficult, calling for awareness of different assumptions, perceptions, language and styles of learning-profession by profession (Barr, 2002).

Specialist content. Barr (1996) warns that even though maximizing common content is important, it should not overshadow specialist content. It is important to recognize and preserve the specialist content that gives each profession their identity. Health and education professions are different for a reason. They fulfill different roles and provide specialized treatment for their clients and students. It is important for learners, the future practitioners, to have an understanding of other professions' specialized training in order to make appropriate referrals for clients and to collaborate in treatment. For example, only speech-language pathologists are qualified to work with a student to remediate articulation and/or phonological process disorders. IPE provides the opportunity for learners from other education related disciplines to make appropriate referrals for speech evaluations and treatment.

Comparative content. This provides opportunities for the professions to learn about one another, their respective roles and functions, powers and duties, opportunities and constraints, and joys and sorrows (Barr, 1996). This can be as simple as comparing and contrasting roles and responsibilities. Exploring boundaries of each profession will help students understand better the

duties for his/her profession (Bridges et al., 2011). In the case of physical and occupational therapists, both disciplines treat motor functioning, yet their scope of practice is different. Physical therapists aim to correct impairments, maximize a person's mobility, functional ability, wellness, and quality of life. Occupational therapists seek to rectify impairments and functional limitations in order to maximize a person's ability to perform activities of daily living (Holsman, 2014). Understanding the boundaries of these professions can help a team identify what treatment is needed by the patient. Collaborative practice depends on not only establishing a common framework of knowledge, but also upon mutual understanding between the professions, and understanding which respects and uses differences in response to the multiplicity of patients' needs (Barr, 1996).

Unfortunately, little is known about undergraduate and graduate CSD programs' IPE curricular content. At Ohio University, McCarthy et al., (2015) utilize a "learners as designers" approach to develop their common, specialist, and comparative content. Here, student learners react to the existing instructional content, revise it, and then create new content. Through various project based activities, students educate and learn about other students' professional roles and responsibilities.

The information presented in Table 1 suggests that some CSD programs are incorporating common, specialist, and comparative content based upon the type of IPE activities implemented including educating other fields about their roles and responsibilities, learning about the roles and responsibilities of other fields through presentations, team discussions, and observations.

However, more information on content and curricular topics is needed to guide other CSD programs in creating IPE content for their students.

Implementation. Health profession curricula are changing from traditional isolated learning silos to curricula that provide more interactive learning between and among individuals from various health professions. Thus, innovative models must be developed and implemented in health profession curricula that advance skills and competencies necessary for interprofessional collaborative practice (Masters, O’Toole-Baker, & Jodon, 2013). A review of the IPE literature reveals three settings for implementing interprofessional curricular content: (a) shared in-class lectures, (b) shared clinical experiences, and (c) shared online learning.

Lecture based. Lecture based learning entails students from different disciplines learning together in a class environment. However, it is important to note that students are not just attending the same classes together. They are interactively learning from, about, and with each other. The literature suggests learning should include lessons devoted to knowledge of other professions (Dumont et al., 2010; McCarthy et al., 2015; Mulvey & Fahy, 2015), interprofessional team building skills (Dumont et al., 2010), interprofessional healthcare teams, and collaborative patient-centered care (functioning as a collaborative team) (Dumont et al., 2010; McCarthy et al., 2015). Other topics discussed in the literature include the impact of culture on healthcare delivery, service learning and county health assessment, error cases, advocacy (Bridges et al., 2011), and quality improvement (McCarthy et al., 2015).

While information about how CSD programs are utilizing interprofessional lecture based learning is limited, a few examples exist. There are a few programs incorporating lecture based

IPE through 1-3 credit hour classes (McCarthy et al., 2015; Mulvey & Fahy, 2015; Rossi-Katz et al., 2015). At Eastern Illinois University, Mulvey and Fahy's IPE course exposes graduate students to a 50/50 model. Over 16 weeks of instruction, eight weeks are dedicated to educational based IPE, while the other eight weeks are dedicated to medical based IPE. Rossi-Katz et al., (2015) IPE course at Metropolitan State University of Denver brings together undergraduate students from speech language pathology, theater, and broadcasting in the study of vocal quality. At Ohio University, McCarthy et al., (2015) bring students from various backgrounds including speech-language pathology, audiology, physical therapy, nursing, social work, nutrition, and music therapy, to educate and learn about each other's professional roles and responsibilities.

Considering that most allied health fields and educational programs facilitate student learning in lecture-based settings, it seems logical that IPE would occur here. That's not to say that incorporating a lecture-based class where students from multiple disciplines could attend together would be an uncomplicated practice. Many barriers have been cited in the literature, such as timetabling/scheduling, funding, and institutional support, all which may inhibit how easily this could be incorporated into a program.

Clinical component. Students' reactions to IPE are more favorable when they see a direct connection between their didactic learning and their clinical practice (Nisbet et al., 2008; Oandasan & Reeves, 2005a; Parsell & Bligh, 1999; Pirrie, Wilson, Harden, & Elsegood, 1998). Hence, many IPE initiatives employ learning approaches that are based in or have a substantial part of student learning based in clinical practice (Reeves & Freeth, 2002). Hammick, Freeth,

Koppel, Reeves, & Barr (2007) found that of the 21 studies selected for systematic review, 14 of them included IPE at the pre-licensure level, or before students graduated from their programs. Of these studies, 57.1% included clinical based IPE compared to 35.7% that included lecture based IPE. Within higher education institutions, it is often the case that IPE incorporates some form of clinical experience, whether it is a clinical placement (Kerins et al., 2015; Lumague et al., 2006; Neubauer et al., 2014; Nisbet et al., 2008), the use of a simulated clinical placement (Dudding & O'Donoghue, 2015; Masters et al., 2013), or meeting clients to talk about their health needs (Reeves, 2000).

Clinical practica is a hallmark of graduate and some undergraduate CSD programs. Table 1 indicates that the setting of IPE in CSD programs is generally the clinical practicum setting, and it is typically taking place at the graduate level. This is not surprising as majority of student practica and field studies take place in an environment where teams are essential. In fact, many have argued clinical learning is a great place to start with IPE because chances are other fields are already involved. All that is needed is incorporation of strategies and activities that facilitate interprofessional learning (Tassone & Lowe, 2015).

While Table 1 offers examples of IPE activities in clinical settings, information on extended learning is limited. This could be attributed to the fact that clinical practicum placements from program to program differ greatly, as do the other disciplines that might be incorporated in an interprofessional opportunity. In the IPE literature, observation followed by reflective questioning, participation in clinical grand rounds, chart reviews/audits, simulation,

and student run clinics, are discussed as ways to facilitate interprofessional learning within the clinical setting (BC Practice Education Committee, 2013).

Online learning. Some CSD programs have incorporated online learning in their implementation of IPE. In the Ready, Set, Read! Program at University of Loyola Maryland, CSD students participate in a Moodle™ course (moodle.org) in order to learn about and with the reading specialist. An online learning format was adopted because the schedules between the speech-language pathology students and the reading specialists varied greatly (Kerins, et al., 2015). At Ohio University, Padlet™ (Padlet Inc.) is used as a way to collaborate and create materials for project based learning in an IPE lecture based course for students from CSD, physical therapy, nursing, nutrition, social work, and music therapy. Students post videos (a take on elevator speeches) to educate other students about their profession. This class also uses Pinterest® as a way for students to educate other student learners about their profession. Each profession has a Pinterest® board on which students can post information pertaining to the profession (McCarthy et al., 2015). At James Madison University, Dudding and O'Donoghue use Second Life® (Linden Lab), an online multiuser virtual world, to provide their students with a virtual interprofessional clinic. Students from various fields come together to discuss a patient case that has been assigned to them. Beforehand, students are provided with medical records such as lab reports and physician records for their case study. This virtual clinic consists of two groups of students. One group acts as the interprofessional team, and they meet at a round table in the middle of the virtual clinic. The other group observes the interprofessional team's interactions from stadium seating within the virtual clinic (Dudding & O'Donoghue, 2015).

Strategies utilized in implementing IPE. A few strategies for effective learning in IPE are consistently represented in the literature. While received or didactic learning, which includes lecture and written materials, is something every profession relies heavily on, Barr (1996) recommends strategies that employ interactive methods such as case-based learning (Woodhouse & Pengally, 1992), observation-based learning (Likerman, 1997) and problem-based learning (Barrows & Tamblin, 1980). As reported in Table 1, these strategies are utilized in both lecture and clinical IPE settings.

Case-based learning. In case-based learning, the use of real cases and incidents or authored scenarios, are used to facilitate interprofessional learning. It is a natural format because all the participating professions are likely to be familiar with this style of learning (Barr, 2002). In an experimental study, Lindquist, Duncan, Shepstone, Watts and Pearce (2005), utilized case-based learning that incorporated five health professional training programs including medicine, nursing, occupational therapy, physiotherapy, and midwifery. This study revealed that case-based learning is a feasible and an effective way to deliver IPE across a wider range of professions.

Undoubtedly, CSD programs utilize case based learning while teaching their own curricula. For example, it is not uncommon for students to be given a case study scenario where they are expected to identify the (a) patient/population/problem, (b) the intervention/prognostic feature, or exposure, (c) the comparison or intervention, and (d) the outcome that is to be measured and achieved. As noted in Table 1, some CSD programs use case based learning in their IPE activities. For example, in Mulvey and Fahy's (2015) lecture course, students are

involved in “interactive professional teaming experiences.” Professionals of varying backgrounds are invited to participate in the class in person or online. Students are given a case ahead of time and asked to prepare questions for discussion. Rossi-Katz et al., (2015), utilized videotaped case based scenarios in which students analyze vocal quality of a client and make recommendations for treatment and personal care.

Observational based learning. This strategy, rooted in social learning theory, draws upon the fact that we learn from watching others (Bandura, 1977). It can make a contribution to interprofessional understanding of roles, responsibilities, constraints, expertise and models of practice. Within the literature, there is a strong emphasis for reciprocated observation with associated discussion and reflection versus passive observation. Passive observations tend not to be integrated with earlier learning and thus, are soon forgotten. Therefore, there needs to be structure and follow-up activities that promote active learning. This increases the chances that learning will become integrated in subsequent professional practice (Freeth, 2010). Dudding and O’Donoghue (2015) created an innovative way to provide observational based learning to their students via Second Life®. While one group of students works to solve an interprofessional case study, a second group observes the interprofessional team’s interactions (Dudding & O’Donoghue, 2015).

Problem based learning. This strategy has become one of the dominant forms of IPE, where learning results from the process of working towards the understanding or resolution of a problem. The universal features of problem based learning includes (a) the process beginning with a patient problem serving as the stimulus; (b) resources accompanying the problem

including detailed objectives, research articles, chapters from books, and audiovisual resources; (b) self-assessment exercises; (c) small group instruction; (d) supervision and facilitation by faculty from varying disciplines; and (e) students from varying disciplines working as a collaborative to determine how to address the problem. In this context, learning is student centered and focus is placed on the development of problem solving and reasoning skills used by the students. Problem based learning facilitates the development of a number of key skills essential for good professional practice: teamwork, cooperation, and developing respect for colleagues' views, while also encouraging self-directed learning (Wood, 2003).

Similar to problem and case based learning, the literature discusses *error cases*. Here the main difference is that an error was made on purpose, rather than a client presenting with a problem to be solved by a collaborative team effort. Students analyze a medical error situation, and work together to formulate a suggestion for solving the problem. It also gives students an opportunity to practice disclosing errors to patients and families. Bridges et al., (2011) utilized error cases, in which a medical error was made on purpose, formulating collaborative suggestion for problem solving as an interprofessional team. Error cases help facilitate the understanding the impact medical errors can have on patients, families, and other providers. This strategy is often utilized in simulation activities.

Simulation. One strategy that is frequently discussed in the IPE literature is simulation. “Simulation is a generic term that refers to the *artificial representation of a real world process* to achieve educational goals via *experiential learning*” (Flanagan, Nestel, & Joseph, 2004, p. 57). Simulation provides learning opportunities for students to gain valuable exposure to patient

situations that do not disrupt the normal delivery of care. It allows for repeated practice and for formative exposure to things not yet experienced or only rarely experienced. Because activities are simulated, students are allowed to practice skills in a safe environment. In other words, mistakes can be allowed to occur as a learning opportunity. Often times, IPE facilitators can create appropriate levels of disjuncture to stimulate learning, such as with error cases discussed earlier (Freeth, 2010).

There are six types of simulation, and they cover everything from simple role-play to high-fidelity clinical simulations supported by sophisticated technology. A standardized patient (SP) is a person who is trained to take on the characteristics of a real *patient* thereby affording students an opportunity to learn and to be evaluated on physical exam skills, history taking skills, communication skills and other exercises (Johns Hopkins Medicine, n.d.b). Syder (1996) used SPs to teach generic clinical skills to speech language pathology students in a Masters degree course setting. Actors learned the part of a communication-disordered client, specifically one who exhibited vocal abuse and the other stuttering. After being trained, actors would interact with the students and faculty member in a group or one-on-one setting. Sessions allowed for ‘time-out’ periods to provide students with immediate content and process feedback. Syder (1996) found that sessions were generally well-received by both first and second year masters level students. Furthermore, the ‘time-out’ option allowed students to focus on the process of interaction skills in a non-traumatic way (Syder, 1996).

At the University of Arkansas for Medical Sciences, Zraick and his colleagues have been exploring the use of SPs since 2000. Zraick (2004) reported they have found them to be useful

in classroom and clinical teaching, as well as in performance based evaluation. They have developed SPs to portray different classic aphasia syndromes, acquired apraxia of speech, and Alzheimer's disease, and even family members for use during counseling sessions (Zraick, 2004).

Hill, Davidson, and Theodoros (2014) investigated the use of standardized patients in a foundation clinical skills simulation program with 175 undergraduate and graduate speech-language pathology students. They found that all participants reported decreased anxiety levels following the clinic and significantly increased confidence in a range of clinical skills (Hill et al., 2014).

Task trainers help students acquire a specific skill by allowing them the opportunity to practice that specific skill over and over again. Some task trainers are lifelike models of body parts, such as the head, neck, or pelvic area. Other task trainers are non-anatomical and simply use mechanics to teach biological concepts (Samuel Merritt University, n.d.b). Another type of simulation includes the use of medium to high fidelity manikins. Unlike task trainers, the majority of manikins are full body representations of patients. High fidelity manikins can breathe, produce sounds, heart tones, and palpable pulses (Johns Hopkins University, n.d.a). Medium fidelity manikins are similar to high fidelity manikins as they perform many of the same functions. However, they are simpler in function and technology, and require less training to operate (Samuel Merritt University, n.d.a). Both manikins and task trainers have been cited in the literature in the training of student speech language pathologists. As cited in Macbean, Theodoros, Davidson and Hill (2013), students demonstrated acquisition of practical skills and

reported high levels of satisfaction and increased confidence in tracheostomy management simulation (Bence, 2012; Ward et al., 2012).

Virtual and computer based simulators involve the use of avatars (Dudding & O'Donoghue, 2015). Virtual patients have been used with student SLPs in the area of pediatric fluency disorders (Strang & Meyers, 1987), to improve problem-solving and clinical decision-making in the assessment of school-aged children within an educational setting (Williams & Schreiber, 2010), developmental and acquired communication needs within a healthcare setting, and general caseload management (Ewan, Howley, Riley, & Wynne, 2010) (as cited in Macbean et al., 2013).

The last type of simulation, augmented reality, refers to oculus rift or virtual head sets and holograms (Dudding & O'Donoghue, 2015). While there isn't any information on how oculus rifts are being used in interprofessional education, this technology was introduced to the medical community for the first time for use in brain surgery in May 2015 (Clinical Oncology Week, 2015).

The flexibility of simulation allows it to be utilized in case based learning, observational based learning, and problem based learning. Furthermore, it has been utilized in not only class/lab based learning (Childs & Sepples, 2006; Howard, Englert, Kameg & Perozzi, 2011), but clinical practica learning (Baker et al., 2008; Dudding & O'Donoghue, 2015; Johnson, Thatcher, Berry, & Pence, 2015) as well. The literature supports the use of simulation and team based learning in improving students' knowledge of team and communication skills, their attitudes towards working as a team, and their ability to identify effective team skills (Bender &

Buckner, 2005; Robertson et al., 2010; Tucker et al., 2003). Bandali, Parker, Mummery, and Preece (2008) reported that simulation enhanced IPE involving students from a variety of health professions, prepared them to enter professional practice and ultimately led to improved patient care.

There is little information about how CSD programs are incorporating simulation into their IPE initiatives. At the 2015 annual ASHA convention in Denver, Samford University presented an example of how simulation is used at the undergraduate level. Here, disaster simulation was used in order to introduce IPE, have students experience the impact of a communication disorder, observe the role of other disciplines in a disaster type situation, observe the importance of teamwork and effective communication between disciplines, and understand the importance of helping and teaching other disciplines about “how to” communicate with persons who have varying communication disorders (Johnson, et al., 2015). At the graduate level, Dudding and O’Donoghue use the virtual reality platform, Second Life®, to provide their students with the opportunity to work on and observe interprofessional approaches to patient care (Dudding & O’Donoghue, 2015).

Types of IPE activities. The activities in which CSD students are engaged during their IPE experience varies greatly. See Tables 1 and 3. However, common themes include team-building, effective communication, understanding of roles and responsibilities, reflective observation, evaluation, and development of an interprofessional plan of care. Prelock and Apel (2013) sought to identify some of the ways in which member CSD programs were incorporating IPE into their curriculum. Their findings are summarized in Table 3. While this information

gives the field an exploratory look at how IPE curriculum is being implemented; it doesn't provide enough information for replication or comparison.

Table 3

Activities CSD Programs Are Engaged In

- Tutorials, discussions, and group presentation of experiences (Lumague, et al., 2006)
- Interdisciplinary therapy (e.g., SLPs and counseling with transgender population; Embry & Pickering, 2012)
- Interdisciplinary evaluation (e.g., collaboration with ENTs in laryngeal videostroboscopy) (Embry & Pickering, 2012)
- Rural hospital based settings (e.g. The Rockcastle Project; Page, 2010)

As cited in Prelock and Apel (2013):

- IPE first year experience
- Courses:
 - Interdisciplinary ethics and bioethics courses
 - One credit required course with 8 disciplines using problem-based learning, increasing understanding of other professions' roles and responsibilities, and how to communicate effectively
 - IPE module training on professionalism, communication, interprofessional skills, patient safety, team building, health systems & EBP
- Clinical simulation activities across disciplines
- Case based scenarios with standardized patients
- Work on medical teams such as cleft palate/cranial facial teams
- Team based telepractice
- Interdisciplinary grand rounds with swallowing disorder teams
- Capstone projects
- IP Ethics workshop
- 2 day workshop for faculty
- Collaborative case presentations
- Rotation classes with professionals from other fields (voice rotation with ENT)
- Interprofessional study abroad
- Interdisciplinary service projects

Evaluation of IPE

Outcome measures are critical to any effort at continuous quality improvement. An evaluation of outcomes assesses the short-and long-term results of a program, and seeks to measure the change brought about by the program and its activities (CDC, 2011). Outcomes CSD programs may want to measure include outcomes for individuals (e.g., clients, student learners, faculty), groups (e.g. IPE teams such as cleft-palate team, diagnostic team, etc.), and the program itself. The general IPE literature points to consistent measured outcomes.

IPE competencies. The Interprofessional Education Collaborative (IPEC) found convergence in IPE competency content between national and global literature, across health professions and across education institutions (IPEC, 2011b). They identified four competencies that can be applied to any discipline (see Table 4). The first competency, *values and ethics for interprofessional practice*, addresses working with individuals of other professions to maintain a climate of mutual respect and shared values. The second competency, *roles and responsibilities*, refers to the learner's ability to use knowledge of one's own role and those of other professions. It also pertains to the ability to appropriately assess and address the healthcare needs of the patients and populations served (IPEC, 2011b).

The third competency, *interprofessional communication*, addresses the ability of the student learner to communicate with patients, families, communities, and other health professionals. Furthermore, students are expected to do so in a responsible and respectful manner that supports a team approach to the maintenance of health and the treatment of a disease/disorder. The last competency, *teams and teamwork*, represents a two-fold dynamic that

is at the heart of IPE. Learners apply relationship building values and the principles of team dynamics in order to perform effectively in different team roles. Students then apply what they have learned about team building to collaborate with other student learners from the same and/or different professional backgrounds as well as faculty and patients/families. It is here that teams work together to plan and deliver patient centered care that is safe, timely, effective and efficient (IPEC, 2011b).

Freeth, Hammick, Koppel, Reeves, and Barr (2002) identified consistent and reoccurring themes in a systematic review of the literature. Adapting Kirkpatrick's (1967) four-level model of educational outcomes, Freeth et al., (2002) developed a classification of interprofessional outcomes. Level one corresponds to learner's reactions and satisfaction to their learning experiences. The second level seeks evidence in relation to learning, mainly conceptualized as the acquisition of skills and knowledge as well as modification of preexisting perceptions and attitudes. The third level seeks evidence in relation to behavioral change, which is the application of learned skills to interprofessional practice. The fourth level seeks results stemming from the learning opportunity, particularly in relation to change in organizational practice and benefits to patients/clients (see Table 5) (Freeth et al., 2002).

While the outcomes discussed by Freeth et al., (2002) are not necessarily linked to the four competencies developed by the IPEC (2011b), there are some similarities. Both taxonomies of measured outcomes recognize the need to measure student ability to demonstrate mutual respect, shared values, attitudes and perceptions. IPEC (2011b) classifies this as a values and ethics for interprofessional practice competency. In Freeth et al., (2002) it is classified as a

modification in preexisting perceptions and attitudes, or a level 2a outcome. These core abilities are essential to effective collaborative teamwork and communication and they facilitate better outcomes for patients/clients.

Both systems recognize the importance of measuring outcomes related to knowledge and skills of a student's own profession as well as other health professions. IPEC (2011b) refers to this as a roles and responsibilities competency. Freeth et al., (2002) classify this as the acquisition of knowledge and skills or a level 2b outcome. As students become more immersed in their own education they are likely to gain a better and more comprehensive understanding of their role in the healthcare or education team. As students develop a clear understanding of their roles and responsibilities, they may be better able to understand the complex relationships they share with other professions. Hence, the ability to transfer interprofessional learning into practice through responsible and respectful communication, in a way that supports a team based approach to patient care is another important outcome measure. IPEC (2011b) addresses this outcome as an interprofessional communication competency. In the Freeth et al., (2002) model, it is a behavioral change or level 3 outcome.

One major difference between the IPEC (2011b) and Freeth et al., (2002) classifications of measured outcomes is the way in which patient outcomes are measured. IPEC's competencies measure patient benefit directly and indirectly through the each of the four competencies. For example, the general competency statement for values and ethics for interprofessional practice, "working with individuals of other professions to maintain a climate of mutual respect and shared values" (IPEC, 2011b, p. 19) will have an *indirect* benefit to the patient. Whereas general

competency statement for roles and responsibilities competencies, “ability to appropriately assess and address the healthcare needs of the patients and populations served” (IPEC, 2011b, p. 22) measures patient benefit *directly*. Freeth et al., (2002) classified “benefits to patients/clients” as a separate outcome measure. This level 4b outcome gathers data on clinical outcomes such as error rates; patient satisfaction; and length of patient hospital stay. Another major difference is that Freeth et al., also identified learner reactions and change in organizational practice as important IPE outcomes.

The outcomes endorsed by the IPEC (2011) and Freeth et al., (2002), are not hierarchal, rather they are competencies that encourage a holistic evaluation to better prepare students for interprofessional practice. However, each level becomes increasingly more difficult to measure as data collection methods beyond survey and observation is more timely, costly, and harder to implement.

Table 4

Four Competencies for IPE as identified by IPEC (2011b)

<u>Measured Outcome</u>	<u>Description</u>
Values & Ethics for IPP	Working with individuals of other professions to maintain a climate of mutual respect and shared values.
Roles & Responsibilities	Ability to: use knowledge of one's own role and those of other professions; appropriately assess and address the healthcare needs of the patients and populations served.
Interprofessional Communication	Ability to communicate with patients, families, communities, and other health professionals. Communicate in a manner that is responsible and respectful, and supports a team approach to the maintenance of health and the treatment of disease/disorder.
Teams & Teamwork	Apply relationship building values and the principles of team dynamics. Perform effectively in different team roles. Plan and deliver patient-centered care that is safe, timely, efficient, effective, and equitable.

Table 5
Classification of Outcomes by Freeth et al., (2002)

<u>Level</u>	<u>Description</u>
Level 1: Reaction	Learners' views on the learning experience and its interprofessional nature.
Level 2a: Modifications of perceptions & attitudes	Changes in the reciprocal attitudes or perceptions between participant groups. Changes in perception or attitude towards the value and/or use of team approaches to caring for a specific client group.
Level 2b: Acquisition of knowledge & skills	Including knowledge and skills linked to interprofessional education
Level 3: Behavioral change	Identifies individuals' transfer or interprofessional learning to their practice setting and their changed professional practice.
Level 4a: Change in organizational practice	Wider changes in the organization and delivery of care.
Level 4b: Benefits to patients/clients	Improvements in health or well-being of patients/clients.

Evaluation of IPE competencies. Evaluation of interprofessional learning initiatives has attracted much interest over the past decade with a number of systematic reviews undertaken (Barr et al., 2005; Hammick et al., 2007; Reeves, Perrier, Goldman, Freeth & Zwarenstein, 2013; Reeves et al., 2008; Zwarenstein et al., 2009). The Barr et al., (2005) review found interprofessional competencies being measured in 107 studies including (a) learner's reactions (46.7%), (b) attitudes and perceptions (29.9%), acquisition of knowledge and skills (37.4%),

behavioral change (24.3%), change in organizational practice (42.1%), and benefits to patients and clients (29.9%).

In Hammick et al., (2007) systematic review, where all research designs were included, the majority of studies evaluated learner reaction outcomes (66.6%), perceptions and attitudes, (57.1%), and knowledge and skills (52.4%). While only 28.6% evaluated behavior outcomes, 14.3% evaluated service delivery, and 23.8% evaluated patient/client care.

Reeves et al., (2008) systematic review included only studies that utilized validated instruments, and either a controlled before-and-after (CBAs), or a randomized controlled trials (RCTs) research design. Furthermore, they only included studies that assessed patient/client and/or healthcare process outcomes. Four of the six studies included in their review indicated that IPE produced positive outcomes in the following areas: emergency department culture and patient satisfaction; collaborative team behavior and reduction of clinical error rates for emergency department teams; management of care delivered to domestic violence victims; and mental health practitioner competencies related to the delivery of patient care. In addition, two of the six studies reported mixed outcomes (positive and neutral) and two studies reported that the IPE interventions had no impact on either professional practice or patient care (Reeves et al., 2008).

In 2013, Reeves et al., updated their previous systematic review including only studies utilizing RCTs, CBAs, or interrupted time series (ITS). They included studies that objectively measured through use of a validated instrument, patient/client or health care process outcomes. Their update review located nine new studies, which were added to the six studies from their

2008 systematic review. All of the included studies measured the effectiveness of IPE interventions compared to no educational intervention. Seven studies indicated that IPE produced positive outcomes in the following areas: diabetes care, emergency department culture and patient satisfaction; collaborative team behavior and reduction of clinical error rates for emergency department teams; collaborative team behavior in operating rooms; management of care delivered in cases of domestic violence; and mental health practitioner competencies related to the delivery of patient care. However, four studies reported mixed outcomes, and four studies reported that the IPE interventions had no impact on either professional practice or patient care (Reeves et al., 2013).

The Zwarenstein et al., (2009) review only included studies utilizing RCTs of practice-based interprofessional collaborative interventions. The studies included reported changes in objectively-measured (by use of a validated instrument) patient/client outcomes, and/or health status outcomes, and/or healthcare process outcomes, and/or measures of interprofessional collaboration. Only five studies met the inclusion criteria. Zwarenstein et al., found mixed results in terms of patient/client outcomes. One study on daily interdisciplinary rounds in inpatient medical wards at an acute care hospital, showed a positive impact on length of stay and total charges. However, another study on daily interdisciplinary rounds in a community hospital telemetry ward, found no impact on length of stay. They also found mixed results in interprofessional collaboration. Monthly multidisciplinary team meetings improved prescription of psychotropic drugs in nursing homes. However, videoconferencing compared to audio conferencing multidisciplinary case conferences, showed mixed results. Multidisciplinary

meetings with an external facilitator, who used strategies to encourage collaborative working, were associated with increased audit activity and reported improvements to care (Zwarenstein et al., 2009).

These reviews suggest that the clinical practice setting can offer an effective learning environment for IPE. However, evaluation in this setting has lacked focus on the evaluation of transfer of learning into practice and effects on patient care. This is partly because these study designs are more difficult to conduct due to the time lag between interprofessional learning experience and interprofessional practice. Thus, the evidence supporting that IPE leads to better patient outcomes is lacking. This is problematic for CSD programs wanting to start or continue to incorporate IPE in their programs. A structural barrier often cited in the literature pertains to the lack of buy-in from institutional leaders. Due to the lack of sufficient data, standard setting, benchmarking, and dissemination of best practice, some institutional leaders are skeptical of IPE (Gilbert, 2005).

Information on what IPE outcomes CSD programs are evaluating is limited, however, a few examples exist. In the Rockcastle project, three students across three academic programs at two institutions (communication disorders and physical therapy at the University of Kentucky, and occupational therapy at Eastern Kentucky University) participated in a four week IPE clinical experience in a rural hospital setting. The first week focused on orientation activities and observation of an interprofessional examination of a patient. In the second week, students participated as a team in an interprofessional examination of a person on the long-term care unit. Together they evaluated the findings and developed an interprofessional plan of care. Students

presented the plan of care at a rehabilitation team meeting in the third week of the program. In the last week, students participated in a community education activity. Here they worked collaboratively to educate others about their role on the healthcare team. Measured outcomes included knowledge of roles and responsibilities of other healthcare professions, and interprofessional teamwork in order to assess, plan and provide care for individual patients (Page, 2010). Evaluation methods will be discussed in the next section.

At East Tennessee State University CSD students had the opportunity to participate in a three year IPE pilot program. The program consisted of three phases. The first phase included the identification of student participants, an orientation to the program, IPE activities, and a debriefing session. Student participants included students from speech-language pathology, nursing, physical therapy, pharmacy, nutrition, public health, psychology, social work, and medicine. In phase 2, students were exposed to the IPEC (2011b) four competencies through coursework and/or extracurricular activities over the course of two academic years. Each student was asked to complete a course or activity for each competency. The third phase was a capstone project wherein all student participants worked together in a simulated refugee camp experience. In this experience, interprofessional learners were tasked with the preparation of an area of land for providing service and care to a group of 100 refugees who were played by actors. Measured outcomes included changes in attitudes, beliefs and knowledge of interprofessional education and practice of students and faculty (Proctor-Williams & Alley, 2015). Evaluation methods of this pilot program will be discussed in the next section.

Outcome measurement strategies. Information about how CSD programs incorporating IPE measure their outcomes is underrepresented in the literature. In the Rockcastle Project discussed above, outcomes were measured quantitatively and qualitatively. To assess attitudinal change towards IPE, a standardized questionnaire, the Interdisciplinary Education Perception Scale (IEPS), was used. See Table 6 for a description of this scale. Qualitative feedback from students and clinical supervisors was also gathered. All students reported that they enjoyed the IPE experience and felt it had increased their knowledge of roles and responsibilities of the other professions included in the study (Howell et al., 2011).

In East Tennessee State University's IPE pilot program, outcomes were measured at the beginning and at the end of the three year program. Three standardized questionnaires were used: the Attitudes Toward Health Care Teams Scale (ATHCT), the Interdisciplinary Education Perception Scale (IEPS) and the Readiness for Interprofessional Learning Scale (RIPLS). See Table 6 for a description of the IEPS and the RIPLS. In order to measure students' acquisition of knowledge and skills on the four IPEC (2011b) core competencies, four self-developed questionnaires were utilized. Each questionnaire was based on one of the competencies and its sub-competencies, yielding 10 questions on the values and ethics survey, 9 questions on the roles and responsibilities survey, 8 questions on the interprofessional communication survey, and 11 questions on the teams and teamwork survey (Proctor-Williams & Alley, 2015).

The Barr et al., (2005) systematic review offers a broader view of how IPE outcomes are being measured. Here, 107 higher quality studies utilizing any research design were identified. Barr et al., found that eight different research designs were employed to evaluate IPE outcomes.

Sixty-nine studies (66%) used quasi-experimental or experimental designs: before-and-after studies, before-during-and-after studies, CBAs and RCTs. Many of the studies employed a before-and-after design without a control group, which lacks power when compared with CBA and RCT studies (46 studies, 44%). Difficulties obtaining a control group may be a contributing factor to that chosen design (Barr et al., 2005).

About 71% of the studies in the Barr et al., (2005) review used questionnaires as a way to collect data on their outcomes. Freeth et al., (2002) found similar results. Seventy percent of these studies used questionnaires to evaluate outcomes. While the majority of these studies created their own questionnaires, research tools specifically for the evaluation of interprofessional education exist. Some of these specific tools include: Interdisciplinary Education Perception Scale (Leucht, Madison, Taugher, & Petterson, 1990), Readiness for Interprofessional Learning Scale (Parsell & Bligh, 1999), the Structure of Observed Learning Outcomes (Biggs, 2003), and the more recently developed, Interprofessional Collaborator Assessment Rubric (Curran et al., 2013). See Table 6 for more information.

While information from these systematic reviews provides insight as to how IPE outcomes can and are being measured, the number of studies including speech pathology student participants is limited. Furthermore, there is limited evidence in the literature to suggest how CSD programs are evaluating their IPE outcomes. Very few examples offer information about what outcomes are being measured, what evaluation designs are being used, and what evaluation methods are being utilized. CSD programs need more data in order to initiate, compare, or

replicate IPE initiatives. Until more information is gathered, the lack of standards, benchmarks, and evidence will continue to act as a barrier to IPE in CSD programs.

Table 6
Interprofessional Education Measurement Tools

<u>Name</u>	<u>Description</u>
The Interdisciplinary Education Perception Scale (IEPS)(Luecht et al., 1990)	<p>This pre/post- test questionnaire measures changes in learner’s attitudes resulting from an IPE course.</p> <ul style="list-style-type: none"> ● Consists of 18 items designed to measure the professional perception of students exposed to interdisciplinary practice applications related to their own professions. ● Constructed around four factors: professional competence in one’s own profession, perceived need for interprofessional collaboration, perceptions of actual interprofessional cooperation and attitudes towards the value of working with other professions.
The Readiness for Interprofessional Learning Scale (RIPLS)(Parsell & Bligh, 1999)	<p>This questionnaire measures student attitudes to interprofessional learning.</p> <ul style="list-style-type: none"> ● Original scale consists of 19 statements arranged in three subscales (teamwork and collaboration, professional identity, and roles and responsibilities). ● Large-scale validation of the scale is ongoing and it has been lengthened to include a fourth subscale.
Structure of the Observed Learning Outcomes (SOLO) taxonomy (Biggs, 2003)	<p>This questionnaire focuses on the structure of students’ understanding in describing the quality of their learning outcomes in five levels of increasing complexity:</p> <ul style="list-style-type: none"> ● Pre-structural (no understanding demonstrated) ● Uni-structural (minimal understanding/general definitions) ● Multi-structural (increased detail/descriptions) ● Relational (understanding of several components/applications of knowledge) ● Extended abstract (reflect/theorize)
Interprofessional Collaborator Assessment Rubric (ICAR) Modified version (2013)	<p>This rubric is intended for use in formative and summative assessment of interprofessional collaborator competencies</p> <ul style="list-style-type: none"> ● Student learners are evaluated on seven competencies: communication, collaboration, roles & responsibilities, collaborative patient/client-family centered approach, team functioning, and conflict management/resolution.

Barriers and Components of Success in Interprofessional Education

There are a number of factors that can act as either barriers or enablers to success in IPE. These factors can be divided into issues directly related to the learner, implementation, and the institutional environment.

Learner level. Individuals who enter a particular health profession have a series of attitudes, beliefs and understandings of what that profession means to them, and how they see themselves in a professional role in the future. In most higher education institutions, health professionals are trained separately with minimal interaction with other health professional students (Barr et al., 2005; Oandasan & Reeves, 2005b; Pickering & Embry, 2013). This can isolate professionals from one another and impede their collaborative learning and practice opportunities (Barr et al., 2005; Freeth & Nicol, 1998).

Socialization refers to a means by which students come to identify with their profession, its values, cultures, roles, and expertise. Each profession's socialization plays an important role in how they approach interprofessional collaboration. As a result of their socialization, learners pass through their education and training programs with stereotypes of their own professional identities and those for other professions (Gilbert, 2005; Carpenter 1995a, b, & c; Tunstall-Pedoe et al., 2003). Professional or "turf" protectionism and/or scope of practice biases are cultural factors that can negatively impact students and practitioners in participating in IPE (Itano, Williams, Deaton, & Oishi, 1991; James & Nelson, 2015; Pirrie et al., 1998). For example, in a patient case of dysphasia, recognizing a role for a speech-language pathologist and/or occupational therapist may not be salient when perceived leadership typically comes from

another health profession (e.g., medicine or nursing). Nisbet et al., (2008) reported mixed findings in relation to roles and responsibilities within team and attitudes towards doctors. Some students reported they saw doctors as the leaders of the team with higher status; others described a shared leadership model of equal status amongst team members. A few students expressed intimidation and negative attitudes towards doctors (Nisbet et al., 2008).

Some might argue that exposure to other professions during educational training may be seen at best as a distraction and at worst as contamination. These objections gain credence from arguments that students need time to find their respective professional identities before being exposed to other specialties (Barr et al., 2005). Some CSD programs may be concerned that incorporating IPE puts the field in competition with other programs and colleagues. In response to this concern, past ASHA President Patricia Prelock cautioned the field, “Competition among professionals...seems an inappropriate focus if we are committed to high-quality care for people with a range of health and educational needs,” (Prelock, 2013, para. 7).

One common theme in the literature leading to a successful experience in IPE included helping students to understand their own professional identity while gaining an understanding of other professional’s roles within the healthcare industry (Bridges et al., 2011; Nisbet et al., 2008; Tassone & Lowe, 2015). Nisbet et al., argued that even though challenges persist in overcoming pre-existing role stereotypes; IPE programs have the potential to expand students’ understanding of the contributions made by other professionals/colleagues to effective patient care (Nisbet et al., 2008).

A major barrier to learners in IPE is the wide variety of terminology used to describe it (Barr et al., 2005; Gilbert, 2005; Milton, 2012). Successive initiatives in different countries have introduced their own terminology, so much so that the field has become a semantic quagmire. Prefixes (inter-, multi-, and cross-) precede adjectives (professional, disciplinary, and agency), which precede nouns (education, training, studies and learning) in seemingly endless permutations. Joint training and shared learning offer more prosaic alternatives, but the field is bedeviled by competing terms. Some lack definition, others are given precise but restructured definitions which lack general currency (Barr et al., 2005). This makes it very difficult for learners and developers to understand what IPE is and what it is not.

The overuse of acronyms from various professionals is a critical barrier in IPE. In their opinion, Tassone and Lowe (2015) argue the lack of safety one needs in order to be able to say “I don’t understand,” can act as a barrier to effective interprofessional collaboration. Clear and open communication amongst team members is critical to overcoming barriers of effective teamwork (Mickan & Rodger, 2005; Nisbet et al., 2008). When a team doesn’t follow a shared leadership model of equal status amongst team members, it can lead to negative effects. For example, some team members may be less likely to discuss patient care issues especially when it could result in conflicting opinions with members of the team they feel intimidated by (i.e., doctors). Nisbet et al., (2008) found that some students felt intimidated by doctors, inhibiting open communication. This is of particular importance because it could affect patient safety and quality of care (Nisbet et al., 2008).

Implementation level. There are a number of programmatic, collaborative, and resource factors that can inhibit the organization and implementation of IPE across professional programs. Programmatic barriers include varying educational and clinical experience of students (James & Nelson, 2015; McCarthy et al., 2015; Nisbet et al., 2008; Proctor-Williams & Alley, 2015), differences in curricula relative to content and time (Pirrie et al., 1998, James & Nelson, 2015), scheduling and timetabling across disciplines (Mulvey & Fahy, 2015; Gilbert, 2005; McCarthy et al., 2015; Nisbet et al., 2008; Pirrie et al., 1998; Thistlethwaite & Nisbet, 2007), and an already crowded field specific curriculum (Towle Harmon, Fangman Farrell, Watkins, Binder, & Hepperle, 2015). Collaborative barriers include securing joint validation and accreditation demands (Gilbert, 2005; Pirrie et al., 1998; Thistlethwaite & Nisbet, 2007), agreeing on joint financial arrangements, having insufficient time for developing and carrying out IPE experiences for faculty and staff to achieve system wide IPE (Gilbert, 2005; James & Nelson, 2015; Proctor-Williams & Alley, 2015; Thistlethwaite & Nisbet, 2007), and resistance from staff at academic, hospital, and community-based levels (Thistlethwaite & Nisbet, 2007).

The way education is planned is another collaborative barrier to the success of any IPE initiative. Academic programs are usually organized in silos, independent of other disciplines in administrative function and curriculum. “Coursework is often disorder-specific, with an awkward separation between academic knowledge and clinical skills” (Pickering & Embry, 2013, p. 42). Lack of a unified focus by participating disciplines on developing curricula and interactions that can truly be termed interprofessional, further inhibits the success of an IPE program (Gilbert, 2005). It is important to identify who the key partners are in the initiative and

involve them in the planning and implementation from the very beginning (Nasmith, Oandasan, Waters, & Purden, 2003). Creating a collaborative initiative requires collaborative planning by all the representatives of the health professions involved (Oandasan & Reeves, 2005b). Faculty who affiliate for the purpose of IPE should be part of the governance of IPE (Gilbert, 2005).

Authenticity and customization are important mechanisms for positive outcome in the collaborative development of IPE. Authenticity in the development and delivery process of interprofessional learning is especially important in the customization for each specific learning group and their professional practice. One way authenticity has been realized in IPE is in the use of simulated patients and environments. This strategy has the capacity to be a realistic representation of practice, and thus, can enhance the effectiveness of IPE. Likewise, customizing the activity and content to reflect the reality of practice for specific groups of interprofessional learners is important for positive outcomes (Hammick et al., 2007).

A lack of various resources represents another type of critical barrier to the implementation of IPE. Resource barriers include inequalities in the number of students enrolled across programs (Pirrie et al., 1998; Towle Harmon et al., 2015), geographical isolation or limitations (Mulvey & Fahy, 2015; Pirrie et al., 1998; Watson & Farmer, 2015), varying work and school schedules of students (Kerins, et al., 2015, James & Nelson, 2015; McCarthy et al., 2015), having insufficient clinical sites and even room space (Nisbet et al., 2008; Thistlethwaite & Nisbet, 2007, Towle Harmon et al., 2015; Watson & Farmer, 2015), difficulty coordinating students to be involved in the care of the same patients due to patients not necessarily requiring all services (e.g., a patient may require speech-language therapy but not occupational therapy),

and variation in the allocation of patients to students by each profession (Nisbet et al., 2008). These are just the most salient and reported resource barriers. As this list is not exhaustive, it highlights concerns for CSD programs wanting to implement IPE.

Programmatic, collaborative and resource constraints in delivering IPE cannot be underestimated. Committed faculty (Mulvey & Fahy, 2015; Proctor-Williams & Alley, 2015), diverse calendar agreements, curricular mapping, mentor and faculty training (James & Nelson, 2015; Proctor-Williams & Alley, 2015), adequate physical space, technology (Dudding & O'Donoghue, 2015, Kerins et al., 2015, McCarthy et al., 2015), community relationships, and the recognition of student participation (Bridges et al., 2011), were all identified as critical factors for successful implementation of IPE. Staff development is a key influence on the effectiveness of IPE as it enables competent and confident facilitation of interprofessional learning. These complex range of barriers and mechanisms to overcome them, need to be addressed and acknowledged with institutional leaders for sustainability and scalability of the IPE program.

Institutional level. Inherent tendencies in higher education pose barriers to the implementation of interprofessional education. Broadly speaking, structural barriers include insufficient funding for interprofessional activities (cost of implementation, research, evaluation, faculty staff stipends) (Banks & Janke, 1998; Gilbert 2005), and differences in terminology and professional cultures among disciplines (Barr et al., 2005; Gilbert 2005).

Another challenging structural barrier can be the lack of buy-in from institutional leaders. Due to the lack of sufficient data, standards, benchmarks, and dissemination of best practice, some institutional leaders may be leery of IPE (Gilbert, 2005). Within the literature, there is a

consensus that the success of any interprofessional initiative depends on attracting commitment from both institutional and political leadership (Bridges et al., 2011; Oandasan & Reeves, 2005b; Tassone & Lowe, 2015). At the level of the academic institutions, it is noted that support is needed from senior administrators who have the power to (a) decide on educational policies, (b) shape interprofessional programmatic infrastructure, and (c) control resources (Carpenter, 1995c; Pirrie et al., 1998). They can implement changes in course structures, engage faculty support through academic incentives, provide funding to operate IPE budgets and have a major role to play in the long term sustainability of initiatives. Getting support from key senior administrators can be a challenge but with their backing it is possible for IPE to become a priority issue (Oandasan & Reeves, 2005b).

As evidenced in the literature, there are many barriers to overcome in order to provide students with IPE. Unfortunately, there is limited information on what role these barriers play for CSD programs. Therefore, there is little guidance for programs wanting to implement IPE. There is even less guidance in knowing how such barriers can be overcome. It would benefit the field to have an understanding of the challenges that may be faced, along with ways they can be conquered. If programs know what to expect, they may be more willing to continue implementing or to consider implementing IPE. Overcoming these barriers can yield many benefits including: broadening students' knowledge and experiences in increasingly team-based education and healthcare environments; providing faculty members with opportunities for meaningful, contextualized scholarship; enhanced program viability and visibility; and improved clinical practice (Pickering & Embry, 2013).

Rationale & Research Questions

For CSD programs wanting to become involved in IPE, or wanting to compare their IPE initiatives to that of other CSD programs, there is limited direction as to what curriculum and activities look like, how and where IPE is being implemented, what outcomes are being measured, and how they are evaluated. Additionally, there is limited guidance as to what barriers programs should prepare themselves for, and even less guidance on how programs should try to overcome those barriers. Such information would benefit the field's direction towards an interprofessional education approach.

It should be noted that some CSD programs have shared information on what their IPE implementation looks like, specific outcomes they are measuring, and how they are measuring these outcomes. At the annual ASHA Convention in November 2015, there were over 100 presentations and oral seminars centered on interprofessional education and/or practice. However, more information is needed in order for CSD programs to continue incorporating IPE.

The purpose of this study was to explore the interprofessional education initiatives of undergraduate and graduate CSD programs in the United States. Specifically five questions were asked:

1. What is the status of Interprofessional Education in Communication Science Disorders Programs?
 - (a) How widespread is IPE?
 - (b) What is the status of IPE: Programs incorporating IPE

- (c) What is the future status of IPE: Programs not incorporating IPE
2. What are the demographics of IPE in CSD programs?
 - (a) Are undergraduate and graduate programs incorporating IPE?
 - (b) When do IPE experiences take place in a student's program (first semester, at one point during the program, at the end, throughout the student's program)?
 - (c) Where does IPE take place (lecture based and/or clinical based IPE)?
 - (d) What kind of IPE are students exposed to (medical vs. education)?
 - (e) What other disciplines are involved in the program's IPE activities?
 3. How is IPE implemented in CSD programs?
 - (a) What topics make up the Interprofessional content?
 - (b) What strategies are utilized (case based, problem-based, etc.)?
 - (c) What other types of IPE activities are students involved in?
 4. What IPE outcomes are being measured? Furthermore, how are they being measured?
 5. What barriers do CSD programs face? What barriers do the faculty face? To what do they attribute success in their IPE initiatives?

Method

This study utilized two questionnaires to explore IPE in undergraduate and graduate CSD programs. The first questionnaire, distributed in the summer of 2015, was specifically for chairs and program directors. This questionnaire addressed the status of IPE within CSD programs, the demographics of IPE, measured outcomes, how outcomes are measured, barriers experienced, and critical enablers of success in IPE initiatives (see Table 7). The second questionnaire, distributed in the fall of 2015, was specifically for lecture and clinical based faculty. This questionnaire addressed, from the faculty perspective, demographics of IPE, implementation of IPE, barriers experienced by faculty, and critical enablers of success in IPE initiatives (see Table 7). The research design for this study included survey methodology, combining quantitative and qualitative methods.

Table 7
*Research Questions Answered on Questionnaire I and
 Questionnaire II*

<u>Question</u>	<u>Questionnaire</u>
1. What is the status of Interprofessional Education in Communication Science Disorders Programs? (a) How widespread is IPE? (b) What is the status of IPE: Programs incorporating IPE (c) What is the future status of IPE: Programs not incorporating IPE	Questionnaire I
2. What are the demographics of IPE in CSD programs? (a) Are undergraduate and graduate programs incorporating IPE? (b) When do IPE experiences take place in a student's program (first semester, at one point during the program, at the end, throughout the student's program)? (c) Where does IPE take place (lecture based and/or clinical based IPE)? (d) What kind of IPE are students exposed to (medical vs. education)? (e) What other disciplines are involved in the program's IPE activities?	Questionnaire I Questionnaire I Questionnaire I & II Questionnaire I & II Questionnaire II
3. How is IPE implemented in CSD programs? (a) What topics make up the Interprofessional content? (b) What strategies are utilized (case based, problem-based, etc.)? (c) What other types of IPE activities are students involved in?	Questionnaire II
4. What IPE outcomes are being measured? Furthermore, how are they being measured?	Questionnaire I
5. Barriers & Critical Enablers of Success	Questionnaire I & II

Rationale for Methods Used

Survey research is a way to collect information directly from people in a systematic, standardized way. The benefit of questionnaires is that they ask the same question in the same way to all respondents. Data collected this way can be used to make inferences about the population of interest. Questionnaires can be carried out in multiple ways: through the mail, electronically, over the phone, in face-to-face interviews, or a combination of these methods. Factors such as questionnaire content, respondent characteristics, time constraints, and available resources (e.g., money, interaction requirements, and ultimate collection of useful data) are considerations when choosing which survey method is appropriate. Mail and electronic questionnaires give respondents privacy and time to consider their answers. These types of questionnaires are also generally less expensive to implement and are geographically more flexible. However, mail questionnaires generally have a low response rate. Given the national nature of this study, an electronic questionnaire format was chosen.

Participants

Questionnaire I: chairs and program directors. Undergraduate and graduate Communication Science Disorder programs representing the northern, eastern, Midwestern, southern, and western regions of the United States were selected for this study. The American Speech-Language Hearing Association offers an official web listing of graduate programs in audiology and speech-language pathology that are accredited by or in candidacy with the Council on Academic Accreditation (ASHA, 2015). The program listing dated 3/23/2015 was used to identify potential programs to participate in this study. When calculating the number of

CSD programs, any joint program that was listed as their own program was counted separately, as they appeared in the program listing. For example, the University of the Pacific is listed twice, once for their Audiology program and a second time for their SLP program.

Of the 272 total graduate programs listed in this program listing, 257 (Masters Level only) were chosen for participation. Programs that were under accreditation candidacy (n=14) were chosen, while programs on probation (N=4) were not chosen to partake in this study. At the time participants were chosen, it was decided the study would look at masters level graduate programs instead of programs offering doctoral degrees as the master's degree is the entry level degree for practitioners in speech-language pathology. Additionally, programs offering accreditation only in Audiology (n=11) were also not chosen to participate.

The program listing dated 3/23/2015 included only graduate level programs. While many of those programs also have an undergraduate program, this program listing does not include programs that *only* have an undergraduate program. However, ASHA's website provides a search tool, "EdFind," which generates a list of undergraduate programs (ASHA, 2015). Since these programs are not categorized by accreditation (good standing, candidacy, probation), all undergraduate only programs were selected to participate (n=36).

A total of 294 CSD undergraduate and graduate programs were identified to receive an invitation to participate in a questionnaire via email that evaluated their program's status of IPE, their plan to implement IPE (if they were not implementing IPE), IPE expectations within their academic institutions, which IPE outcome measures the program evaluated, what (if any) evaluation frameworks programs used, the institutional barriers programs have faced, and

enablers of success in the institutional barriers programs have faced. The participants for this questionnaire included chairs and program directors, as it was postulated they would most likely have the information to answer these types of questions available to them.

CSD program department chairs/program directors in 48 states (Alaska and Delaware were not represented as there were not any CSD programs in these states at the time of selection) and two U.S. territories (District of Columbia and Puerto Rico) were contacted electronically to participate in the study. Department chairs/program directors from 43 states and territories responded to the online request for participation.

Questionnaire II: faculty. While department chairs and program directors have knowledge of program structure and demographics, faculty implementing the IPE have additional and different information and perspectives. In order to gather accurate data for research questions pertaining to settings and classification of IPE, other fields involved, topics that make up IPE content, strategies utilized, types of IPE activities, barriers experienced in implementation, and critical enablers of success in incorporating IPE, the study had to identify the individuals responsible for implementing IPE: the faculty. In order to identify which faculty should receive an invitation to participate in this questionnaire, data was analyzed from Questionnaire I. Programs who answered “Yes” they were implementing IPE, were put on a list to identify faculty email addresses. A question in Questionnaire I asked participants to name specific faculty members who were responsible for driving their department’s IPE initiatives, so they could receive an invitation to participate in Questionnaire II. Participants who answered “No” their programs did not implement IPE, were not chosen to have faculty participate in the

second questionnaire. Participants who did not respond to the first questionnaire were also included on this list to identify potential faculty email addresses, as the researcher did not want to miss potential data.

Once the list of programs either incorporating IPE or programs that did not answer the initial questionnaire was compiled, a manual search of faculty email addresses was executed. The researcher looked up potential faculty email addresses on departmental websites. In cases where faculty members were either not listed, or email addresses were not provided, the University directory was used. In cases where the University directory was not helpful or did not exist, departmental administrative assistants were emailed (with departmental chairs copied), and asked for assistance in obtaining faculty email addresses. A few departmental websites included faculty from multiple departments, such as special education, and thus did not specify the difference between a faculty member who taught/supervised special education versus CSD students. In these cases, departmental administrative assistants were emailed to help identify which faculty members were truly CSD faculty and which were not. In rare cases, no response was obtained from an administrative assistant, and thus, everyone on the departmental faculty webpage was invited to participate. A question was added to the questionnaire (question #2: "In which disciplines do you teach?"), to eliminate any participants that would not have been representative of CSD faculty. For example, a professor in the special education department who may only have CSD students in an elective course would not be able to answer questions pertaining to IPE within the CSD department. Therefore, question two was added to end their

questionnaire. A total of 3,139 CSD faculty members were identified to receive an invitation to participate in Questionnaire II.

Instruments

Two questionnaires were developed to gather information to answer the research questions. As illustrated in Table 8, both questionnaires utilized information from the IPE literature for question development. This information was expanded in order to create more specific questions regarding IPE curriculum, activities, measured outcomes, and measurement tools for CSD programs.

Table 8
Question Development

<u>Question Content</u>	<u>Literature</u>
Settings of IPE	Nisbet et al., 2008; Page, 2010
Other professions CSD programs are collaborating with	Nisbet et al., 2008; Page, 2010; Prelock, 2013, Prelock & Apel, 2013
Group size	Nisbet et al., 2008; Page, 2010
Curricular content	Barr, 2002; Bridges et al., 2011
Implementation of curricular content	Bridges et al., 2011; Dumont et al., 2010; Masters et al., 2013; Reeves et al., 2002
Instructional strategies	Barr, 2002; Barrows & Tamblin, 1980; Bridges et al., 2011; Likerman, 1997; Lindquist et al., 2005; Woodhouse & Pengally, 1992
Types of IPE activities	Nisbet et al., 2008; Page, 2010; Prelock & Apel, 2013
Measured outcomes	IPEC, 2011b; Freeth et al., 2002; Nisbet et al., 2008; Page, 2010; Prelock & Apel, 2013
Evaluation designs and tools	Barr et al., 2005; Barr et al., 2007; Freeth et al., 2002; Nisbet et al., 2008; Page, 2010

Questionnaire format. A close-ended question format was used for the majority of the questionnaire items to provide respondents with clear alternatives for answering items, to reduce ambiguity, and to enable comparison of answers. Some closed-ended response questions were designed to be mutually exclusive and exhaustive so that every respondent could find one and only one choice that applied to him or her (e.g., on Likert scale questions). However, some closed-ended questions were not mutually exclusive and offered at least one option with room for ambiguity. For example on Questionnaire I, when asked about why a program did not plan to implement IPE, the list of choices included eleven different possible responses, where more than one option could be selected in order to identify all the reasons a program may not be implementing IPE. The question concluded with three options for “Other” with space to type a response, in order to capture other reasons that may not have been represented in the list. If respondents did not find a response option that corresponded to their answer to the question, the “Other” option allowed him/her a chance to provide true and representative information.

The questionnaires also included open-ended questions and comment sections with some items to enable respondents to describe and elaborate on information. The number of open-ended questions was limited because some respondents do not like to write a lot and may find open-ended questions taxing (Check & Schutt, 2012). Likert scale questions were used on the questionnaires in order to gather information to compare the barriers identified in the literature to those expressed by CSD programs and faculty. Similarly, Likert scale questions were used on the questionnaires related to factors that played a role in the success of a program’s IPE initiatives.

Both questionnaires utilized question and page logic. In other words, not every respondent saw every question listed on the questionnaires in Appendix C and D. On Questionnaire I, if a respondent answered their program was not implementing IPE, they were asked only a few follow up questions (numbers 2 14, 15, and 16) and then their questionnaire ended. If a respondent answered that their program was implementing IPE, they were asked the remainder of the questions. Similarly, on Questionnaire II, depending on how the respondent answered the question about whether or not their program was implementing IPE, he or she was asked a different set of follow up questions. See Appendix C and D for Questionnaire I and Questionnaire II, respectively, and for detailed information on page and question logic.

Development of questionnaires. Originally, there was one questionnaire, which contained 35 questions. Eight questions sought to identify demographic characteristics of graduate CSD programs that were either incorporating or not incorporating IPE. Three questions related to curriculum, eleven questions related to how curricular content is implemented, one question related to what outcome measures programs were evaluating, one question related to how outcomes were being measured, four questions related to the opinions, attitudes and perceptions of programs incorporating IPE, and seven questions related to the type of barriers programs faced while incorporating IPE. There was a general concern that department chairs and/or program directors may not have the resources and information to answer some of the questions on the original questionnaire. It seemed the most appropriate people to ask about what the IPE activities look like in lecture and clinical settings were the faculty members themselves. Completion time was also a concern, it was postulated that splitting the questions up over two

questionnaires would help reduce this. Two questionnaires were created, one in which the most likely person to have the information to answer certain questions was a department chair/program director, and the other faculty members.

Focus group. In order to gather feedback regarding the original questionnaires, an online focus group meeting lasting two hours was conducted with four participants. Two of the participants were current CSD department chairs and two were faculty members. One of the faculty members had been involved in helping ASHA evaluate potential program candidates, and thus, had some experience in surveying many CSD programs, especially all at once. The focus group allowed for discussion of question format, comprehension of question & instructions to help eliminate ambiguity, and length of time to complete the questionnaire. All of the participants in the focus group were selected using a convenience sampling method, that is, the researcher either knew the participant personally, or knew them through one degree of separation. The participants represented four different Midwestern and northeastern CSD programs: St. Louis University, Fort Hays University, Rockhurst University, and Emerson College.

Two of the participants were employed in institutions where IPE was not being implemented. They were able to provide specific reasons why their program had not yet incorporated IPE, and those were added to question 16 on Questionnaire I (see Appendix C). One of the main concerns of the focus group was the length of time needed to complete the questionnaires. Questionnaire I took about 27 minutes long and Questionnaire II about 22

minutes long. Questions were removed or reworded on both questionnaires in order to reduce completion time.

At the time of the focus group, the intended audience for the two questionnaires were graduate CSD programs. However, one of the participants noted that he was aware of quite a few undergraduate programs that were incorporating IPE in an educational setting. This was of interest to the researcher, because as limited as the literature is on what CSD programs are in doing in IPE, it is even more limited in terms of the educational setting. Consequently, a decision was made to include undergraduate programs. Additionally, a participant recommended including graduate programs that were under “candidacy”, as it was possible the reason those programs were being considered for candidacy was because they were, or were set up to implement interprofessional education. Thus, graduate programs that were identified as a “candidate” on the 3/23/2015 CAA Accredited Program Listing were included in the national survey.

Pilot study. After changes were made to the questionnaires, a pilot study was conducted. The purpose of the pilot study was (a) to observe a probable response rate, (b) to observe a probable completion time, (c) to evaluate the ability of the questions present on the questionnaires to answer the research questions, (d) gather feedback on comprehension of the questions, and (e) make revisions to the questionnaires based on participant feedback.

The participants for the pilot study were selected using convenience sampling, CSD programs in the state of Kansas. Across two CSD programs, 2 participants were selected to participate in Questionnaire I. Both participants completed the questionnaire in its entirety.

Nineteen faculty participants were selected to participate in Questionnaire II. Of these, 4 completed a portion of the questionnaire, and 5 finished the questionnaire in its entirety. This resulted in a total of 9 respondents for a 47.37% response rate. Questionnaire I took participants an average of 13 minutes to complete, while Questionnaire II took participants an average of 17 minutes to complete. The questionnaires were distributed using the online survey engine, Survey Gizmo (www.surveygizmo.com). Potential respondents received three emails over a six week period requesting their participation in the questionnaire.

The results of Questionnaire I provided limited guidance in how widespread IPE was within CSD programs. Only two programs were included in the pilot study, and both were incorporating IPE. It did however, provide information on whether IPE was happening at the undergraduate or graduate level, setting of IPE, length of time program had been implementing IPE, expectations for IPE within the department and college/institution level, types of support provided to programs from their institutions, when students are exposed to IPE, platforms for implementing IPE (lecture/clinical), which IPE outcomes were being measured and how they were being measured, specific evaluation frameworks that were being used, specific institutional barriers, and examples of factors that have led to successful implementation of IPE in the respondent's program.

One significant limitation of the pilot of Questionnaire I was that since only two CSD programs were selected, and both were implementing IPE at some level; no further information as to why a program was not implementing IPE was obtained. Both participants reported that the question about how IPE outcomes were specifically being measured had too many options, and

was thus overwhelming and grueling to answer. This question was modified to include only five types of measurement across IPE outcomes (see question 28 on Questionnaire I in Appendix C).

The results of Questionnaire II revealed information regarding whether IPE was happening at the undergraduate or graduate level, or both, and setting of IPE, medical/education. However, a significant limitation was noted by two respondents. It is possible a faculty member may not know what types of clinical or lecture experiences an undergraduate has if they themselves teach only graduate students. To address this, another option “Unsure” was added to question 6 on Questionnaire II (see Appendix D).

Questionnaire II provided information on IPE demographics such as other disciplines involved, balance of groups, when students were exposed to IPE, and duration of IPE experiences/activities. Questionnaire II also gave information as to what types of IPE activities students are involved in, different types of interprofessional teams they have the opportunity to work on, curricular content topics, and types of strategies used in IPE instruction and learning. Four categories of barriers (programmatic, departmental, outside department, and resource) were broken up into their own questions with five to six Likert scale items per question (a total of 22 Likert scale questions). Similarly, four categories of critical enablers to the success over the aforementioned barriers were broken up into their own questions with five to eight Likert scale items per question (a total of 27 Likert scale questions). It was noted by some participants that the number of Likert scale questions was overwhelming. Review of responses that were never, or were rarely chosen by participants, helped narrow the Likert scale questions into one question about general barriers with a total of fourteen Likert scale options including four “other-fill in”

options. Likewise, the Likert scale questions concerning critical enablers were adapted into one question with a total of thirteen Likert scale options (including four “other-fill in” options).

The final version of Questionnaire I was divided into eight sections:

- demographic information (10 questions);
- current status of IPE (8 questions);
- expectations for IPE at the departmental and institutional level (6 questions);
- IPE activities (3 questions);
- evaluation (3 questions);
- barriers (1 question with 10 Likert scale items);
- critical Enablers of Success (1 question with 8 Likert scale items);
- follow-up (2 questions).

The final version of Questionnaire II was divided into seven sections:

- demographic information (4 questions);
- current status of IPE (3 questions);
- IPE activities (1 question)
- lecture based IPE (5 questions);
- clinical based IPE (4 questions);
- barriers (1 question with 14 Likert scale items);
- critical enablers of success (1 question with 13 Likert scale items).

Questionnaire validity. Two types of error must be identified when creating a questionnaire: errors of observation and errors of nonobservation (Groves, 1989). Errors of

observation stem from the way questions are written, the characteristics of the respondents who answer the questions, the way questions are presented in questionnaires, and the interviewers used to ask the questions (Check & Schutt, 2012). Answers to questions can sometimes be affected by category order and/or the form or format of questions (Dillman, 2011). Thus, questions were written in a way that would increase comprehension, facilitate retrieval, reduce feelings of judgment, and increase reporting accuracy. The use of a focus group provided the opportunity to discuss the format and order of questions on the questionnaires to ensure they were not misleading or confusing. The pilot study provided information regarding the ability and knowledge faculty may or may not have in answering questions, comprehension in what questions were asking as well as how many parts there were to certain questions, ability to answer questions from memory, feelings of judgment on Likert scale items, and understanding in where to record their answer or answers in the case of “select all that apply” formats.

Errors of nonobservation include coverage error, sampling error, and nonresponse error (Dillman, Smyth, & Christian, 2009). Coverage error can occur when not everyone in the population has a chance to participate in the questionnaire. For Questionnaire I, all undergraduate CSD programs were invited to participate, thereby reducing potential coverage error for this group of participants. All graduate accredited programs, including those under candidacy, were invited to participate. However, four programs that were on probation at the time of selection were not chosen to participate. While there is a potential for coverage error by not selecting these four institutions, the risk is minimal, about 0.015% of the total population (272 Master Level programs) was not asked to participate. With Questionnaire II, all CSD

programs implementing IPE were examined for potential faculty participants. Programs that had not reported their status of IPE were also examined for potential faculty participants in order to reduce potential coverage error. Since IPE can occur in lecture and/or clinical settings, all lecture and clinical based faculty listed on departmental websites were invited to participate.

Another potential error of nonobservation, sampling error, occurs when a researcher fails to survey the entire population (Dillman et al., 2009). There are over 300 institutions (n=316 via Ed Find) offering degree programs in audiology, speech-language pathology and speech, language and hearing science (ASHA, 2016a). For Questionnaire I, programs that were on probation, or offered degrees in Audiology only were not chosen to participate. Therefore, a completed sample size of 73 was needed for a 95% confidence interval with a +/- 10% margin of error; or 167 was needed for a 95% confidence interval with a +/- 5% margin of error. A total of 184 CSD programs responded to Questionnaire I. Questionnaire II surveyed 3,139 CSD faculty and staff. A completed sample size of 93 was needed for a 95% confidence interval with a +/- 10% margin of error; or 342 was needed for a 95% confidence interval with a +/- 5% margin of error. A total of 1,130 faculty and staff responded to Questionnaire II.

The last potential nonobservation error, nonresponse error, occurs when those who choose to complete the questionnaire are different from those who do not (Dillman et al., 2009). In order to reduce nonresponse error, advanced correspondence and follow-up reminders were utilized in both questionnaires. Participants were contacted 2 weeks prior to the invitation to explain the purpose and need for information to benefit the CSD field. Participants were contacted up to 6 times over 3 months prior to the questionnaire being closed. The same advance

correspondence and follow-up reminder was utilized for all participants in an effort to encourage him/her to participate and complete the Questionnaire while not providing more encouragement to one potential participant as compared to another.

Procedures

Distribution of questionnaire. Both Questionnaire I and Questionnaire II were distributed using an online survey engine, Survey Gizmo (www.surveygizmo.com). Questionnaire I was distributed in the summer of 2015, and Questionnaire II was distributed in fall 2015. They were scheduled consecutively as one of the questions on Questionnaire I asked participants to identify faculty who drive IPE initiatives in their department (question 20). The researcher wanted to ensure those named would get an invitation to participate in Questionnaire II. Data collection for each questionnaire lasted three months. After receiving an initial request for participation (see Appendix A), participants received biweekly reminds to participate, or for them to complete their Questionnaire if they had closed it before completing the questionnaire (see Appendix B).

Data analysis. All data analyses were completed using SPSS 23.0 (2015). Data obtained from research questions one through four were analyzed using descriptive statistics while question five was analyzed using measures of central tendency and variability. This method was chosen due to the exploratory nature of the study.

Results

This study was designed to investigate IPE in undergraduate and graduate CSD programs across the United States. Questionnaire I addressed the status of IPE within CSD programs, the demographics of IPE, measured outcomes, how outcomes are measured, barriers experienced, and critical enablers of success in IPE initiatives. Questionnaire II addressed demographics of IPE, implementation of IPE, barriers experienced by faculty, and critical enablers of success in IPE initiatives. The results will be presented in the order of the five research questions.

Demographics

While basic demographic information about CSD programs (Questionnaire I) and faculty (Questionnaire II) did not necessarily relate to a specific research question, this information was gathered and is available in Tables 9 and 10.

Program demographics. Areas of degrees offered, private/public status, and geographical location, were fairly similar between programs who are incorporating IPE and those that were not (see Table 9). Breakdown of Carnegie Classification were mixed in terms of similarity. There was a higher makeup of programs reporting they were incorporating IPE in Research Universities-very high research activity (RU/VH), Research Universities-high research activity (RU/H), Master's Colleges and Universities-larger programs (Master's L), Master's Colleges and Universities-medium programs (Master's M), Master's Colleges and Universities-smaller programs (Master's S), and Other (e.g., Special Focus Institution). Programs not incorporating IPE had a higher makeup of Doctoral/Research Universities (DRU), Baccalaureate Colleges-Arts & Sciences (Bac/A&S) and Baccalaureate Colleges-Diverse Fields (Bac/Diverse).

Administrative location was another demographic that varied greatly from programs who were incorporating IPE and those that were not. Most of the programs that were incorporating IPE had an administrative location in Allied Health; Health Sciences; Health Professions; Public Health (63.4%) (see Table 9).

Faculty demographics. Characteristics between those who responded that their program was incorporating IPE, versus those who responded that their program was not incorporating IPE, were fairly similar (see Table 10). The majority of the respondents indicated that their area of discipline was speech-language pathology only and their appointment was full time. The majority of faculty also identified themselves as being on a tenure track, however at least 40% of the respondents identified as being on a clinical track.

Table 9

Questionnaire I: Demographics of CSD Programs

<u>Demographic</u>	Programs Incorporating IPE		Programs NOT Incorporating IPE	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Degrees Offered				
SLP only	65.6%	61	71.4%	65
Both SLP & AUD	34.4%	32	28.6%	26
Private/Public				
Private	30.1%	28	28.6%	26
Public	69.9%	65	71.4%	65
Carnegie Classification				
Research Univ/Very High Activity	20.4%	19	18.7%	17
Research Univ/High Activity:	15.1%	14	9.9%	9
Doctoral Research University:	7.5%	7	13.2%	12
Master's Large Programs	16.1%	15	9.9%	9
Master's Medium programs	20.4%	19	19.8%	18
Master's Small Programs	12.9%	12	11.0%	10
Bac/Arts & Sciences	0%	0	7.7%	7
Bac/Diverse	2.2%	2	7.7%	7
Other	5.4%	5	2.2%	2
Geographical Location				
Rural	28.0%	26	29.7%	27
Urban	48.4%	45	42.9%	39
Suburban	23.7%	22	27.5%	25
Administrative Location				
Allied Health; Health Sciences; Health Professions; Public Health	63.4%	59	33.0%	30
Arts; Sciences; Humanities; Social and Behavioral Sciences	12.9%	12	20.9%	19
Aud; Speech-Language Pathology; Communication Disorders	2.2%	2	11.0%	10
Communication; Fine Arts	0%	0	7.7%	7
Education	7.5%	7	13.2%	12
Medicine	1.1%	1	2.2%	2
Profess. Programs/Studies	1.1%	1	3.3%	3
Other	10.8%	10	8.8%	8
Total Number of Programs Reporting	50.5%	93	49.5%	91

Table 10

Questionnaire II: Faculty Demographics

<u>Demographic</u> Discipline(s)	<u>Programs Incorporating IPE</u>		<u>Programs NOT Incorporating IPE</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
SLP only	84.5%	701	84.0%	252
Both SLP & AUD	15.5%	129	16.0%	48
Track				
Adjunct	3.9%	32	7.7%	23
Clinical Track	40.2%	334	44.0%	132
Tenure Track	54.2%	450	45.7%	137
Other	1.7%	14	2.7%	8
Appointment				
Full Time	90.5%	751	82.7%	248
Part Time	8.2%	68	7.7%	23
Less than Part Time	1.3%	11	9.7%	29
Total Number of Faculty Reporting		830		300

Research Question 1: Status of IPE in Communication Science Disorders Programs

The first objective of this research question was to find out how widespread IPE is within CSD programs. A total of 184 CSD Programs out of 294 invited to participate from 43 U.S. states and territories answered and filled out Questionnaire I, yielding a response rate of 62.5%. Ninety three (50.5%) of these programs responded they were incorporating IPE; while ninety-one (49.5%) responded they were not incorporating IPE.

The second objective of this research question was to determine the status of IPE in CSD programs who were implementing it. A few programs (10.8%) reported IPE is fairly new to them, as they had been incorporating IPE for less than a year. The majority of programs (50.5%) reported they had been incorporating IPE for one to three years. Some programs (22.6%) reported they had been incorporating IPE for four to six years, while other programs (15.1%)

reported IPE has been incorporated for more than six years in their programs (see Table 11).

Questionnaire I sought to discover how programs viewed their IPE development. Some programs reported they viewed themselves as “just starting,” the majority reported they were “emerging,” and some reported they were “champions of IPE” (see Table 12).

Table 11
Length of Time Program has Incorporated IPE

<u>Timeline</u>	<u>Percentages</u>	<u>Frequencies</u>
0-11 month	10.8%	10
1-3 years	50.5%	47
4-6 years	22.6%	21
More than 6 years	15.1%	14
Total Number Programs Reporting		92

Table 12
Program’s Status of IPE

Question: How would you rate your programs current status of IPE?

<u>Status</u>	<u>Percentages</u>	<u>Frequencies</u>
Just starting	17.2%	16
Emerging	65.6%	61
Champions of IPE	16.1%	15
Total Number Programs Reporting		92

Additional aims in determining the status of CSD program’s IPE initiatives were to explore who in the department is driving IPE, what the emphasis or expectations for IPE are within a CSD program’s academic institution, the level of support CSD programs receive from their academic institutions, and in what ways CSD programs are supported by their institutions. CSD programs reported both administration and faculty are responsible for driving IPE within their department (see Table 13). The majority (59.8%) reported there is an expectation or emphasis for IPE in their academic institutions (see Table 14). In a follow up question, respondents were

asked what the emphasis or expectation for IPE is within their academic institution. A central theme of these qualitative responses was that their programs were expected to implement IPE because it not only enhances program quality; it also promotes student competence in team based practice. Another common theme was that IPE was the focus of the entire college, as it was a part of administration's university goals. Lastly, many reported the emphasis was to expose students to different professionals from different fields whenever and wherever possible. In other words, many programs reported they were expected to implement IPE in not only clinical settings, but also lecture-based settings.

Programs were also asked to rate on a scale of, 1 no support at all, to 5 extremely supported, what level of support they received from the college in which their program resided. The mean response was 3.36 with a standard deviation of 1.176 (see Table 15). Programs that reported a "2" or higher on this scale were then asked in what ways they were supported by their college. The most frequently reported responses included in-service training or professional development (55.6%), funding (35.8%), and guidance in identifying other departments to include in their IPE (33.3%). Others reported guidance in developing IPE curriculum, guidance in evaluating IPE initiatives, and recognition awards as ways in which their colleges support their implementation of IPE (see Table 16).

Table 13

Driving IPE in CSD Programs

Question: Who is driving IPE initiatives in your department?

<u>Drivers</u>	<u>Percentages</u>	<u>Frequencies</u>
Only Administration	15.0%	12
Only Faculty	55.7%	44
Both Administration & Faculty	27.5%	22
Total Number Programs Reporting		80

Table 14

Expectations for IPE in Academic Institutions

Question: Is there an emphasis or expectation within your academic institution for IPE?

<u>Expectation</u>	<u>Percentages</u>	<u>Frequencies</u>
Yes	59.8%	49
No	40.2%	33
Total		82

Table 15

Level of Support from College

Question: What level does the college in which your program resides support IPE?

	<u>Mean</u>	<u>Standard Deviation</u>
Scale of 5	3.36	1.176
Total Number of Programs Reporting		81

Table 16

Ways in Which Programs are Supported by Their College

Question: In what ways is your program supported by your college to implement IPE?

<u>Supported Through</u>	<u>Percentages</u>	<u>Frequencies</u>
In-service training/Professional development	55.6%	45
Funding	35.8%	29
Recognition Awards	14.8%	12
Guidance in developing IPE curriculum	24.7%	20
Guidance in evaluating IPE initiatives	24.7%	20
Guidance in identifying other departments to include in your IPE	33.3%	27
Total Number Programs Reporting		81

The last objective in exploring the status of IPE was to determine the perceived future of IPE for CSD programs not incorporating IPE. The 91 programs that reported they did not incorporate IPE were asked whether they were planning to incorporate IPE. A little over half of the programs reported they were planning on implementing IPE in the future. Thirteen percent reported they were planning to implement IPE in less than a year, and a few reported it would be four to six years before they implemented IPE. The majority (76.1%) reported they were planning to implement IPE in one to three years (see Table 17).

Table 17

Questionnaire I: Timeline for Programs Planning to Implement IPE

Questions: Is your program planning to incorporate Interprofessional Education? When is your program planning to implement IPE?

<u>Timeline</u>	<u>Percentages</u>	<u>Frequencies</u>
0-11 month (s)	13.0%	6
1-3 year (s)	76.1%	35
4-6 years	10.9%	5
Total Number Programs Reporting		46

The programs that reported they are not planning on incorporating IPE (49.5%) were asked why they are not planning on implementing IPE. The most frequently reported reason was that IPE is not considered a priority for them at this time. Another common reason programs reported that they were not planning on incorporating IPE was due to a lack of resources in terms of faculty and staff time, technology, adequate space, and professional development. Other frequently reported reasons included the opinion that the lecture and clinical curriculum is already too crowded, there is insufficient funding for IPE, and there is a lack of sufficient data, bench-marking, and dissemination of best practice in IPE. Programs also reported that they were constrained by academic accreditation, have difficulty identifying and involving key partners and stakeholders to develop, plan, and implement IPE, and experience a lack of support from their institutions or colleges. Some programs reported they suffer from geographical isolation from other disciplines. In other words their campus does not have other departments/programs in which they can incorporate in their IPE efforts. Two of the least common reasons programs were not planning to incorporate IPE include resistance from the staff in their department and staff from other departments (see Table 18).

Table 18

Questionnaire I: Reasons Some Programs Are Not Planning to Implement IPE

Questions: Is your program planning to incorporate Interprofessional Education? Why is your program not planning to implement IPE?

<u>Barrier</u>	<u>Percentages</u>	<u>Frequencies</u>
IPE is not a priority right now	63.4%	26
We are strained by academic accreditation	14.6%	6
Geographical isolation from other disciplines	19.5%	8
Our lecture and clinical curriculum is already too crowded	29.3%	12
Difficulty identifying and involving key partners to develop, plan, and implement IPE	14.6%	6
Lack of resources	56.1%	23
Insufficient funding for IPE activities	24.4%	10
Lack of support from institutions/colleges	12.2%	5
Resistance from staff in your department	4.9%	2
Resistance from staff in other departments	7.3%	3
Lack of sufficient data, standards, bench-marking, and dissemination of best practice in IPE	24.4%	10
Total Number of Programs Reporting		41

The request for participation for Questionnaire II asked faculty to consider responding even if their program did not implement IPE. Of the 3,139 CSD faculty members who were identified to participate, 1,130 responded, yielding a 36.0 % response rate. Of those responses, 300 reported their program was not implementing IPE. When asked to select all the reasons their program was not incorporating IPE, faculty gave the same top four reasons as the chairs and

program directors in Questionnaire I (see Table 19). The most common reason reported by faculty included a lack of resources such as: faculty and staff time, technology, adequate space and professional development. Almost half the faculty (46.3%) reported they felt the lecture and clinical curriculum was already too crowded to allow for the incorporation of IPE. Other commonly reported reasons included: insufficient funding for IPE activities (35.3%), the fact that IPE is not a priority for their department at this time (31.3%), and they struggle with geographical isolation from other disciplines/departments in which they could incorporate in their IPE (26.7%).

Faculty were given an opportunity to provide additional reasons their program was not incorporating IPE. One of the most common themes was that their program was in the “planning stages.” Programs were getting ready for IPE through pilot studies, newly developed committees, hiring/identifying key people to help coordinate the efforts, expansion of enrollment of certain courses to other departments, new institution/university support, newly identified departments, and the option of extra-curricular activities. Another common theme was that programs were starting to talk and explore the idea of IPE, but did not know how to start. Some faculty reported they felt there weren’t any “good models” to follow. Others reported since their program was an undergraduate only program, they hadn’t felt the need to incorporate IPE yet. A few respondents reported they have a course in place in which multiple disciplines are enrolled, however the struggle with how to take their learning from “parallel” to interactive. Some faculty reported barriers they have faced in trying to implement IPE including: difficulty with scheduling classes and clinical activities across multiple departments, coordination of curriculum

of other departments, and community based geographical isolation. One respondent reported that not only were there no other programs on their campus to incorporate IPE with, “but our community does not have other disciplines to formulate IPE programs.” Another common theme was that this questionnaire was the first the respondent had ever heard of IPE, that it was too new of a concept, or that it hadn’t been discussed with faculty as a whole. About 12.3% of the respondents cited lack of support from institutions and/or colleges as a reason their program was not incorporating IPE. One respondent added, “The dean tells us our jobs are to publish and write grants,” the respondent also added their dean called IPE “a fad.”

Table 19

Questionnaire II: Why Programs Aren't Incorporating IPE: A Faculty Perspective

Question 7: Why does your program not incorporate IPE?

<u>Barriers</u>	<u>Percentages</u>	<u>Frequencies</u>
IPE is not a priority right now	31.3%	94
IPE would be considered an “extra” to my workload	12.3%	37
Geographical isolation from other disciplines	26.7%	80
Our lecture and clinical curriculum is already too crowded	46.3%	139
We have difficulty identifying and involving key partners and stakeholders to develop, plan, and implement IPE	18.0%	54
Lack of resources	50.3%	151
Insufficient funding for IPE activities (courses & clinical placements)	35.3%	106
Lack of support from institutions/colleges	12.3%	37
Resistance from staff in your department	9.0%	27
Resistance from staff in other departments	7.3%	22
Lack of sufficient data, standard setting, benchmarking, and dissemination of best practice in IPE	15.0%	45
Total Number of Faculty Reporting		300

Research Question 2: Demographics of IPE in CSD programs

The five objectives of the second research question were answered by both Questionnaire I and II. See Table 7 for breakdown of which questionnaire answered each objective. Given the specific nature of some of these objectives, it was uncertain that a chair or program director

would have immediate knowledge to answer some of the questionnaire questions. Taking into consideration that they may not teach lecture based or supervise clinically based IPE; Questionnaire I sought to explore more general IPE demographics, while Questionnaire II sought detailed information from faculty.

The first objective was to determine whether IPE was occurring at the undergraduate and/o graduate level. CSD programs were asked in which degree programs they were incorporating IPE; 31.2% of undergraduate programs reported their students had the opportunity to enroll in either clinical or lecture based IPE, while 93.5% of graduate programs reported their students had the opportunity to enroll in either clinical or lecture based IPE (see Table 20). The second objective was to find out when CSD programs' students are exposed to IPE. Programs implementing IPE (n=93) were asked when IPE takes place in their students' programs. Data from Questionnaire I found that the majority (43.6%) of CSD programs reported IPE takes place throughout their students' programs. Others reported IPE can take place at the beginning of a students' program (15.4%), in the middle of a students' program (34.6%), or at the end of their program (15.4%)(see Table 21). Respondents were also given an "Other" option to specify when IPE takes place within their students' program. A few programs reported IPE is often a sporadic component of their program, and that it is not necessarily linked to a student's timeline.

Table 20
Questionnaire I: CSD Programs Incorporating IPE

<u>Program Type</u>	<u>Percentages</u>	<u>Frequencies</u>
Undergraduate Programs	31.2%	29
Graduate Programs	93.5%	87
Total Number Programs Reporting		93

Table 21

When IPE Activities Take Place

Question: When do IPE activities take place in your students' programs?

<u>Timeline</u>	<u>Percentages</u>	<u>Frequencies</u>
At the beginning of their program	13.5%	12
In the middle of their program	30.3%	27
At the end of their program	13.5%	12
Throughout the students' entire program	38.2%	34
Other	12.4%	11
Total Number Programs Reporting		89

The third objective of this research question was to explore the classification of IPE. On Questionnaire I, programs reporting that they incorporate IPE were asked what type of IPE their students are exposed to. In undergraduate programs, educational field based IPE experiences were more common than medical based IPE. Alternatively, medical based IPE was more common than educational based IPE at the graduate level (see Table 22). Questionnaire II revealed similar results (see Table 22).

Table 22
Classification & Settings of IPE

<u>Program</u>	<u>Setting</u>	<u>Questionnaire I</u>		<u>Questionnaire II</u>	
		<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Undergraduate IPE					
	Educational	23.7%	22	68.6%	216
	Medical	12.9%	12	55.9%	176
	Lecture Based	--	--	64.1%	202
	Clinical Based	--	--	54.3%	171
	Total		93	38.0%	315
Graduate IPE					
	Educational	59.1%	55	65.7%	508
	Medical	66.7%	62	82.7%	639
	Lecture Based	--	--	42.2%	326
	Clinical Based	--	--	74.5%	576
	Total		93	93.1%	773

The fourth objective was to find out what settings IPE was being implemented with respect to class or clinical settings. Questionnaire I asked programs implementing IPE (n=93) about the settings of their IPE activities. The majority of programs reported their IPE was only clinically based. However, almost a third reported they offered both lecture and clinical based IPE. Twenty percent of programs reported they did not offer either lecture based or clinical based IPE. About half of those programs offered explanation in the “other” section of these questions. They reported their students are exposed to IPE through system wide initiatives, such as a full day interprofessional seminar (see Table 23). Questionnaire II found that majority of IPE experiences in undergraduate programs was lecture based, while majority of IPE in graduate programs was clinically based (see Table 22).

Table 23

Settings of IPE activities

Questionnaire I Questions:

Do students in your program have the opportunity to enroll in lecture/class based IPE?

Do students in your program have the opportunity to enroll in clinical based IPE?

<u>Setting</u>	<u>Percentages</u>	<u>Frequencies</u>
Lecture based only	15.0%	12
Clinical based only	33.8%	27
Both lecture & clinical IPE	31.3%	25
Neither	20.0%	16
Total Programs Reporting		80

The last objective of the second research question was to find out what other disciplines are involved in CSD program’s lecture based and clinical based IPE. Questionnaire II respondents were asked preliminary questions such as, “Do you teach or co-teach any lecture/class based IPE?” and “Do you supervise or facilitate any clinical based IPE activities?” before being asked about lecture and clinical based IPE. If a respondent answered “no” to either question, they were not asked follow-up questions about that particular form of IPE. If they answered “yes,” a series of questions about each form of IPE were asked.

A total of 194 respondents reported that they taught or co-taught lecture/class based IPE. They were asked to select all the other student backgrounds with which CSD students may participate in lecture/class based IPE (see Table 24). In the undergraduate setting, the most frequently reported fields incorporated in lecture based IPE included health/medical based fields: clinical and health psychology, medicine, nursing, occupational therapy, physical therapy, pre-physical therapy, and psychology. The most frequently reported educational based fields included applied behavioral analysis, general education, reading/literacy education, and special

education. Similarly, at the graduate level, the most frequently reported fields incorporated in lecture based IPE included health/medical based fields: clinical and health psychology, geriatrics, medicine, nursing, nutrition, occupational therapy, physical therapy, physician assistant, and psychology. The most frequently reported educational based fields included applied behavioral analysis, counseling, deaf education, general education, reading/literacy education, and special education.

In order to explore other fields that were not represented in the list, the question provided spaces for respondents to specify other backgrounds. Faculty reported that students from art therapy, drama therapy, linguistics, research, and therapeutic recreation specialty (TRS) departments participated in their undergraduate lecture based IPE. Students from art therapy, diversity, drama therapy, family advocacy, genetic counseling, neuroscience, pediatrics, psychiatry, self-advocacy, TRS, and vocal and performing arts participated in their graduate lecture based IPE.

Additionally, Questionnaire II asked faculty who answered that they teach or co-teach lecture based IPE, about how many different disciplines may be represented in their lecture based IPE. While it may vary from course to course and semester to semester, undergraduate level IPE mostly incorporates one to two different disciplines in their lecture/class settings, while graduate level IPE most incorporates three to four different disciplines (see Table 25). Some faculty reported being able to incorporate five or more different disciplines in their undergraduate and/or graduate level IPE.

Table 24

Questionnaire II: Backgrounds of Other Students Involved in Lecture/Class Based IPE

Question: What other student backgrounds do students from your program learn with in lecture/class based learning?

<u>Student Backgrounds</u>	<u>Undergraduate Setting</u>		<u>Graduate Setting</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Adaptive PE	4.1%	8	5.7%	11
Applied Behavioral Analysis	22.7%	44	35.6%	69
Athletic Training	12.4%	24	8.2%	16
Clinical & Health Psychology	21.1%	41	33.0%	64
Counseling	15.5%	30	29.9%	58
Deaf Education	17.0%	33	25.8%	50
Dental	9.8%	19	17.0%	33
Dietetics	7.2%	14	16.0%	31
Education (not including SPED)	25.8%	50	27.3%	53
Geriatrics	8.2%	16	24.2%	47
Health Care Administration	0.5%	1	18.6%	36
Health Information Management	1.0%	2	11.3%	22
Health Management	0%	0	17.0%	33
Health Sciences Research	0%	0	9.3%	18
Kinesiology	10.3%	20	13.9%	27
Laryngology	3.1%	6	14.9%	29
Medical Laboratory Science (MLS)	6.7%	13	8.8%	17
Medicine	20.6%	40	34.5%	67
Music Education	13.9%	27	10.8%	21
Nursing	30.4%	59	51.5%	100
Nutrition	8.8%	17	23.2%	45
Occupational Therapy	27.8%	54	49.0%	95
Optometry	0.5%	1	2.6%	5
Pharmacy	3.1%	6	12.9%	25
Physical Therapy	24.2%	47	55.2%	107
Physician Assistants (PA)	9.3%	18	23.7%	46
Pre-Physical Therapy	14.4%	28	3.6%	7
Pre-Social Work	10.8%	21	3.1%	6
Prosthetics & Orthotics	5.2%	10	18.6%	36
Psychology	25.3%	49	29.4%	57
Public Health	4.6%	9	11.9%	23
Radiation Therapy (RADT)	1.0%	2	1.5%	3
Reading/Literacy Education	16.0%	31	31.4%	61
Rehabilitation Science & Technology	3.6%	7	4.6%	9

Social Work	18.6%	36	26.8%	52
Special Education	27.3%	53	40.7%	79
Sports Medicine	5.7%	11	6.2%	12
Total Faculty who Teach or Co-Teach Lecture Based IPE				194

Table 25

Questionnaire II: Group Size

<u>Number of different disciplines</u>	<u>Undergraduate IPE</u>		<u>Graduate IPE</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
1 to 2	26.8%	52	29.4%	57
3 to 4	18.0%	35	38.7%	35
5 to 6	5.2%	10	20.1%	39
More than 6	5.2%	10	12.4%	24
Total Faculty who Teach or Co-Teach Lecture Based IPE				194

CSD faculty were also asked to select all the other student backgrounds with which CSD students may participate in clinical based IPE (see Table 26). Only faculty who responded that they supervise or facilitate clinical based IPE were asked this question (n= 361). At the undergraduate level, the most commonly reported fields involved in CSD’s clinical IPE included: deaf education, nursing, physical therapy, and special education. At the graduate level, the most frequently reported fields involved in clinical based IPE included nursing, occupational therapy, physical therapy and special education. Other common student backgrounds at the graduate level included: applied behavioral analysis (24.6%), clinical and health psychology (22.6%), counseling (26.6%), dietetics (24.9%), geriatrics (26.0%), medicine (32.5%), nutrition (28.8%), psychology (24.0%), and social work (30.2%).

This question also provided spaces for faculty to list other student backgrounds involved in clinical IPE that were not represented in the list. Faculty reported students with backgrounds in: alcohol and behavioral studies, disabilities studies, recreational therapy, and therapeutic

recreation specialty (TRS) participated in their undergraduate clinical based IPE. Students with backgrounds in art therapy, family advocacy, music therapy, recreation therapy, school psychology, self-advocacy, and TRS participated in graduate clinical based IPE.

Table 26

Questionnaire II: Backgrounds of Other Students Involved in Clinical Based IPE

Question: What other professional students do students from your program learn with in clinical based learning?

<u>Student Backgrounds</u>	<u>Undergraduate Setting</u>		<u>Graduate Setting</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Adaptive PE	7.3%	26	11.3%	40
Applied Behavioral Analysis	6.2%	22	24.6%	87
Athletic Training	1.7%	6	1.4%	5
Clinical & Health Psychology	5.6%	20	22.6%	80
Counseling	6.8%	24	26.6%	94
Deaf Education	10.5%	37	16.9%	60
Dental	2.3%	8	19.5%	69
Dietetics	3.1%	11	24.9%	88
Education (not including SPED)	6.8%	24	18.4%	65
Geriatrics	2.8%	10	26.0%	92
Health Care Administration	1.1%	4	5.4%	19
Health Information Management	0.8%	3	2.5%	9
Health Management	1.9%	7	5.9%	21
Health Sciences Research	0.3%	1	9.0%	32
Kinesiology	4.0%	14	11.9%	42
Laryngology	1.7%	6	9.3%	33
Medical Laboratory Science (MLS)	0.6%	2	2.8%	10
Medicine	7.1%	25	32.5%	115
Music Education	5.4%	19	11.0%	39
Nursing	13.6%	48	52.5%	186
Nutrition	5.4%	19	28.8%	102
Occupational Therapy	4.2%	15	54.8%	194
Optometry	0.3%	1	0.6%	2
Pharmacy	1.1%	4	16.1%	57
Physical Therapy	12.4%	44	58.2%	206
Physician Assistants (PA)	2.5%	9	21.5%	76
Pre-Physical Therapy	3.4%	12	5.4%	19
Pre-Social Work	2.3%	8	4.8%	17
Prosthetics & Orthotics	2.0%	7	3.1%	11
	90			

Psychology	6.2%	22	24.0%	85
Public Health	3.1%	11	10.2%	36
Radiation Therapy (RADT)	1.1%	4	7.6%	27
Reading/Literacy Education	3.7%	13	17.8%	63
Rehabilitation Science & Technology	1.4%	5	6.5%	23
Social Work	3.4%	12	30.2%	107
Special Education	13.3%	47	45.2%	160
Sports Medicine	4.8%	17	4.5%	16
Total Faculty who Supervise or Facilitate Clinical Based IPE				361

In addition to identifying the various backgrounds of students with whom CSD students learn in clinical based IPE; Questionnaire II sought to find out what interprofessional teams CSD students have the opportunity to be involved with (see Table 27). Faculty who supervise or facilitate clinical based IPE (n=361) reported the most common teams students had the opportunity to be involved with in undergraduate programs were educational based: early childhood teams, Individualized Education Plan (IEP) teams, and language and literacy teams. Similarly, graduate level IPE teams were also strongly educationally based: early childhood teams, IEP teams, Individualized Service Plan (ISP) teams, and language and literacy teams. However, there were two prominent health/medical based IPE teams reported at the graduate level: developmental (autism) evaluation teams and dysphagia/swallowing evaluation teams. Faculty were also given an option to report IPE teams not represented in the question that their students had the opportunity to be involved with (see Table 28).

Table 27

Questionnaire II: Clinical IPE Teams

Question: What types of interprofessional teams do students from your program have the opportunity to work on?

<u>Clinical IPE Teams</u>	<u>Undergraduate Setting</u>		<u>Graduate Setting</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Advocacy Teams	6.2%	22	22.3%	79
Deaf Education Teams	5.4%	19	10.2%	36
Early Childhood Teams	12.4%	44	43.5%	154
Individual Education Plan teams	9.0%	32	49.2%	174
Individualized Family Service Plan Teams	7.9%	28	42.1%	149
Language & Literacy Team	9.6%	34	39.0%	138
Student Intervention Teams	3.4%	12	27.7%	98
Amyotrophic Lateral Sclerosis Team	2.5%	9	14.1%	50
Cranio-Facial & Cleft Palate Team	2.5%	9	24.3%	86
Dementia Team	2.8%	10	32.2%	114
Development (Autism) Evaluation Team	6.2%	22	43.5%	154
Dysphagia/Swallow Evaluation Team	1.7%	6	37.6%	133
ENT (assessment & treatment) Team	0%	0	27.4%	97
Parkinson's Team	2.8%	10	20.6%	73
Augmentative Evaluation Team	5.6%	20	24.0%	85
Total Faculty who Supervise or Facilitate Clinical Based IPE				354

Table 28

Other IPE Teams CSD Students Are Involved With

Undergraduate IPE Teams	Graduate IPE Teams	Both Undergraduate & Graduate IPE Teams
● Case-based learning team	● Adapted PE clinic	● Aphasia(including Group & Caregiver Programs)
● Health Coaching	● Adult Developmental Disabilities Teams	● Acquired Brain Injury Team
● Public Health	● Adult Health Care Teams (including Acute, Post-Acute, & Rehabilitation)	● Adult Neurogenic Team
	● Neurodegenerative disease	● Adults with Autism Team
	● Autism Diagnostic Teams	● Concussion Management Team
	● Balance Assessment with Physical Therapy	● DO Medical Teams
	● Cochlear Implant Team	● Health Science Team
	● Developmental Disorders Diagnostic Team	● Healthy Ager Program (for Education and Prevention of disease)
	● Diversity	● Nursing Teams
	● Fetal Alcohol Spectrum Disorder Team	● Parkinson Choir
	● Geriatrics	● Patient-provider Communication Skills
	● Health Clinic for the Homeless	● Trach Vent Passy Muir Speaking Valve Assessments
	● Interprofessional Intensive Stuttering Clinic (SLP and Counseling with some infusion of OT)	
	● Interdisciplinary Brain Injury Assessment Team	
	● IPE Service Abroad Course and Trip (Combining PT, Nutrition, Social Work, and Audiology)	
	● Long-term care medical team	
	● Multiple Chronic Conditions	
	● Neurodevelopmental Disorder	

- Team
- Oromyofacial Screening Team
 - Occupational Therapy and
Speech Language Pathology
Team
 - Palliative Care Team
 - Physical Therapy Team
 - Rehabilitation Team
 - Research Team
 - Social Skills Team
 - Stroke (including rehabilitation
& simulation) Teams
 - Stuttering Evaluation Team
 - Transgender Voice Modification
with Counseling and Family
Therapy Support team
 - Trauma Clinic Team
 - Traumatic Brain Injury Team
-

Research Question 3: How IPE is Implemented in CSD programs

One of the objectives of this research question was to identify the topics that make up IPE curricular content. On Questionnaire II, faculty who teach or co-teach lecture based IPE (n=194) were asked to select all the topics (represented in Table 29) that applied to the makeup of their IPE curricular content. Even though almost all the options had a response frequency of at least 50%, the most common topics reported were the CSD students' scope of practice and the scope of practice of other disciplines.

Table 29

Questionnaire II: Curricular Topics

Question: What topics make up the IPE curriculum content in your courses?

<u>Interprofessional Topic</u>	<u>Percentages</u>	<u>Frequencies</u>
CSD students' scope of practice	76.8%	149
Scope of practice of OTHER disciplines	74.2%	144
CSD students' training & specializations	66.0%	128
Training & specializations of OTHER disciplines	52.6%	102
Professional Cultures	57.7%	112
Treatment practices of CSD students	56.7%	110
Treatment practices of OTHER disciplines	47.4%	92
Team building skills	61.3%	119
Ethics	49.0%	95
Total Number of Faculty Reporting		194

When faculty were asked what other topics and activities not represented in the question make up their IPE curricular content, two prominent themes were identified. The most frequently reported responses represented the IPEC competencies: values and ethics, roles and responsibilities, effective interprofessional communication, and teams and teamwork (see Table 30). The other evident theme was patient and family centered care.

Table 30
Other Curricular Topics Reported by Faculty

<u>IPEC Core Competency</u>	<u>IP Topic</u>
Values & Ethics	<ul style="list-style-type: none"> • Cultural competence • Cultural sensitivity • Error disclosure • Understanding stereotypes
Roles & Responsibilities	<ul style="list-style-type: none"> • Documentation practices of other disciplines • Experiential client co-treatment • Reflection of self WITH other disciplines • Interprofessional reflections • Patient safety & root cause analysis • Shared Assessment tools (e.g., Montreal Cognitive Assessment) • Specific assessment tools utilized by other disciplines
Interprofessional Communication	<ul style="list-style-type: none"> • Communication that supports family involvement • Health care literacy • Oral communication skill development & self-analysis of oral communication skills • Patient-Provider communication • Terminology
Teams & Teamwork	<ul style="list-style-type: none"> • Collaboration in different settings • Leadership • Models of teamwork • Team based care

An additional aim of the third research question was to find out what strategies faculty use to facilitate their students' learning in IPE, and what activities are used in interprofessional

learning. On Questionnaire II, all faculty respondents (n=830) were asked to identify all the strategies and activities utilized in their program's IPE (see Table 31). The most commonly reported strategies for both undergraduate and graduate programs included case based and problem based learning. While simulation was utilized at the undergraduate level, it was used more often in graduate level IPE. The most frequently reported IPE activities in both undergraduate and graduate IPE included guest lectures from faculty of various disciplines, CSD students educating other disciplines about their scope of practice, and CSD students learning about the scope of practice of other disciplines. In graduate level IPE, training on professionalism was another frequently reported IPE activity. Team based telepractice was the least common activity amongst undergraduate and graduate level IPE.

Table 31

Questionnaire II: Strategies & Activities

Question: What types of IPE activities are students from your program/department exposed to in lecture based and clinical based learning?

<u>IPE Strategies & Activities</u>	<u>Undergraduate Setting</u>		<u>Graduate Setting</u>	
	<u>Percentages</u>	<u>Frequencies</u>	<u>Percentages</u>	<u>Frequencies</u>
Case Based Learning	87.9%	277	81.2%	627
Problem Based learning	71.7%	226	76.4%	585
Simulation	45.7%	144	57.4%	440
Guest lectures from faculty of various disciplines	82.9%	261	90.9%	696
Students educated other disciplines about their scope of practice	80.3%	253	74.0%	567
Students learn about OTHER disciplines' scope of practice	68.6%	216	89.0%	682
Training on professionalism	63.5%	200	81.6%	625
Team building exercises	63.8%	201	62.7%	480
Team based telepractice	2.5%	8	9.7%	74
Interdisciplinary evaluation	29.2%	92	56.9%	436
Interdisciplinary therapy	31.1%	98	59.1%	453
Interdisciplinary ethics	50.2%	158	49.2%	377
Reciprocal observation	42.9%	135	51.7%	396
Total Faculty Reporting		N= 315	N=766	

Research Question 4: Measured IPE Outcomes and Evaluation

In order to determine which IPE outcomes CSD programs evaluate and how they evaluate them, this question was directed to chairs and program directors on Questionnaire I. The researcher thought they would have more knowledge about the global evaluation of their program than individual faculty. Programs that reported they implement IPE (n=93) were asked if they used a published evaluation framework to evaluate their IPE outcomes and initiatives. The majority of programs reported they did not use a published evaluation framework (see Table 32).

Table 32

Use of Published Evaluation Framework

Question: Does your program use a published evaluation framework to evaluate your IPE initiatives?

<u>Use of Framework</u>	<u>Percentages</u>	<u>Frequencies</u>
Yes	20.3%	15
No	79.7%	59
Total Number Programs Reporting:		74

Programs were then asked to select all the ways in which they evaluate their IPE outcomes (see Tables 33 through 41). When asked about how *Values & Ethics for Interprofessional Practice* outcomes (see Table 33) were evaluated, 36.5% of programs reported they did not measure this outcome. Programs that responded this was a measured outcome, reported it was measured through largely through quantitative methods. However, other popular methods included observation (21.6%), forums/discussions with faculty (28.4%) and forums/discussions with students (24.3%). Twenty-seven percent of programs reported they do not measure *Roles & Responsibilities* outcomes (see Table 34). Other programs reported they measured this outcome through questionnaires (37.8%), student portfolios (6.8%), observation (25.7%), forums/discussions with faculty (36.5%) and forums/discussions with students (27.0%).

Table 33

How Programs Are Evaluating Values & Ethics for Interprofessional Practice Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	36.5%	27
Questionnaires	37.8%	28
Student Portfolios	9.5%	7
Observation	21.6%	16
Forums/Discussions with faculty	28.4%	21
Forums/Discussions with students	24.3%	18
Total Number Programs Reporting		74

Table 34

How Programs Are Evaluating Roles & Responsibilities Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	27.0%	20
Questionnaires	37.8%	28
Student Portfolios	6.8%	5
Observation	25.7%	19
Forums/Discussions with faculty	36.5%	27
Forums/Discussions with students	27.0%	20
Total Number Programs Reporting		74

Almost a third of responding programs reported they did not measure *Interprofessional Communication* outcomes (see Table 35). The most common way programs measured this outcome was through observation (37%), questionnaires (31.5%), and forums/discussions with faculty (30.1%). In terms of *Teams & Teamwork* outcomes (see Table 36), a fourth of responding programs reported they did not measure this outcome. Programs that measured this outcome reported they did so through questionnaires (43.2%), student portfolios (10.8%), observation (35.1%), forums/discussions with faculty (31.1%) and forums/discussions with students (25.7%).

Table 35

How Programs Are Evaluating Interprofessional Communication Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	32.9%	24
Questionnaires	31.5%	23
Student Portfolios	6.8%	5
Observation	37.0%	27
Forums/Discussions with faculty	30.1%	22
Forums/Discussions with students	20.5%	15
Total Number Programs Reporting		73

Table 36

How Programs Are Evaluating Teams & Teamwork Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	25.7%	19
Questionnaires	43.2%	32
Student Portfolios	10.8%	8
Observation	35.1%	26
Forums/Discussions with faculty	31.1%	23
Forums/Discussions with students	25.7%	19
Total Number Programs Reporting		74

The most popular evaluation method used in evaluating *Reaction* outcomes was questionnaires (36.1%)(see Table 37). However, qualitative methods such as forums/discussions with faculty (19.4%) and forums/discussions with students (18.1%) were also used. Over forty-one percent of programs reported they did not measure Reaction outcomes. In terms of *Modifications of Perceptions & Attitudes* outcomes (see Table 38), 26.7% of programs responded they did not measure this outcome. Many programs (45.3%) use questionnaires to evaluate changes in modifications of perceptions and attitudes. Other common evaluation methods included forums/discussions with faculty (32%), and observation (21.3%). While student portfolios and forums/discussions with students were the least popular methods.

Table 37

How Programs Are Evaluating Reaction Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	41.7%	30
Questionnaires	36.1%	26
Student Portfolios	5.6%	4
Observation	13.9%	10
Forums/Discussions with faculty	19.4%	14
Forums/Discussions with students	18.1%	13
Total Number Programs Reporting		72

Table 38

How Programs Are Evaluating Modifications of Perceptions & Attitudes Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	26.7%	20
Questionnaires	45.3%	34
Student Portfolios	4.0%	3
Observation	21.3%	16
Forums/Discussions with faculty	32.0%	24
Forums/Discussions with students	13.3%	10
Total Number Programs Reporting		75

A little over half of CSD programs reported they did not evaluate *Behavioral Change* outcomes (see Table 39). Programs that did measure this outcome reported they used questionnaires (24.2%), student portfolios (5.5%), observation (23.3%), forums/discussions with faculty (21.9%) and forums/discussions with students (9.6%). The majority of programs reported they did not measure *Change in Organizational Practice* outcomes (see Table 40). However, some programs measured this outcome through questionnaires (16.7%), student portfolios (2.8%), observation (8.3%), forums/discussions with faculty (16.7%) and forums/discussions with students (6.9%).

Table 39

How Programs Are Evaluating Behavioral Change Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	50.7%	37
Questionnaires	24.2%	18
Student Portfolios	5.5%	4
Observation	23.3%	17
Forums/Discussions with faculty	21.9%	16
Forums/Discussions with students	9.6%	7
Total Number Programs Reporting		73

Table 40

How Programs Are Evaluating Change in Organizational Practice Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	62.5%	45
Questionnaires	16.7%	12
Student Portfolios	2.8%	2
Observation	8.3%	6
Forums/Discussions with faculty	16.7%	12
Forums/Discussions with students	6.9%	5
Total Number Programs Reporting		72

In regards to *Patient/Client Benefit* outcomes (see Table 41), a little over half of programs reported they did not measure this outcome. The most common methods for evaluating benefit to patients and clients included observation (20.5%), forums/discussions with faculty (20.5%) and questionnaires (19.2%).

Table 41

How Programs Are Evaluating Patient/Client Benefit Outcomes

<u>Method</u>	<u>Percentages</u>	<u>Frequencies</u>
Not Measured at this Time	50.7%	37
Questionnaires	19.2%	14
Student Portfolios	6.8%	5
Observation	20.5%	15
Forums/Discussions with faculty	20.5%	15
Forums/Discussions with students	11.0%	8
Total Number Programs Reporting		73

Research Question 5: Barriers and Critical Enablers of Success

Questionnaire I sought to identify barriers CSD programs faced, while Questionnaire II identified the types of barriers faculty encountered. In determining the kinds of barriers CSD programs and CSD faculty faced, barriers were broken into five categories: (a) institutional, (b) programmatic, (c) resource, (d) barriers within CSD departments, and (e) barriers encountered with other departments. These were then assigned to the respondents most appropriate to

provide guidance on those categories of barriers. Additionally, critical enablers of success were broken up in these same categories and assigned to corresponding questionnaires.

On Questionnaire I, programs implementing IPE (n=93) were asked about the institutional barriers that affected their implementation of IPE. They were asked to rate on a scale of “1,” not a barrier at all, to “5,” extreme barrier, a list of barriers found within the general IPE literature. The barrier having the most impact for these CSD programs was the lack of sufficient data, standards, benchmarks, and dissemination of best practice of IPE (M = 4.36, SD=.670). Additionally, programs reported a lack of commitment from departments and colleges (M=4.11, SD = .776) and a lack of buy-in from institutional leaders (M= 4.10, SD = .830) as considerable barriers. One major barrier cited in the general IPE literature that did not seem to have as much of an impact for CSD programs was that some administration view IPE as a distraction (M= 2.05, SD = .993)(see Table 42).

Table 42
Institutional Barriers for CSD Programs

<u>Barriers</u>	<u>Mean</u>	<u>Standard Dev.</u>
Lack of sufficient data, standards, benchmarking, and dissemination of best practice of IPE	4.36	.670
Lack of commitment from departments and colleges	4.11	.776
Lack of buy-in from institutional leaders	4.10	.830
Resistance from administrative leaders	3.70	.889
Agreement on joint financial arrangements	3.61	.892
Some administration view IPE as a distraction	2.05	.993
Total Number Programs Reporting	84	

Programs (n=93) were then asked what critical enablers led to their success with institutional barriers. They were asked to rate on a scale of “1,” no impact on success to “5,” very big impact on success, a list of critical enablers of success found within the general IPE

literature (see Table 43). The critical enabler that had the most impact for these CSD programs was commitment from institutional or academic leadership including deans, associate deans, directors, and department heads (M= 4.42, SD = .605). Similarly, university wide recognition that teaching interprofessional courses is a necessary form of academic activity is another critical enabler of success in overcoming institutional barriers (M= 4.14, SD = .809). CSD programs also reported that the development, promotion, and implementation of system-level incentives and rewards for faculty was another critical enabler of success (M= 3.93, SD = .847). The factor having the smallest impact for CSD programs was the use of Formal letter of Agreement (LOA) between all parties collaborating in IPE (M= 2.20, SD = 1.117).

Table 43
Critical Enablers to Overcoming Institutional Barriers

<u>Critical Enablers</u>	<u>Mean</u>	<u>Standard Dev.</u>
Commitment from institutional/academic leadership	4.42	.605
University wide recognition that teaching interprofessional courses is a necessary form of academic activity.	4.14	.809
The development, promotion, and implementation of system-level incentives and rewards for faculty.	3.93	.847
Formal Letters of Agreement (LOA) between all parties collaborating in IPE.	2.20	1.117
Total Number Programs Reporting	83	

On Questionnaire II, CSD faculty were asked about barriers they have experienced including programmatic, resource, barriers within their CSD department, and barriers encountered with other departments (see Table 44). The largest barrier CSD faculty have faced in trying to implement IPE is the alignment of clinical placement timetables to enable a range of professions to participate (M= 3.99, SD = .831). Another common barrier for faculty was the

lack of faculty resources especially in terms of their time and workloads (M=3.89, SD=.785). A lack of time for staff development was cited as a moderate barrier for faculty (M=3.64, SD=.783).

Table 44
Barriers CSD Faculty Face in Implementing IPE

<u>Barriers</u>	<u>Mean</u>	<u>Standard Dev.</u>
Aligning clinical placement timetables to enable a range of professions to participate	3.99	.831
Lack of faculty resources	3.89	.785
Incorporating IPE activities into an already crowded class/lecture curriculum	3.82	.800
Lack of time for staff development	3.64	.783
Having insufficient clinical sites or room space	3.62	.803
Inequalities in the number of students enrolled across programs	3.39	.706
Lack of technology needed to implement IPE activities	3.35	.705
Lack of a unified focus by participating disciplines on developing curricula and interactions that can be truly be termed interprofessional	3.29	.642
Being able to involved key partners/stakeholders in the development, planning, and implementation of IPE activities	3.29	.649
Professional or “turf” protectionism and/or pre-existing role stereotypes	2.80	.904
Total Number Faculty Reporting:		747

Questionnaire II also asked faculty to identify the critical enablers to the success of their IPE initiatives (see Table 45). The enabler playing the largest role in the success of IPE initiatives was collaboration in the planning process, and sharing the model for the development process (M= 3.98, SD =1.020). The next largest enabler to the success of IPE was having faculty and staff who were devoted to the IPE initiative (M= 3.90, SD = 1.040). One respondent reported, “Our (CSD) faculty being committed to develop experiences for our students, and

being willing to go beyond typical roles to make it happen,” has a very big impact on success (scored as a “5” on the Likert scale).

Faculty were again given an option to share critical enablers they had experienced within their IPE initiatives and score them on the Likert scale. The most common theme of these responses was administrative support. Some faculty shared their administration had created an IPE Steering Committee; others reported support and clear expectations from their deans had a very big impact on the success of their initiatives. Another commonly cited critical enabler to success was the CSD students. Respondents shared, “Students seeing the value in IPE,” and “Students wanting an IPE experience,” have had a very big impact (scored as a “5” on the Likert scale) on the success of their IPE initiatives.

Table 45
Critical Enablers of Success in Implementing IPE

<u>Critical Enablers</u>	<u>Mean</u>	<u>Standard Dev.</u>
Collaboration in the planning process, and sharing the model for the development process	3.98	1.020
Faculty and staff are devoted to the IPE initiative	3.90	1.040
Development & exploration of common goals, values, and beliefs on the different professional groups involved	3.76	1.070
Authenticity and customization of IPE	3.74	1.091
Establishment of strong community partnerships	3.57	1.275
Informing faculty about the aims of the IPE initiative and where it fits within existing programs	3.44	1.132
Preparation and continuing support of staff	3.31	1.256
Allocation of funding & faculty time for infrastructure to help with both IPE coordination and program development	3.25	1.262
Development of faculty role models and mentorship	3.22	1.181
Total Number Faculty Reporting:	747	

Discussion

The purpose of this research was to investigate IPE within undergraduate and graduate CSD programs. Five research questions were examined. The first question explored how widespread IPE was within undergraduate and graduate CSD programs. Ninety three of the 184 programs that responded to Questionnaire I reported that they were incorporating IPE. Furthermore, 50.5% of the programs that reported they were not incorporating IPE, reported they plan to incorporate IPE in the future. In fact, a little over three fourths of those programs reported they were planning to incorporate IPE in one to three years.

Until recently, ASHA and the Council on Academic Accreditation (CAA) had not made IPE a requirement for CSD program accreditation. In March, 2016 ASHA released the 2017 standards for CSD program accreditation, and they called for the incorporation of IPE. New standards were added to the professional practice competencies sections in audiology (3.1.1A) and speech language pathology (3.1.1B) (CAA, 2016). Master's speech-language pathology programs and doctoral programs in audiology seeking accreditation must provide content and opportunities for students to learn so that each student can demonstrate the attributes and abilities highlighted in Table 46. Furthermore, students have to be able to demonstrate those attributes and abilities in the manners identified (CAA, 2016).

Table 46
New Standards for Academic and Clinical Education Curriculum in Speech Language Pathology

<u>Attributes</u>	<u>Abilities</u>
Professional Practice	
Accountability	Understand how to work on <i>interprofessional teams</i> to maintain a climate of mutual respect and shared values.
Effective Communication Skills	Communicate with patients, families, communities, <i>interprofessional team colleagues</i> , and other professionals caring for individuals, in a responsive and responsible manner that supports a <i>team approach to maximize care outcomes</i>
Professional Duty	Understand the roles and importance of <i>interdisciplinary/interprofessional assessment and intervention</i> and be able to interact and coordinate care effectively with other disciplines and community resources.
Collaborative practice	Understand how to apply values and principles of <i>interprofessional team dynamics</i> ; and how to perform effectively in different <i>interprofessional team roles</i> to plan and deliver care—centered on the individual served—that is safe, timely, efficient, effective, and equitable.

These changes will become effective August 1, 2017. This means that any “programs submitting re-accreditation applications February 1, 2017, and programs submitting annual reports August 1, 2017, will do so under the new standards” (CAA, 2016, para. 2). This will be a welcome announcement to the ninety three programs that reported they were already incorporating IPE. However, according to the findings of this study, that may only be 29.4% of the total CSD program population.

This study found that 91 CSD programs that responded to Questionnaire I, were not incorporating IPE. Of those CSD programs, 46 reported they are planning to incorporate IPE in the future. For programs that reported they were planning on incorporating IPE in less than a year, these new accreditation standards may not pose a burden. Even the majority of programs (76.1%) that reported they were planning to incorporate IPE in one to three years may not find these new standards a challenge. Data collection for Questionnaire I stopped in August 2015, two years before the new standards are to be in effect. Many of the programs that were planning to start in one to three years would likely have already started by August 2017. However, programs that reported they were planning to incorporate IPE in four to six years may struggle to be prepared for this deadline. For programs that reported they weren't planning to incorporate IPE at all, this may be a stressful, unwelcome new expectation.

Consider the reasons reported by the programs that were not planning to incorporate IPE. The majority of those programs reported, IPE is not a priority right now (63.4%). CSD programs are already struggling with funding, staffing shortages, productivity requirements, and securing sufficient clinical experiences for students (Mancinelli & Amster, 2015). Furthermore, some aren't planning to incorporate IPE due to a lack of resources, the belief that the lecture and clinical curriculum is already too crowded, and insufficient funding for IPE activities (see Table 18). So adding another component to the program really isn't a priority for them at this time- but it will soon have to be.

Now consider the barriers described by CSD programs that reported they did incorporate IPE. The barriers having the most impact included lack of faculty time ($M= 3.89, SD=.785$);

lack of time for staff professional development (M= 3.64, SD=.783); having insufficient clinical sites or room space (M= 3.62, SD=.803); inequalities in the number of students enrolled across programs (M= 3.39, SD=.706); and lack of technology needed to implement IPE activities (M= 3.35, SD=.705). It is clear that programs that aren't already incorporating IPE will need guidance and support in establishing this component in their programs; but programs that are already incorporating IPE may also need guidance and support to keep their initiatives going.

Recommendations for CSD Programs

Establish a team of IPE proponents. On Questionnaire I, CSD programs reported lack of buy in from institutional leaders, lack of commitment from departments and colleges, and resistance from administrative leaders were institutional barriers they experienced in their IPE initiatives (see Table 42). Additionally, they were asked to provide any other barriers they had faced in their IPE initiatives and to rate them on the Likert scale. In these qualitative responses, a central theme was that the number of initiatives being handed down to faculty was an extreme barrier to IPE. One respondent reported, "We still haven't achieved effective EBP instruction, so it's frustrating when we are asked to add another complex non-content stressor to the huge required curriculum for SLPs." Another participant reported there are too many "scattered initiatives coming from upper administration." This is consistent with another frequently reported barrier: the lack of clear vision for IPE.

Conversely, some programs reported commitment from institutional and academic leadership and university wide recognition that teaching interprofessional courses is a necessary form of academic activity, had a big impact on the success of their IPE initiatives (Table 43).

Programs qualitatively reported effective communication across disciplines, securing funding, and the fact that other fields and programs have mandated IPE in relation to accreditation is helping drive demand for interest within the CSD field, all had a very big impact on the success of their initiatives. Lastly, the development and exploration of common goals, values, and beliefs of the different professional groups involved was identified as one of the critical enablers having the most impact on the success of CSD program's IPE initiatives.

Thus, CSD programs could consider organizing a team of IPE proponents for the purposes of delineating the importance of and advocating for IPE within programs as well as the institution as a whole. Programs could identify members from their department who are enthusiastic and driven to facilitate the department's IPE initiatives. Members from other departments that are involved in, or could be involved in a CSD program's IPE could also be identified. This investigation identified ways in which other CSD programs are supported by their institutions. The most frequently reported forms of support included professional development, funding, and guidance in identifying other departments to include in their IPE initiatives (Table 16). A team of IPE proponents could use this information as a starting point for their advocacy efforts. The team could also pursue policy and funding support from institutional leaders.

Perhaps now that IPE will be required for CSD programs wanting to establish and secure their accreditation with ASHA, institutional leaders may be more willing to help with IPE initiatives. This study found one barrier to the incorporation of IPE for both programs that were not incorporating it and programs that were incorporating it, was funding for IPE initiatives.

Securing financial support from institutions may be critical to a program's initiatives, as external funding is often a short term solution. As a stakeholder, it is also in the institution's best interest that the CSD program stay accredited with ASHA. Without accreditation, program viability and visibility may suffer. Securing support of this scale may be more obtainable with an interprofessional team of proponents.

Logic modeling and action research. In the current study, faculty reported many barriers in the management, planning, and implementation of IPE. Aligning clinical placement timetables to enable a range of professions to participate, lack of a unified focus by participating disciplines on developing curricula, and being able to involve key partners in the development, planning and implementation of IPE activities were all considerable barriers (Table 44). One respondent shared, "It's nearly impossible to get the faculty together for a meeting, let alone the students." The variability in level of students that were involved in IPE was also frequently reported in qualitative responses. Sometimes an IPE experience may include undergraduate nursing students, first year medical students, and second year speech language pathology and physical therapy students. The variability in specific knowledge and skills created barriers to collaboration especially in relation to comfort level. Conversely, the current research also found collaboration in the planning process and sharing the model for the development process was the critical enabler having the most impact on CSD programs' success in their IPE initiatives.

CSD programs may find logic modeling to be helpful in achieving balance between their IPE initiatives and the wider curriculum. Furthermore, they may want to consider developing a

shared logic model with all the stakeholders involved in IPE. The 3P model in Figure 3 was adapted from Freeth et al., (2005). This model may help inform CSD programs' decisions about the management, development, implementation, and evaluation of IPE. The presage factors spanning the program, the instructors and facilitators, and the learners, include constraints and opportunities reported by participants in Questionnaire I and II. They contain factors that should be considered during the planning stages.

The process factors include the components involved in realizing the goals and objectives of the program's IPE initiatives. Figure 3 illustrates the approaches to IPE found within this study. Specifically, where IPE is occurring in relation to undergraduate and graduate programs, lecture and clinical based settings, and classifications such as educational and medical based IPE were identified. Demographics such as who CSD programs are incorporating in their IPE, including other disciplines and interprofessional clinical teams, were also identified in this study. Factors related to how IPE is being implemented including curricular content, strategies for implementation, types of IPE activities, when IPE occurs in a students' program, and group size were also identified. Programs utilizing this model should consider what their approaches to IPE are, furthermore, they should consider if and how those approaches lead to collaborative outcomes.

Lastly, the product factors include the target competencies for students, programs, institutions, and patients/clients. This research identified measured outcomes relating to student competencies (see Tables 33-39), program and institution outcomes (Table 40), and patient/client benefit (Table 41). Furthermore, this research identified evaluation methods of these outcomes

(Tables 33-41). This information can guide programs as they decide what outcomes to measure and how best to measure them.

There are multiple benefits to using a logic model approach in planning IPE initiatives. Mapping out IPE initiatives through a logic model can help programs integrate their planning, implementation and their evaluation. The flow chart format of a logic model helps connect activities and effects in order to avoid proposing activities with no intended effects or anticipated effects without proper activities to support it. The use of logic models helps enhance accountability by keeping all involved stakeholders focused on the interprofessional outcomes. Logic models also help prevent mismatches between activities and effects, thus making it easier to see where and how pieces fit together (Community Toolbox, 2015).

Logic models also integrate research findings and practice. As with IPE, most initiatives are founded on assumptions about conditions that need to change, and how they are subject to intervention (Community Toolbox, 2015). In interprofessional education, the premise is that learning together will enhance patient/client outcomes. Yet our education is set up in a silo format, and thus needs to change to allow for more interactive learning. Some links in a logic model may have been tested and proven through previous research. Other links, such as benefit to patient/client outcomes, may not yet have enough evidence behind them. This provides programs the opportunity to match intervention and strategies to intended outcomes.

Figure 3: 3P Model for Planning & Developing IPE Curriculum

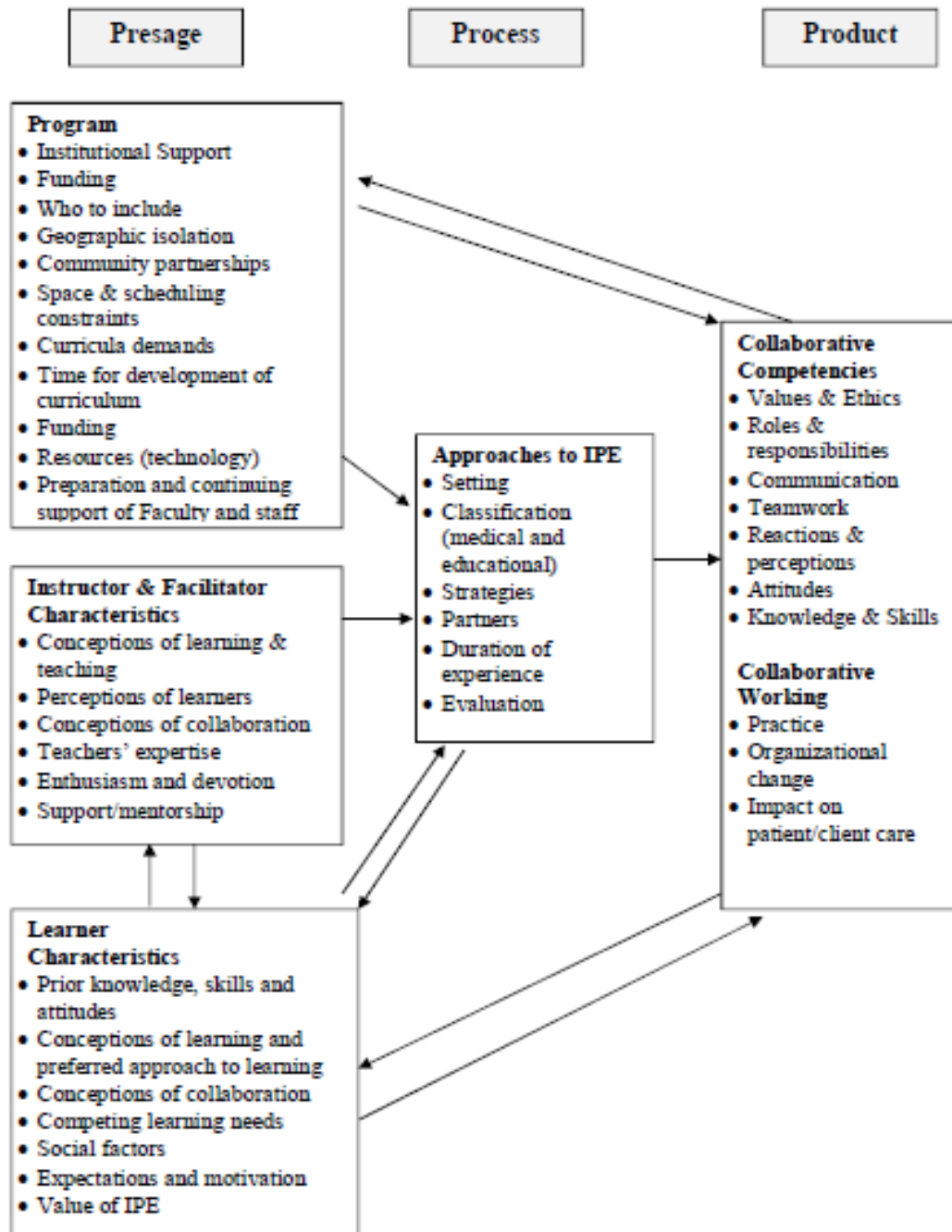
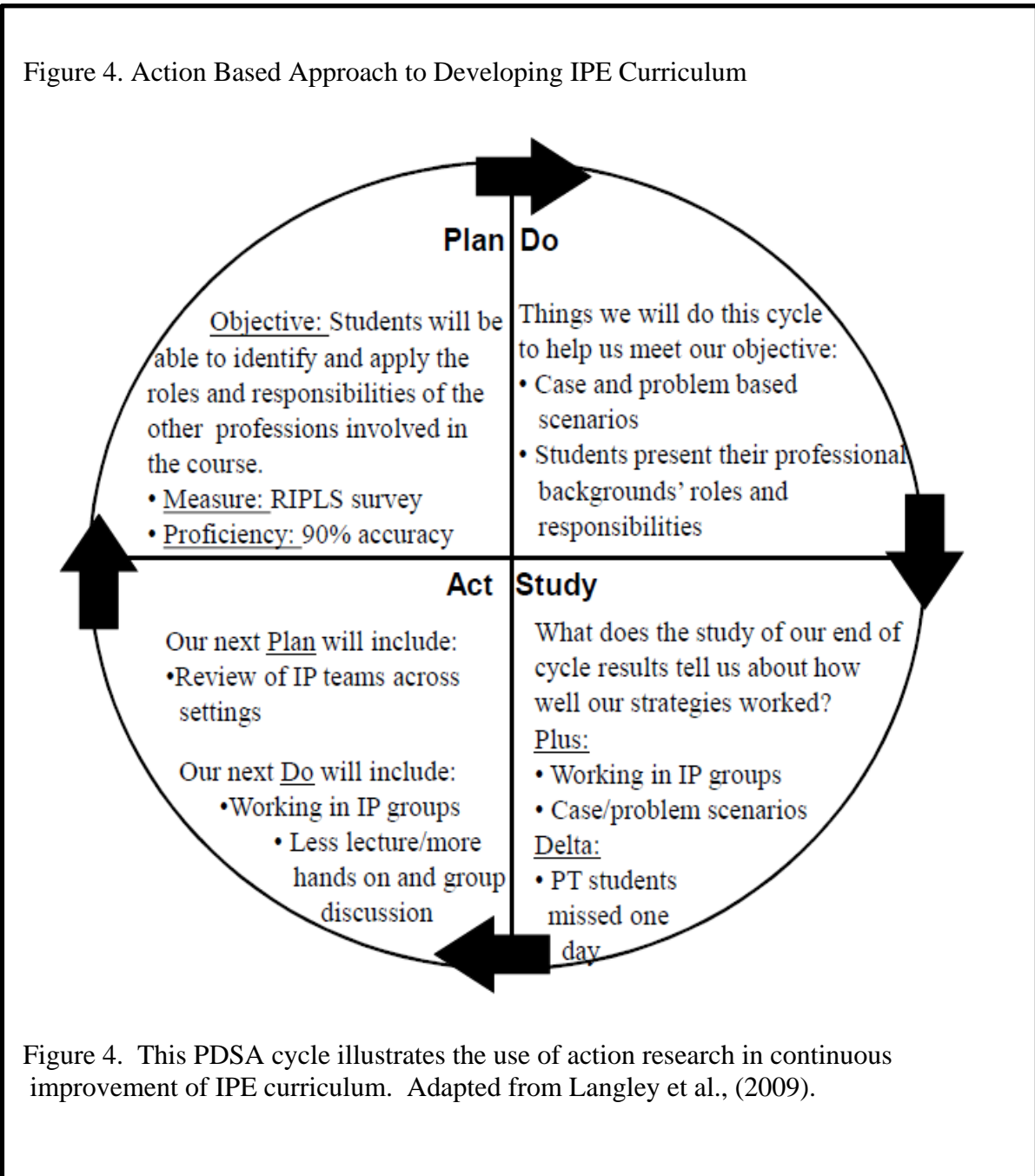


Figure 3. Adapted from Freeth et al. (2005).

Programs needing guidance in developing interprofessional curriculum could also consider utilizing an action research approach to improve the content, design, and implementation of their IPE initiatives. One way to implement action research in pursuit of continuous improvement is through a systems based approach called the Plan-Do-Study-Act (Langley, Nolan, Norman, & Provost, 2009). See Figure 4. In this approach, instructors and learners are partners in the learning system. Each learning cycle, the instructor leads the students through each portion of the learning process. In the “Plan” portion of the cycle, instructors set short term goals and objectives by identifying specific knowledge and skills students will learn in a given time period. This helps students better understand the purpose of learning and it clarifies their roles. The “Do” portion of the cycle addresses what the instructor and the learners need to do to ensure that everyone learns the target. It also identifies which high-yield instructional strategies will be used to facilitate learning. In the “Study” portion of the cycle, the results of the strategies used in the learning cycle are examined. Here, instructors are encouraged to use a plus/delta system for identifying what helped everyone learn in this cycle, as well as what, if anything, got in the way of that learning. The last portion, “Action” asks the students what adjustments need to be made for the next learning cycle. In other words, what will students and the instructor do differently in the next learning cycle (Langley et al., 2009).

McCarthy et al., (2015) employed a “learners as designers” approach in their IPE lecture based course. Here, students helped shape and improve the course content by providing ongoing feedback to the instructors. Programs could pilot their initiatives for the first couple years, and get feedback from students on what worked, what didn’t, and what was missing. This approach

allows IPE curriculum and activities to be continuously improved upon, thus yielding benefits for future learners and professionals.



Start small. CSD programs not incorporating IPE could consider starting small in their IPE initiatives. In other words, they could identify where IPE lends itself best in their program and start there. Take for example, a lecture setting where multiple professions already have the ability to enroll, or a clinical setting that includes students of other professional backgrounds. In these multiprofessional environments, all that is needed are interprofessional activities to take the learning from parallel to interactive. Activities involving interprofessional case and/or problem based scenarios, or presentations about the roles and responsibilities of ones' profession, might be easy to incorporate.

Programs could also consider where, if any, unplanned or serendipitous learning is occurring. Most likely, this occurs a lot in clinical practice, even in the programs that don't implement IPE because collaboration is such a big part of what speech-language pathologists do. Collaboration occurs in hallways and transitions in both educational and medical settings. Finding a way to take this type of learning from unstructured to structured could lend itself to IPE. Taking those small, yet frequent, conversations about multiple students or patients and shaping them into a team meeting where all necessary professions can collaborate on facilitating better outcomes for patients and clients could be present an opportunity for interprofessional education and collaboration.

It is important to note that not every class or clinical placement can or should involve IPE. There is something to be said for having a balance between uniprofessional, multiprofessional, and interprofessional education. Students need time to learn and develop skills necessary for practice in their profession. This form of uniprofessional education can still

include students learning together interactively or in parallel, however, it is important that some of their training be solely focused on their scope of practice. Likewise, there is a time for multiprofessional education, especially as it relates to observational learning. Take, for example, grand rounds where varying disciplines of students observe surgery or participate in cadaver labs. There are some instances where it might make fiscal sense to include students of multiple disciplines, but there may also be time or other constraints that inhibit taking the learning from parallel to interactive.

Another way for programs to start small lies within observation hours. Given that the Council for Clinical Certification in Audiology and Speech-Language Pathology (CFCC), a semi-autonomous credentialing body of ASHA, requires students graduating from member CSD graduate programs to complete 25 hours of observation within the field (Standard V-C); this could provide a seamless opportunity to incorporate IPE (ASHA, 2016b). For example, students could observe situations where SLPs may be involved in an interprofessional learning experience (e.g., cleft palate team, diagnostic team, etc.). Written reflections of the roles and responsibilities observed among interprofessional team members, the effectiveness of the teams' interprofessional communication, and examples of how a team approach was utilized, would take a simple passive observation to a reflective interprofessional learning experience.

Starting small in IPE initiatives also gives programs a chance to pilot and evaluate their initiatives in a more focused manner. Once programs find a method that works, it can be applied to other classes and clinical opportunities. Programs could also consider investigating cost effectiveness and economies of scale opportunities. In other words, programs that can

demonstrate cost advantages by educating more students with fewer resources might be in a better position to advocate for permanent and adequate funding. The data obtained from these evaluations can serve as evidence to support initial and ongoing funding, especially institutional funding.

Consider simulation. CSD programs could consider the use of simulation in their IPE initiatives. In March 2016, the CFCC made revisions to the 2008 certification standards for speech-language pathology. The most notable revisions are in regard to the use of simulation. The definition of clinical experiences was expanded in Standard V-B. Going forward, alternative clinical experiences (ACE) may include the following simulation technologies: standardized patients, virtual patients, digitized mannequins, immersive reality, task trainers, computer-based interactive. Furthermore, up to 20% of the direct contact hours required for certification in speech-language pathology may be obtained through ACE methods. In other words, 75 of the 375 required clock hours can now be used in simulation (Standard V-C) (ASHA, 2016b).

While ASHA's acceptance of the use of simulation hours to fill a portion of the required clinical hours is a timely revision given the new requirement for IPE, it won't be the answer for all programs. Most forms of simulation are quite expensive. As discussed earlier, a lack of funding for IPE is a barrier to the incorporation and implementation of IPE. The use of standardized patients requires time to interview and train the actors. There are also costs associated with recruitment and compensation. For CSD programs that have theater and/or

broadcasting programs on their campus, there may be an opportunity to collaborate with these professional backgrounds.

Digitized manikins can cost between \$95,000 and \$300,000 depending on the function they simulate (Laerdal, 2016). Likewise, task trainers can also be expensive, ranging from \$2,500-\$10,000 (Laerdal, 2016). Manikins and task trainers that meet the needs of the medical side of speech language pathology may not be as expensive. For example, a human patient simulator consisting of only the head, neck, and torso, similar to the one used in Benadom and Potter (2011), allow students to practice tracheotomy care and evaluations of swallowing, at a smaller expense than a full body manikin. It is possible that CSD programs linked to a medical school may have access to these kinds of simulations, and thus, cost associated with using them would be marginal compared to purchasing them for the department's sole use. However, for programs that don't have the luxury of a medical school on their campus, these are unlikely options.

There are more affordable options for CSD programs wanting to use simulation. SimuCaseTM, an online computer based platform allows "...users to assess, diagnose and make recommendations for a library of virtual patients," (SimuCase, 2016, para.1). Faculty members can assign students cases, in which they complete the following required steps: case history, collaboration with family members and other interdisciplinary professionals, clinical hypothesis, assessment, diagnosis, and recommendations for a treatment plan. Student accounts are linked to their email so that simulation activities and hours can be tracked and discussed with faculty supervisors. Access to this simulated platform is \$99/year per student (B.

Pantalone, personal communication, April 12, 2016). Students could pay for their own license, making the added expense to CSD programs nonexistent. This could potentially help programs who are already experiencing staffing/supervision issues as well.

Another virtual reality platform that programs may find useful is Second Life®. This platform allows students to interact as an avatar in a virtual world, perhaps a virtual hospital or school, with other students. Dudding and O'Donoghue utilize this strategy at James Madison University. Students use their avatars to either act as a member of an interprofessional team to solve a case and come up with a plan for interprofessional care, or they act as an observer and watch the interprofessional team collaborate (Dudding & O'Donoghue, 2015). While use of this website is free, it does not come with virtual patients already created as with SimuCase™. Programs could explore the possibility of working with the computer engineering department on their campus for assistance in setting up a realistic virtual clinic.

Overcoming geographical isolation. Both CSD programs and faculty reporting they did not incorporate IPE, cited geographical isolation as a reason IPE was not being incorporated (Tables 18 and 19). Geographical isolation was also something faculty from programs that were incorporating IPE, reported as a barrier in their qualitative responses. A few participants reported they were limited by the other health professions found on their campus. Conversely, faculty reported the establishment of strong community partnerships was a critical enabler in their success (Table 45).

CSD programs that are isolated by geography, could investigate community and cross-institutional partnerships. CSD programs may want to consider seeking out members of their

community or alumni that are employed in educational and/or healthcare settings who may be willing to help with their IPE initiatives. Mulvey and Fahy (2015) used a single case based interprofessional scenario that students read ahead time, and invited professionals of varied medical and/or educational backgrounds to their lecture based IPE course. Each week a different professional from the community participated in the class to discuss their roles in the case. For professionals who could not physically make it to campus, video conferencing was used. This approach may provide an opportunity for other programs suffering from isolation to bring IPE to their students.

CSD programs could also encourage faculty to consider where they may already have colleagues employed in other institutions who may be willing to help with IPE initiatives. Now that CFCC has revised the certification standards to allow 20% of student hours to be used in simulation, programs may want to consider trying a reality platform like Second Life. This would allow programs who face the barrier of not having other programs on their campus to incorporate programs of other professions from other institutions. This could prove a mutual IPE benefit to both institutions and all included professions.

Online learning options. Faculty reported incorporating IPE into an already crowded class/lecture curriculum, was a considerable barrier (Table 44). Some faculty qualitatively reported that a barrier to providing IPE was the impact it had on student credit hours. Programs concerned about the lecture and clinical curriculum being too crowded to allow for the incorporation of IPE, could consider the use of an online platform like Blackboard™ or Moodle™. These platforms can host online webinars that students can complete outside of

class/clinic to prepare for an interprofessional experience in class/clinic. For example, an online webinar that pre-teaches the roles and responsibilities of different professions students will interact with in a particular clinical setting could be viewed by CSD students before the start of the clinic. While this may require more planning and development on behalf of the faculty, it would not interfere with content that has to be covered during a lecture or clinical interprofessional experience. Student burden should be considered when investigating this option. While not every class or clinical practicum will lend itself to IPE, a few may. If all of them are utilizing this as an approach, it will quickly add to students' workload, thus potentially risking negative feelings and/or stereotypes about IPE.

Another resource that may help overcome the barriers of developing and implementing curriculum in an already crowded lecture and clinical content is SimuCase™. As discussed earlier, it is an online virtual reality platform that contains a library of simulated clients for students to apply their theory and practice skills. In 2017, SimuCase™ will be launching a division that allows faculty members to request certain cases be developed for their specific class. In other words, faculty will be able to tell SimuCase™ what they want, and it will be developed for them (B. Pantalone, personal communication, April 12, 2016). While pricing has not been set for this service, it is something CSD programs may want to consider.

Professional development and release time. CSD programs could consider providing faculty and staff with professional development and release time. On Questionnaire II, faculty reported that a lack of time and workload resources, as well as lack of time for staff development were considerable barriers to their implementation of IPE (Table 44). In the qualitative

responses, faculty reported that there is not enough time to collaborate and plan the kind of interprofessional learning that IPE demands. One participant reported, “ASHA’s restriction on who can supervise SLP students,” was an extreme barrier in facilitating IPE. Other participants reported that IPE is above and beyond full time faculty positions, “We teach IPE as a service. It would be nice to be paid for it.”

IPE is clearly happening. These responses suggest that at least a portion of IPE is an “add-on” for faculty and staff. This may indicate that faculty believe IPE is not only worthwhile, but that it is necessary in achieving the best outcomes for students and patients/clients. However, without the proper resources in time and professional development, faculty won’t be able to maintain IPE to the degree it demands. There is a lot to prepare for when implementing an IPE initiative. Faculty need time to learn about IPE; plan, develop, and locate content; collaborate with faculty of other departments; plan evaluation of IPE competencies; and evaluate the effectiveness of their IPE initiatives.

Another frequently reported “extreme barrier” by faculty on Questionnaire II was a lack of pre-IPE knowledge. In other words, faculty felt they didn’t have enough understanding of other professional roles, responsibilities, terminology, assessment tools, and types of interventions before engaging student learners in IPE. Providing professional development helps ensure that those delivering and supporting the interprofessional curriculum have the appropriate knowledge, attitudes, and skills to undertake their roles and responsibilities (Freeth et al., 2005). Faculty and staff may need guidance in regards to (a) what IPE is, and what can be deemed as an interprofessional activity, (b) potential areas to start IPE, (c) redesigning existing and developing

new IPE curricular content, (d) strategies to be utilized in implementation, (e) types of simulation and how they can be utilized in IPE, (f) evaluation methods and interprofessional tools, and (g) suggestions for overcoming barriers to implementation.

Without professional development and release time, it may be hard to secure buy-in from faculty and staff. This study found that one of the most prominently reported critical enablers of success in IPE initiatives for CSD programs was the faculty. Faculty enthusiasm, leadership, buy-in, and dedication were reported to have a very big impact on success of IPE. Numerous programs reported faculty belief that IPE is relevant and has a place within the learning of CSD students is what drives their department's IPE initiatives.

Recommendations to ASHA

While programs are responsible for implementing the new IPE standards, ASHA could consider the following recommendations in helping CSD programs establish and continue their IPE initiatives.

Establish an online IPE community. First, given that a lack of sufficient data, standard setting, benchmarking, and dissemination of best practice of IPE was a significant institutional barrier for CSD programs, ASHA could consider creating an online IPE community in which CSD programs can disseminate and share information about their IPE initiatives. This interprofessional community could provide CSD programs with guidance in IPE demographics, curriculum, implementation, and evaluation. In this study, some faculty and programs reported they were not planning on incorporating IPE because of a lack of dissemination of best practice.

Similarly, the faculty and programs that are incorporating IPE cited this as a barrier to their IPE initiatives.

Guidance in basic IPE demographics such as identifying other departments to include in IPE is needed. A few programs reported one of the reasons they were not planning to incorporate IPE was because they had trouble identifying and involving key partners and stakeholders to develop, plan, and implement IPE (Table 18). Eighteen percent of faculty members of programs not incorporating IPE also cited this as a reason they weren't involved in IPE (Table 19). Even faculty who are already incorporating IPE identified this as a barrier to their IPE initiatives (Table 44). While the data gathered in this research provides a number of student backgrounds that are incorporated in CSD programs' IPE, new opportunities are being discovered.

Compared to the list of student backgrounds Prelock and Apel shared in 2013; Questionnaire II revealed four additional student backgrounds incorporated in undergraduate IPE, and seven new student backgrounds in graduate IPE. However, more than just a list of possible IPE partners is needed. Examples explaining how CSD programs were able to accomplish the incorporation of these backgrounds, such as through joint-funding in a co-teaching model, will provide guidance to other CSD programs wanting to identify potential collaborative partners.

Some programs (19.5%) cited geographical isolation as a reason they were not planning to incorporate IPE (see Table 18). Likewise, a little over a fourth of the faculty reported they believed this was a reason their program was not incorporating IPE (see Table 19). At the 2015

ASHA Convention in Denver, Watson and Farmer shared how they overcame the lack of other programs on their campus in which to incorporate in their IPE. They were able to forge interprofessional relationships with programs from another university in order to bring IPE to their students. This strategy should be shared on a platform more visible than an annual convention. In doing so, it provides direction for other CSD programs facing geographical isolation. It would also serve as a reference for programs needing institutional support to engage in cross institutional IPE.

The belief that the CSD lecture and clinical curriculum is already too crowded was held by CSD programs that reported they were not planning to implement IPE (29.3%) and faculty of programs that weren't incorporating IPE (46.3%). It was also cited as a noteworthy barrier faculty from programs that do incorporate IPE, face in implementing IPE. This investigation found common IPE curricular topics, IPE strategies and activities, and clinical teams that supported the incorporation of IPE. While this information provides examples as to where IPE can be incorporated, and what content may entail; guidance in redesigning current curriculum to incorporate IPE and developing new IPE curriculum is needed. An online platform would allow programs to share detailed examples of how they incorporated IPE into lecture and clinical content.

The barrier having the biggest impact for faculty implementing IPE was the alignment of clinical placement timetables to enable a range of professions to participate. While this stems from an institutional barrier regarding when classes are scheduled; it would be helpful for programs to see how other CSD programs are overcoming these barriers. While timetabling and

scheduling is not only different across various departments, but also across institutions, it would at least give CSD programs facing these challenges a place to start.

Recognizing that many possible IPE outcomes are not yet being measured by programs incorporating IPE (see Table 47), guidance is needed in the evaluation of IPE initiatives. Programs may need guidance as to what outcomes they should measure and how they should measure them. References on specific tools to use across IPE competencies would be especially helpful for programs that are brand new to IPE.

Table 47
IPE Outcomes Not Yet Measured by CSD Programs

<u>Outcome</u>	<u>%</u>
Change in Organizational Practice	62.5
Behavioral Change	50.7
Patient/Client Benefit	50.7
Reactions	41.7
Values & Ethics for IPP	36.5
Interprofessional Communication	32.9
Roles & Responsibilities	27.0
Teams & Teamwork	25.7
Modifications of Perceptions & Attitudes	26.7

Given that a lack of resources was cited as one of the top reasons that (a) CSD programs reported they were not planning to implement IPE (56.1%), (b) faculty believed programs weren't incorporating IPE (50.3%), and (c) was one of the highest barriers faculty cited in their program's IPE initiatives; this online community could also serve as a place to establish a shared bank of materials. This could include:

- Introduction to IPE: Videos/vignettes, written scenarios of what IPE is and what it is not.
- Activities related to the IPEC core competencies.

- Activities could include case and problem based scenarios incorporating interprofessional fields.
- Descriptions and recommendations of standardized assessments to use across targeted outcomes.

A shared bank of materials would allow some standardization across all programs in terms of content and strategies. This is of utmost importance as faculty and staff new to IPE may need guidance in what activities can truly be deemed as IPE.

Provide external funding. Acknowledging that a lack of sufficient funding for IPE was cited as reasons that CSD programs reported they were not planning to implement IPE (24.4%); faculty believed programs weren't incorporating IPE (35.3%); and was related to some of the highest barriers faculty cited in their program's IPE initiatives; strongly consider funding for programs. In ASHA's 2013 Ad-Hoc Committee final report, funding was a listed recommendation. However, it was ranked as having a low priority compared to other endeavors of the committee. Now that IPE will be a requirement for program accreditation, many programs will need financial assistance in hiring new faculty – or at least starting to pay faculty who have incurred IPE as an add-on to their workload, creating and developing an IPE curriculum, and securing resources for the implementation of IPE, such as technology. Programs may also need financial assistance in the development, planning, implementation and analysis of their IPE initiatives.

This recommendation needs to be viewed as a high priority. Every year, states across the U.S. provide less and less funding to public colleges and universities. Hence, many university programs are not only dealing with having to do more with less; they are vying for institutional and government funding in an extremely competitive environment. At the time of data collection, at least 91 programs reported they weren't yet involved in IPE. With only a year and three months, that's not a lot of time for them to find funding to fuel their IPE initiatives.

As recommended in the ad-hoc committee (2013) final report on IPE, funding should be considered for programs that investigate the effectiveness of IPE on their students learning and outcomes related to patient/client benefit. One of the institutional barriers having the biggest impact on programs incorporating IPE was a lack of buy-in from institutional leaders. Funding for programs that evaluate the effectiveness of IPE on student and patient/client outcomes would provide the evidence some programs need in obtaining support from institutional leaders.

Provide professional development. ASHA could also consider providing support for CSD programs through professional development. One of the barriers in implementing IPE cited by faculty was the lack of time for staff professional development. The development of online seminars would not only be accessible for many, but it would also provide an opportunity to disseminate standardized and systematic information. Topics for professional development could include (a) what IPE is, and what can be deemed as an interprofessional activity, (b) potential areas to start IPE, (c) redesigning existing and developing new IPE curricular content, (d) strategies to be utilized in implementation, (e) types of simulation and how they can be utilized in IPE, and (f) suggestions for overcoming barriers to implementation.

Limitations

No research is without limitations. In this study, an important limitation was that not all CSD programs participated. Even with a response rate of 62.8%, it limits the knowledge on how widespread IPE is within CSD programs. This study also focused on IPE as it relates to speech-language pathology. Thus, some information may be hard to generalize to other fields, including audiology. Another limitation is that this study did not examine the duration of CSD programs' IPE activities. Given the length of both questionnaires, it was not possible to add questions regarding duration.

Future Research

Although the results of this research are exciting and promising for the future of IPE within the CSD field, future research is needed. Given the data found in Questionnaire I, IPE is largely an emerging component for majority of CSD programs that are incorporating it. It is no wonder there is a lack of sufficient data, standards, benchmarking, and dissemination of best practice of IPE. Furthermore, Questionnaire I found that many programs are not yet in the evaluation stages of their IPE initiatives (see Table 47). Hence, it may be a couple more years before the field starts to see ample amounts of data, in which standards can be established, and disseminated for best practice. Future research should focus on the effectiveness IPE has on student learning and their practice, as well as patient/client outcomes. Rigorous studies employing RCT and CBA designs with randomization procedures, large sample sizes, and appropriate control groups are needed to provide evidence of the impact of IPE on professional practice and patient/client outcomes.

Given that simulation is a new way in which to gain clinical clock hours in speech-language pathology, research and evaluation of the use of simulation in speech language pathology and audiology curricula is needed. The field has some from evidence on the use of standardized patients (Hill et al., 2014; Syder, 1996; & Zraick et al. 2003), virtual/computerized patients (Strang & Meyers, 1987, Williams & Schreiber, 2010; Ewan et al, 2010), manikins (Bence, 2012; Ward et al., 2012) with speech-language pathology students. However, this evidence can be expanded to evaluate other forms of simulation such as virtual reality platforms and augmented reality. It should also evaluate the transfer of knowledge and skills learned in simulation to practice with real patients/clients. Future research on simulation should also focus on examining how activities are designed to ensure a high level of authenticity for interprofessional practice and of complexity requiring student engagement and interaction. Future research should also focus on how simulation activities are designed and evaluated with respect to meeting CSD students' educational and clinical objectives and standards.

Unfortunately, it is unknown how CSD programs use their evaluation data in order to change and enhance program activities. How programs use their information to implement change within their IPE curriculum and activities is underrepresented in the general IPE literature. With no systematic way to demonstrate how programs evaluate whether or not their IPE activities are effective in turning out well-rounded professionals; it is increasingly difficult to obtain buy in for incorporating IPE from institutional leaders, faculty, and other shareholders. It is also difficult for other programs wanting to implement or change their

implementation of IPE, as they don't have adequate models to follow. Furthermore, there is a lack of evidence regarding cost-effectiveness and how much IPE is sufficient. Considering that a lack of funding was a barrier to the incorporation of IPE, this information is imperative in securing administrative and institutional financial support.

Lastly, future research should focus on students' perspective of interprofessional education and learning. Positive student feedback can help secure buy in from administration and institutional leaders. Feedback can also provide programs guidance in their development, implementation and evaluation initiatives.

References

- American Speech-Language Hearing Association. (2008). *Why is greater emphasis being placed on interprofessional education in health care? What impact will it have on the education of audiologists and speech language pathologists?* Retrieved from <http://www.asha.org/academic/questions/Interprofessional-Education/>
- American Speech-Language Hearing Association. (November, 2013). ASHA Ad Hoc Committee on Inter-professional Education Final Report retrieved from <http://www.asha.org/uploadedFiles/Report-Ad-Hoc-Committee-on-Interprofessional-Education.pdf>.
- American Speech-Language Hearing Association. (2015). *CAA Accredited and Candidate Programs*. Available from <http://www.asha.org/Academic/accreditation/CAA-Accredited-Programs/>
- American Speech-Language Hearing Association. (2016a). *EdFind*. Available from <http://www.asha.org/edfind/>
- American Speech-Language Hearing Association. (2016b). 2014 Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology. Available from <http://www.asha.org/Certification/2014-Speech-Language-Pathology-Certification-Standards/>
- Baker, C., Pulling, C., McGraw, R., Damon-Dagone, J., Hopkins-Rossel, D., & Medves, C. (2008). Simulation in interprofessional education for patient-centered collaborative care. *Journal of Advanced Nursing*, 64, 372-379.

- Bandali, K., Parker, K., Mummery, M., & Preece, M. (2008). Skills integration in a simulated and interprofessional environment: An innovative undergraduate applied health curriculum. *Journal of Interprofessional Care*, 22, 179-189.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Banks, S., & Janke, K. (1998). Developing and implementing interprofessional learning in a faculty of health professions. *Journal of Allied Health*, 27, 132-36.
- Barnes, D., Carpenter, J., & Dickinson, C. (2000). Interprofessional education for community mental health: attitudes to community care and professional stereotypes. *Social Work Education*, 19, (6) 565-583.
- Barr, H. (1996). Ends and means in interprofessional education: Towards a typology. *Education for Health*. Vol. 9 (3) 341-352.
- Barr, H. (2002). *Interprofessional education: Today, yesterday and tomorrow*. London: Learning and Support Network: Centre for Health Sciences and Practice.
- Barr, H., Koppel, I., Reeves, S., Hammick, M., & Freeth, D. (2005). *Effective interprofessional education: Argument, assumption & evidence*. Malden, MA: Blackwell Publishing Ltd.
- Barrows, H. S., & Tamblyn, R. M. (1980). *Problem based learning*. New York: Springer Publications.
- BC Practice Education Committee (2013). Advancing Teamwork in Healthcare: A guide and toolkit for building capacity and facilitating interprofessional collaborative practice and education. Retrieved from <http://www.dal.ca/content/dam/dalhousie/pdf/healthprofessions/Interprofessional%20Hea>

lth%20Education/BCAHC%20-%20IPE%20Building%20Guide%20-%20January%202013-1.pdf

Bence, J. (2012). *Tracheostomy for dummies: The use of clinical simulation in tracheostomy education and training*. Paper presented at the Speech Pathology Australia National Conference, Hobart, Australia.

Bender, D., & Buckner, S. (2005). Interdisciplinary patient care skills module. *Journal of Nursing Education, 44*, 291-292.

Benadom, E. M., & Potter, N. L. (2011). The use of simulation in training graduate students to perform transnasal endoscopy. *Dysphagia, 26*, 352-360.

Biggs, J. (2003). *Teaching for quality learning at university*. (2nd ed.). Buckingham: The Society for Research into Higher Education and Open University Press.

Bridges, D. R., Davidson, R. A., Soule-Odegard, P., Maki, I.V., & Tomkowiak, J. (2011). Interprofessional collaboration: three best practice models of interprofessional education. *Medical Education Online, 16*, 1-10. DOI: 10.3402/meo.v16i0.6035.

Bureau of Labor Statistics, U.S. Department of Labor. (2016a). *Occupational Outlook Handbook*, 2016-17a Edition, Audiologists. Retrieved from <http://www.bls.gov/ooh/healthcare/audiologists.htm>

Bureau of Labor Statistics, U.S. Department of Labor (2016b). *Occupational Outlook Handbook*, 2016-17d Edition, Speech-Language Pathologists. Retrieved from <http://www.bls.gov/ooh/healthcare/speech-language-pathologists.htm>

- Carpenter, J. (1995a). Doctors and nurses: Stereotype and stereotype change in interprofessional education. *Journal of Interprofessional Care*, 9, 151-162.
- Carpenter, J. (1995b). Interprofessional education for medical and nursing students: Evaluation of a programme. *Medical Evaluation*, 29, 265-272.
- Carpenter, J. (1995c). Implementing community care. In K. Soothill, L. Mackay & C. Webb (Eds.), *Interprofessional relations in health care*. London: Edward Arnold.
- Centers for Disease Control and Prevention. (2011). Introduction to program evaluation for public health programs: A self-study guide. Atlanta, GA: Centers for Disease Control and Prevention
- Check J., Schutt, R. K. Survey research. In: J. Check, R. K. Schutt., editors. *Research methods in education*. Thousand Oaks, CA: Sage Publications; 2012. pp. 159–185.
- Childs, J., & Sepples, S. (2006). Clinical teaching by simulation: Lessons learned from a complex patient care scenario. *Nursing Education Perspectives*, 27(3), 154-158.
- Clinical Oncology Week. (18, May 2015). UCLA Neurosurgeons Are Stepping Inside Their Patients' Brains Using Oculus Rift, 3D Virtual Reality Gaming Technology with Surgical Theater's 3D Surgery Navigation Device. Retrieved from http://go.galegroup.com/ps/i.do?id=GALE%7CA415932682&v=2.1&u=ksstate_ukans&it=r&p=EAIM&sw=w&asid=3f428017e14e6309f5bf06ccf053569f
- Community Toolbox. (2015). Section 1. Developing a Logic Model or Theory of Change. Retrieved March 25, 2016, from <http://ctb.ku.edu/en/table-of-contents/overview/models-for-community-health-and-development/logic-model-development/main>

Council for Clinical Certification in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association. (2013). 2014 Standards for the Certificate of Clinical Competence in Speech-Language Pathology. Retrieved [date] from <http://www.asha.org/Certification/2014-Speech-Language-Pathology-Certification-Standards/>.

Curran, V.R., Hollett, A., Casimiro, L., McCarthy, P., Banfield, V., Hall, P., Lackie, K., Oandasan, I., Simmons, B., Tremblay, M., Wagner, S.J. (2011). *Development and Validation of the Interprofessional Collaborator Assessment Rubric (ICAR)*. *Journal of Interprofessional Care*, 25, 339-344.

Department of Health and Social Security. (1974). *Report of the Committee of Enquiry into the Care and Supervision Provided in Relation to Maria Colwell*. HMSO: London.

DePoy, E., Wood, C., & Miller, M. (1997). Educating rural allied health professionals: an interdisciplinary effort. *Journal of Allied Health*, 26, 127-32.

Dillman, D. (2011, July 27). *Part II: Making Surveys Work For You: Writing Questions*. Presented at the Net Conference on Survey Methods & Measurement. Retrieved from https://www.ttac.org%2Fresources%2Fpdfs%2F072711_Writing_Questions_Netconference-handout.pdf

Dillman, D.A., Smyth, J.D., & Christian, L.M. (2009). *Internet, Mail, and Mixed- Mode Surveys: The Tailored Design Method*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Dixon, D., Fagan, E., McNeilly, L., & Nunez, L. (2015, December 30). The why, what, and how of interprofessional collaboration [Webinar]. Retrieved from

<http://www.asha.org/Practice/The-Why-What-and-How-of-Interprofessional-Collaboration/>

Dudding, C. (2015, January). Full Class. *The ASHA Leader*, 20, 36–30.

doi:10.1044/leader.FTR1.20012015.36

Dudding, C.C., & O'Donoghue, C.R. (2015, November, 13). *A Virtual Interprofessional Clinic*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.

Dumont, S., Briere, N., Morin, D., Houle, N., & Iloko-Fundi, M. (2010). Implementing an Interfaculty Series of Courses on Interprofessional Collaboration in Prelicensure Health Science Curriculums. *Education for Health*, 23(1), 395-407. Retrieved from http://old.educationforhealth.net/publishedarticles/article_print_395.pdf

Embry, E., & Pickering, J. (November, 2012). Cultivating creative, interdisciplinary collaboration in academic & clinical education. ASHA Annual Convention, Atlanta, GA.

Ewan, C., Howley, A., Riley, O., & Wynne, N. (2010). *Applying online simulations to enhance speech and language therapy education*. Unpublished Report. Birmingham: Birmingham City University.

Flanagan, B., Nestel, D., & Joseph, M. (2004). Making patient safety the focus: Crisis resource management in the undergraduate curriculum. *Medical Education*, 38(1), 56-66.

Freeth D. (2010) Interprofessional education. In T. Swanwick (Ed.) *Understanding medical education* (pp. 53-68). London: Wiley-Blackwell.

- Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. (2002). *A critical review of evaluations of interprofessional education*. London: Learning and Support Network, Centre for Health Sciences and Practice.
- Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (2005). *Effective interprofessional education: Development, delivery and evaluation*. Oxford: Blackwell Publishing Ltd.
- Freeth, D., & Nicol, M. (1998). Learning clinical skills: an interprofessional approach. *Nurse Education Today*, 18, 455-461.
- Freeth, D., Reeves, S., Koppel, I., Hammick, M., & Barr, H. (2005). *Evaluating interprofessional education: A self-help guide*. London: Higher Education Academy.
- Freeth, D., Reeves, S., Koppel, I., Barr, H., & Hammick, M. (2011). OCC 5: Section 1 - Principles of Good Practice. Retrieved from the HSAP Repository Web site:
<http://repos.hsap.kcl.ac.uk/content/m10248/1.1/>
- Friberg, J., Ginsberg, S., Visconti, C., & Schober-Peterson, D. (2013, June). Academic edge: This isn't the same old book learning. *The ASHA Leader*, 18, 32–33.
- Gilbert, J. H. V. (2005). Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care*, 1, 87-106.
- Gill, J., & Lang, J. (1995). Interprofessional shared learning: A curriculum for collaboration. In K. Soothill, L. Mackay, & C. Webb (Eds.), *Interprofessional relations in health care*. London: Edward Arnold.
- Groves, R. M. (1989). *Survey Errors and Survey Costs*. New York: Wiley.

- Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME guide no. 9. *Medical Teacher*, 29, 735-751.
- Hill, A. E., Davidson, B. J., & Theodoros, D. G. (2014). Speech-language pathology students' perceptions of a Standardised Patient Clinic. *Journal of Allied Health*, 42(2), 84-91.
Retrieved from <http://search.proquest.com/docview/1442705382?accountid=14556>
- Holsman Physical Therapy & Rehabilitation P.C. (2016). *The difference between physical therapy and occupational therapy*. Retrieved from <http://www.holsmanpt.com/physical-therapy-clifton-nj/the-difference-between-physical-therapy-and-occupational-therapy.html>
- Howard, V. M., Englert, N., Kameg, K., & Perozzi, K. (2011, January). Integration of simulation across the undergraduate curriculum: Student and faculty perspectives. *Clinical Simulation in Nursing*, 7(1), e1-e10.
- Howell, D.M., English, L., & Page, J.L. (2011). The Rockcastle Project: A case study of interprofessional clinical education at a rural medical center. *Internet Journal of Allied Health Sciences and Practice*.
- Hughes, L. A., & Lucas, J. (1997). An evaluation of problem-based learning in the multiprofessional education curriculum for the health professions. *Journal of Interprofessional Care*, 11, 77-88.
- Interprofessional Education Collaborative. (2011a). Team-based competencies: Building a shared foundation for education and clinical practice. Paper presented at: Team-Based Competencies, Washington, DC.

- Interprofessional Education Collaborative Expert Panel. (2011b). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative.
- Itano, J.K., Williams, J., Deaton, M.D., & Oishi, N. (1991). Impact of a student interdisciplinary oncology team project. *Journal of Interprofessional Care*, 16, 199-210.
- Jackson, S., Johnston, K., Swagerty, D., Searl, J., Daniels, D., & Zarifa, K. (2015, November, 14). *IPE at the University of Kansas Medical Center: Campus-Wide Efforts, Geriatric Focused Activities, & Clinical Opportunities*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- James, J., & Nelson, K. (2015, November, 12). *Implementation of Interprofessional Education in a School of Allied Health Professions*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Johns Hopkins Medicine (n.d.a). *Manikin-Based Simulations*. Retrieved from http://www.hopkinsmedicine.org/simulation_center/training/manikin_based_simulations/
- Johns Hopkins Medicine (n.d.b). *Standardized Patient Program*. Retrieved from http://www.hopkinsmedicine.org/simulation_center/training/standardized_patient_program
- Johnson, M., Thatcher, K., Berry, C., & Pence, J. (2015, November). *Introducing Interprofessional Education with Undergraduate Students Utilizing Disaster Simulation*. Poster presented at the American Speech, Language, Hearing Association Conference, Denver, CO.

- Kerins, M., Tignor, K., Reinhardt, D. (2015, November, 12). *Ready, Set, Read!: An interdisciplinary program for SLPs and Literacy Educators*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Kirkpatrick, D. (1967). Evaluation of training. In R. Craig & L. Bittel (Eds.), *Training and development handbook*, (pp. 131-167). New York, NY: McGraw-Hill.
- Laerdal Medical Corporation. (2014). Price List. Retrieved from http://www.ogs.state.ny.us/purchase/spg/pdfdocs/3823219745PL_Laerdal.pdf
- Langley, G. L., Nolan, K. M., Nolan, T. W., Norman, C. L., & Provost, L. P. (2009). *The improvement guide: A practical approach to enhancing organizational performance* (2nd Ed.). Jossey Bass: San Francisco.
- Leucht, R., Madison, M., Taugher, M., & Petterson, J. (1990). Assessing perceptions: design and validation of an interdisciplinary education perception scale. *Journal of Allied Health, 19*, 181-191.
- Likerman, M. (1997). Psychoanalytic observation in community and primary health care. *Psychoanalytic Psychotherapy, 11*, 147-157.
- Linden Lab. (2003). *Second Life®*. San Francisco.
- Lindquist, S., Duncan, A., Shepstone, L., Watts, F., & Pearce, S. (2005). Case-based learning in cross-professional groups: The design, implementation and evaluation of a pre-registration interprofessional learning programme. *Journal of Interprofessional Care, 19*, 509-520.

- Lumague, M., Morgan, A., Mak, D., Hanna, M., Kwong, J., Cameron, C., Zener, D., & Sinclair, L. (2006). Interprofessional education: The student perspective. *Journal of Interprofessional Care*, 20(3), 246-253.
- Macbean, N., Theodors, D., Davidson, B., & Hill, A.E. (2013). Simulated learning environments in speech-language pathology: An Australian response. *International Journal of Speech-Language Pathology*, 15, 3, 345-357.
- Mancinelli, J. M. & Amster, B. J. (2015). Rethinking Clinical Education. *The ASHA Leader*, 20(1), 6-7. doi: 10.1044/leader.FMP.20012015.6
- Masters, C., O'Toole-Baker, V., & Jodon, H. (2013). Multidisciplinary, team-based learning: The simulated interdisciplinary to multidisciplinary professional-level education (SIMPLE©) approach. *Clinical Simulation in Nursing*, 9, 171-178.
- McCarthy, J., Moore, D., DiGiovanni, J., & Ekpe, J. (2015, November, 14). *Learners as Designers: Project-Based Learning in IPE Classrooms*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Mickan, S. M., & Rodger, S. A. (2005). Effective health care teams: A model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, 19, 358-370.
- Milton, C. L. (2012). Ethical implications and interprofessional education. *Nursing Science Quarterly*, 25, 313-315.
- Moodle. (2016). Moodle - Open-source learning platform | Moodle.org. Retrieved April 18, 2016, from <https://moodle.org/>

- Mulvey, N., & Fahy, J. (2015, November, 14). *Developing Instruction for Interprofessional Practice: A Retrospective Analysis*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Nasmith, L., Oandasan, I., Waters, I., & Purden, M. (2003). *Interdisciplinary education in primary health care: moving beyond tokenism*. College of Family Physicians of Canada Family Medicine Forum. Calgary, Alberta, Canada.
- Neubauer, N. P., Dayalu, V. N., Shulman, B. B., Pinto Zipp, G. (2014). Interprofessional Education at Seton Hall University. *Perspectives on Issues in Higher Education, American Speech-Language-Hearing Association*, 17(2):56 doi:10.1044/aihe17.2.56.
- Nisbet, G., Hendry, G.D., Rolls, G., & Field, M.J. (2008). Interprofessional learning for pre-qualification health care students: An outcomes-based evaluation. *Journal of Interprofessional Care*, 22, 57-68.
- Oandasan, I., & Reeves, S. (2005a). Key elements of interprofessional education. Part 1: The learner, the educator, and the learning context. *Journal of Interprofessional Care*, 1, 21-38.
- Oandasan, I., & Reeves, S. (2005b). Key elements of interprofessional education. Part 2: Factors, processes, and outcomes. *Journal of Interprofessional Care*, 1, 39-48.
- Padlet. (2016). Padlet is the easiest way to create and collaborate in the world. Retrieved April 18, 2016, from <https://padlet.com/>

- Page, J.L. (2010, June). The Rockcastle Project: A Model for Interprofessional Clinical Education in a Rural Medical Center. Access Academics and Research. Retrieved July 20, 2011, from <http://www.asha.org/academics/questions/rockcastle-project.htm>.
- Patient Protection and Affordable Care Act, Pub. L. No. 111-148, §2702, 124 Stat. 119, 318-319 (2010).
- Parsell, G., Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education*, 33, 95-100.
- Pickering, J., & Embry, E. (2013). So long, silos. *ASHA Leader*, 18 (6), 38-45.
- Pinterest. (2016). Discover & Create. Retrieved April 18, 2016, from <https://www.pinterest.com/>
- Pirrie, A., Wilson, V., Harden, R., & Elsegood, J. (1998). AMEE Guide no. 12: Multi-professional education: Part II. Promoting cohesive practice in healthcare. *Medical Teacher*, 20, 409-416.
- Prelock, P. (2013). From the President: The Magic of Interprofessional Teamwork. *The ASHA Leader*, 18(6), 5-6. doi: 10.1044/leader.FTP.18062013.5.
- Prelock, P. A., & Apel, K. (2013, April). Making the case for interprofessional education. Seminar presented at the annual conference of the Council of Academic Programs in Communication Sciences and Disorders, Phoenix, AZ.
- Proctor-Williams, K., & Alley, E. (2015, November, 14). *Implementing IPE in an Academic Health Science Center: Changing Attitudes, Beliefs, & Knowledge*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.

- Reeves, S. (2000). Community-based interprofessional education for medical, nursing and dental students. *Health and Social Care in the Community*, 8, 269-276.
- Reeves, S., & Freeth, D. (2002). The London training ward: An innovative interprofessional learning initiative. *Journal of Interprofessional Care*, 16, 41-52.
- Reeves, S., Goldman, J., Burton, A., Sawatzky-Girling, B. (2010). Synthesis of systematic review evidence of interprofessional education. *Journal of Allied Health*, 39 (1), 198-203.
- Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). Interprofessional education: Effects on professional practice and healthcare outcomes (update). *Cochrane Database of Systematic Reviews*, 3. Art. No: CD002213. DOI: 10.1002/14651858.CD002213.pub3.
- Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Hammick, M., & Koppel, I. (2008). Interprofessional education: Effects on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 1. Art. No: CD002213.
- Robertson, B., Kaplan, B., Atallah, H., Higgins, M., Lewitt, M., & Ander, D. (2010). The use of simulation and a modified Team STEPPS curriculum for medical and nursing students team training. *Simulation in Healthcare*, 5, 332-337.
- Rossi-Katz, J., Curran, C., Parker, J., & Hetzel, M. (2015, November, 13). *Voice as a Continuum: Exploration Through Interdisciplinary Education*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.

Samuel Merritt University. (n.d.a). *Human Patient Simulators*. Retrieved from

https://www.samuelmerritt.edu/hssc/human-patient-simulators#mid_level_fidelity_simulators

Samuel Merritt University. (n.d.b). *Task Trainers*. Retrieved from

<https://www.samuelmerritt.edu/hssc/task-trainers>.

Shannon, S. (2009). Health Care Reform and Why Interprofessional Education Makes Sense.

Retrieved from <http://www.aacom.org/reports-programs-initiatives/initiatives/ipec/health-care-reform-and-ipe>

SPSS for Windows, Rel. 23.0.1. 2015. Chicago: SPSS Inc.

Strang, H. R., & Meyers, S. C. (1987). A microcomputer simulation to evaluate and train effective intervention techniques in listening partners of preschool stutterers. *Journal of Fluency, Disorder, 12*, 205 – 215.

SurveyGizmo. (2016). <https://www.surveygizmo.com/>

Syder, D. (1996). The use of simulated clients to develop the clinical skills of speech and language therapy students. *European Journal of Disorders of Communication, 31*(2): 181–92.

Tassone, M., & Lowe, M. (2015, November, 12). *Creating Exceptional Interprofessional Teaching & Learning*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.

Thistlethwaite, J., & Nisbet, G. (2007). Interprofessional education: What's the point and where we're at. *The Clinical Teacher, 4*, 67-72.

- Towle Harmon, M., Fangman Farrell, C., Watkins, K., Binder, M., & Hepperle, A. (2015, November, 13). *Let's Get Practical About Interprofessional Education/Collaboration*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Tucker, K., Wakefield, A., Boggis, C., Lawson, M., Roberts, T., & Gooch, J. (2003). Learning together: Clinical skills teaching for medical and nursing students. *Medical Education*, 37, 630-637.
- Tunstall-Pedoe, S., Rink, E., & Hilton, S. (2003). Student attitudes to undergraduate interprofessional education. *Journal of Interprofessional Care*, 17, 161-172.
- U.S. News & World Reports. (2016). *Best Health Care Jobs*. Retrieved from <http://money.usnews.com/careers/best-jobs/rankings/best-healthcare-jobs>
- Watson, J., & Farmer, D. (2015, November, 14). *Cross-Institutional Interprofessional Education: Reflections & Considerations*. Presented at the American Speech, Language, Hearing Association Conference, Denver, CO.
- Ward , E. C . , Baker , S. , Duggan , B. , Wall , L. , Hancock , K. , Bassett , L. , et al . (2012) . *Use of simulation technology for clinical skills development in tracheostomy management*. Poster Presentation, Dysphagia Research Society Conference, Toronto, Canada .
- Williams, S., & Schreiber, L. R. (2010). Beyond the big screen: Avatars prepare graduate students for real-world practice. *Perspectives on School-Based Issues*, 11, 50 – 55.

- Wood, D., F. (2003). ABC of learning and teaching in medicine: Problem based learning. *BMJ*, 326, 328-331. <http://dx.doi.org/10.1136/bmj.326.7384.328>
- Woodhouse, D., & Pengally, P. (1992). *Anxiety and the dynamics of collaboration*. Aberdeen: Aberdeen University Press.
- World Health Organization (WHO). (2010). *Framework for action on interprofessional education & collaborative practice*. Geneva: World Health Organization.
- Zraick, R. (2004). Playacting with purpose: Using standardized patients to assess clinical skills. *The ASHA Leader*, 9, 22.
- Zraick, R., Allen, R., & Johnson, S. (2003). The use of standardized patients to teach and test interpersonal and communication skills with students in speech-language pathology. *Advances in Health Sciences Education* , 8, 237 – 24 .
- Zwarenstein M, Goldman J, Reeves S. (2009). Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews* 2009, Issue 3. Art. No.: CD000072.
DOI: 10.1002/14651858.CD000072.pub2.

Appendix A: Invitation to Participate for Questionnaires I & II

To: [email]

From: Meaghan Goodman (meg01018@ku.edu)

Subject: 10 minute Dissertation Questionnaire_Invitation to Participate

Hello,

My name is Meaghan Goodman, and I am a doctoral student at the University of Kansas. I am interested in getting an in-depth look at Interprofessional Education (IPE) in Communication Science Disorder programs across the United States.

IPE is best defined as the process by which a group of students from two or more health, social care, and educational professions are learning **interactively** with each other during certain periods of their education. IPE should not be confused with multiprofessional education where students of two or more professions learn alongside one another: in other words, parallel rather than interactive learning (Freeth et al., 2005).

For over forty years medical and nursing disciplines have implemented IPE into their graduate programs. It's just starting to make an appearance in our graduate programs, and as such there are many unknowns for our field.

The purposes of my study are to identify a) how widespread IPE is within undergraduate and graduate CSD programs, b) the IPE demographics of these programs c) what outcomes programs are measuring, and d) potential barriers and successes of IPE in CSD programs. In order to gather this information, I am asking for your help in completing the **ten-minute** questionnaire that is linked to this email. Your name will not be associated with publication or reporting of these data.

Even if your program does not currently implement IPE, please consider taking the questionnaire to let us know that. It will give us an idea of how widespread IPE is, and the questionnaire will be considerably shorter (**less than 5 minutes** to complete).

Please connect to the link: [Click](#) to complete my questionnaire. By doing so, you are agreeing to participate.

Your answers will provide us with insight into how IPE is being incorporated in CSD programs across the United States.

Thank you!

Meaghan Goodman, M.A., CCC-SLP
Principal Investigator
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2101 Haworth Hall
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Lawrence, KS 66045
314-221-1000
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Jane Wegner, Ph.D., CCC-SLP
Faculty Supervisor
Dept. of Speech Language Hearing
2101 Haworth Hall
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Lawrence, KS 66045
785-864-4690
jwegner@ku.edu

Appendix B: Reminder Email for Questionnaires I & II

To: [email]

From: Meaghan Goodman (meg01018@ku.edu)

Subject: 10 minute Dissertation Questionnaire_Invitation to Participate

Hello,

My name is Meaghan Goodman, and I am a doctoral student at the University of Kansas. A couple weeks ago I invited you to participate in a **10-minute** questionnaire for my dissertation, which is examining Interprofessional Education (IPE) in Communication Science Disorder programs across the United States.

I am asking for your help in completing the questionnaire that is linked to this email. Your name will not be associated with publication or reporting of these data.

If you have already started filling out the questionnaire, the link below will take you to the last place you left off in the questionnaire.

Even if your program does not currently implement IPE, please consider taking the questionnaire to let us know that. It will give us an idea of how widespread IPE is, and the questionnaire will be considerably shorter (**less than 5 minutes** to complete).

Please [Click Here to Start the Questionnaire](#) By doing so, you are agreeing to participate.

Your answers will provide us with insight into how IPE is being incorporated in CSD programs across the United States.

Thank you!

Meaghan Goodman, M.A., CCC-SLP
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Appendix C: National Chair/Program Director Questionnaire (Questionnaire I)

Consent

The Department of Speech Language Hearing at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand how widespread Interprofessional Education (IPE) is within our field's undergraduate and graduate programs, what and how outcomes are measured, and what barriers and proponents of success are evident in programs implementing IPE. This will entail your completion of a questionnaire. Your participation is expected to take approximately **10 minutes to complete**. The content of the questionnaire should cause no more discomfort than you would experience in your everyday life.

Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of how IPE is being incorporated in CSD programs across the United States.

Your participation is solicited, although strictly voluntary. Completion of the questionnaire indicates your willingness to take part in this study and that you are at least 18 years old. Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. Survey Gizmo has the ability to compile the information gathered on the completed questionnaires and respondents are not directly associated with their completed questionnaire. The researchers will not maintain paper records of respondents and their corresponding questionnaires. Survey Gizmo employs multiple levels of security to decrease the possibility that third parties can access the gathered data. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response.

If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Sincerely,

Meaghan Goodman, M.A., CCC-SLP
Principal Investigator
Dept. of Speech Language Hearing
2101 Haworth Hall
University of Kansas
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Page 1: Demographics

1) What is the name of your academic institution?

2) How long has your CSD program been operating?

3) In which discipline(s) does your program offer degrees?

- Speech Language Pathology only
- Audiology only
- Both Speech Language Pathology & Audiology

4) Is your program located within a private or public university?

- Private
- Public

5) Please describe your institution.

- RU/VH: Research Universities (very high research activity)
- RU/H: Research Universities (high research activity)
- DRU: Doctoral/Research Universities
- Master's L: Master's Colleges and Universities (larger programs)
- Master's M: Master's Colleges and Universities (medium programs)
- Master's S: Master's Colleges and Universities (smaller programs)
- Bac/A&S: Baccalaureate Colleges--Arts & Sciences
- Bac/Diverse: Baccalaureate Colleges--Diverse Fields
- Other:

6) Please describe your institution's geographic location.

- Rural
- Urban
- Suburban

Page 2: Administrative Location

7) What is the administrative location of your program within your academic institution?

- Allied Health; Health Sciences; Health Professions; Public Health
- Arts; Sciences; Humanities; Social and Behavioral Sciences
- Audiology; Speech-Language Pathology; Communication Disorders
- Communication; Fine Arts
- Education
- Medicine
- Professional Programs/Studies
- Other (please specify):

Page 3: Program Size

8) About how many students are in your undergraduate CSD program?

- Number of students:
- We do not have an undergraduate program

9) How many graduate students are in your Masters level Speech Language Pathology program?

- Number of students:
- We are an undergraduate only program

Page 4: Faculty

Describe your departmental faculty

10) How many full time ACADEMIC faculty members are in your department?

How many full time CLINICAL faculty members are in your department?

How many part time ACADEMIC faculty members are in your department?

Part time is defined as an appointment of 50-99%

How many part time CLINICAL faculty members are in your department?

Part time is defined as an appointment of 50-99%

Page 5: Status of IPE in Program

Interprofessional Education (IPE) is best defined as the process by which a group of students from two or more health, social care, and educational professions are learning interactively with each other during certain periods of their education.

IPE should not be confused with multiprofessional education where students of two or more professions learn alongside one another: in other words, parallel rather than interactive learning (Freeth et al., 2005).

11) Does your program currently incorporate Interprofessional Education (IPE)?

- Yes
- No

Question Logic: This question appeared when participants answered “Yes” to question (#11), "Does your program currently incorporate Interprofessional Education (IPE)?"

12) In which programs does your department offer IPE experiences?

- Undergraduate Program
- Graduate Program

Question Logic: This question appeared when participants answered “Yes” to question (#11), "Does your program currently incorporate Interprofessional Education (IPE)?"

13) In what settings does your program offer IPE experiences to your students?

	Undergraduate Program	Graduate Program
Medical Setting	<input type="checkbox"/>	<input type="checkbox"/>
Educational Setting. For example, with special education and/or school psychology students.	<input type="checkbox"/>	<input type="checkbox"/>

Page 6: Plan to Implement IPE?

Page Logic: This page ONLY appeared when participants answered “No” to question (#11), "Does your program currently incorporate Interprofessional Education (IPE)?"

14) Is your program planning to incorporate Interprofessional Education?

- Yes
- No

Timeline for Implementing Interprofessional Education (IPE)

Question Logic: This question ONLY appeared when participants answered “Yes” to question (14) "Is your program planning to incorporate Interprofessional Education?"

15) When is your program planning to implement IPE?

- 0-11 months
- 1 -3 years
- 4-6 years

Not Planning to Implement IPE

Question Logic: This question ONLY appeared when participants answered “No,” to question #14) "Is your program planning to incorporate Interprofessional Education?"

16) Why is your program not planning to implement IPE?

- IPE is not a priority right now.
- We are strained by academic accreditation.
- Geographical isolation from other disciplines (e.g. Our campus does not have other departments/programs in which we can incorporate IPE).
- Our lecture and clinical curriculum is already too crowded.
- We have difficulty identifying and involving key partners and stakeholders to develop, plan, and implement IPE.
- Lack of resources (e.g. faculty and staff time, technology, adequate space, professional development).
- Insufficient funding for IPE activities (courses & clinical placements).
- Lack of support from institutions/colleges.
- Resistance from staff in your department.
- Resistance from staff in other departments.
- Lack of sufficient data, standard setting, bench-marking, and dissemination of best practice in IPE.
- Other (Please specify): _____
- Other (Please specify): _____
- Other (Please specify): _____

Page logic: This page ended the questionnaire when:

A participant selected “No” to the question "Does your program currently incorporate Interprofessional Education (IPE)?"

Participants were then shown the Thank you Page:

Thank you!

For the purpose of this study, we are only investigating undergraduate and graduate level Speech-Language programs that are currently implementing IPE.

Thank you for taking the initial part of our questionnaire!

Page 7: Currently Implementing IPE

Page entry logic: This page ONLY appeared when participants answered “Yes” to question (#11) "Does your program currently incorporate Interprofessional Education (IPE)?"

17) How long has your program been incorporating IPE?

- 0-11 months
- 1-3 years
- 4-6 years
- More than 6 years

18) How would you rate your programs current status of IPE?

- Just starting
- Emerging
- Champions of IPE (fully implemented and running)

Page 8: IPE Expectations

19) Who is driving IPE initiatives* in your department?

***This could be faculty who are teaching classes, clinical faculty who are supervising IPE, or faculty who are interested in implementing IPE.**

- Administration
- Faculty

20) Please provide the names of members in your department who are helping drive IPE Initiatives.

***These members will be included in our survey of Faculty incorporating IPE in November 2015. Their names will not be published or associated with the evaluation of the data.**

21) Is there an emphasis or expectation within your academic institution for IPE?

- Yes
- No

Question Logic: This question appeared when participants answered "Yes" to question (#21) "Is there an emphasis or expectation within your academic institution for IPE?"

22) What is the emphasis or expectation within your academic institution for IPE?

23) What level does your college in which your program resides support IPE?

- 1-No Support at All 2 3 4 5- Extremely Supported

Question Logic: This question ONLY appeared when participants answered “2, 3, 4, or 5” to question (#23) "What level does your college in which your program resides support IPE?"

24) In what ways is your program supported by your college to implement IPE?

- In-service training/Professional development
- Funding
- Other:
- Other:
- Other:
- Recognition Awards
- Guidance in developing IPE curriculum
- Guidance in evaluating IPE initiatives
- Guidance in identifying other departments to include in your IPE

Page 9: Interprofessional Education Activities & Courses

IPE is best defined as the process by which a group of students from two or more health, social care, and educational professions are learning interactively with each other during certain periods of their education.

IPE should not be confused with multiprofessional education where students of two or more professions learn alongside one another: in other words, parallel rather than interactive learning (Freeth et al., 2005).

25) When do IPE activities* take place in your students' programs?

*IPE activities are defined as shared lecture/class learning and/or clinical practica

- At the beginning of their program
- In the middle of their program
- At the end of their program
- Throughout the students' entire program
- Other (please specify):
- Other (please specify):

Page 10: Lecture/Class Based IPE

For the purpose of this questionnaire, **Lecture/Class** based IPE refers to a course in which:

- Students from more than one discipline are enrolled and learning interactively from each other versus alongside each other.
- Specific activities take place to help students learn about other disciplines.
- Majority of course content is directed towards IPE.

EXAMPLE:

A capstone course incorporating philosophical and theoretical foundations of interprofessional health care, ethics, and/or team work/building across multiple disciplines would be considered a lecture/class based example of IPE.

26) Do students in your program have the opportunity to enroll in lecture/class based IPE?

- Yes
- No

Page 11: Clinical Based IPE

Clinical based IPE refers to a clinical placement in which:

- Students from more than one discipline are enrolled and learning interactively from each other versus alongside each other.
- Specific activities take place to help students learn about other disciplines.
- Majority of content is directed towards IPE.

EXAMPLE:

A simulation activity incorporating philosophical and theoretical foundations of interprofessional health care, ethics, and/or team work/building across multiple disciplines would be considered a clinical based example of IPE.

27) Do students in your program have the opportunity to enroll in clinical based IPE?*

- Yes
- No

Page 12: Evaluation

Validation: Min. answers = 9 (if answered) Min. answers per row = 1 (if answered)

28) How does your program evaluate the following outcome measures of your IPE initiatives?*

	Not Measured At This Time	Questionnaires	Student portfolios	Observation	Forums/ Discussions with faculty	Forums/Discussions with students
Values & Ethics for Interprofessional Practice Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roles & Responsibilities Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interprofessional Communication Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teams & Teamwork Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reaction Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications of Perceptions & Attitudes Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Behavioral Change Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change in Organizational Practice Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient/Client Benefit Outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 13: Evaluation Frameworks

29) Does your program use a published evaluation framework to evaluate your IPE initiatives?

- Yes
 No

Question Logic: The following question was ONLY shown when participants answered “Yes” to question (#29) "Does your program use a published evaluation framework to evaluate your IPE initiatives?"

30) Which evaluation framework(s) do you use?

- Kirkpatrick Model (unmodified, 1967, 1992, 1996)
 Kirkpatrick Model (as modified by Freeth, Hammick, Koppel, Reeves & Barr, 2002)
 Interprofessional Education for Collaborative Patient-centered Practice (IECPCP model)
 CIPP (content, input, process, and production) Evaluation Model
 Results Based Logic Model
 Other (please specify):
 Other (please specify):
 Other (please specify):

Page 14: Barriers of IPE

31) To what extent do these INSTITUTIONAL barriers play a factor for your program?

	1- Not a barrier at all	2	3	4	5- Extreme barrier
Lack of buy-in from institutional leaders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of sufficient data, standard setting, benchmarking, and dissemination of best practice of IPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some administration view IPE as a distraction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resistance from administrative leaders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of commitment from departments and colleges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agreement on joint financial arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 15: Success in IPE

32) To what extent have the following played a role in your success with INSTITUTIONAL barriers?

	1- No Impact on Success	2	3	4	5- Very Big Impact on Success
University wide recognition that teaching interprofessional courses is a necessary form of academic activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Formal Letters of Agreement (LOA) between all parties collaborating in IPE. *Used to become a dossier of the faculty member so that this interprofessional teaching may be recognized for merit increases, promotion, and tenure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commitment from institutional/academic leadership (including deans, associate deans, directors and department heads).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The development, promotion, and implementation of system-level incentives and rewards for faculty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 16: Follow Up

33) Would you be interested in being contacted for more detailed information about your program's IPE initiatives in the future?

- Yes
 No

Question Logic: The following question ONLY appeared IF participants responded “Yes” to question (#33), "Would you be interested in being contacted for more detailed information about your program's IPE initiatives in the future?"

34) Please provide an email address or phone number where you may be contacted.

Page logic: This page ended the questionnaire. Participants were then shown the Thank you Page:

Thank You!

Thank you for taking our questionnaire. Your response is vital to finding out how IPE is incorporated within our field's undergraduate and graduate training!

Appendix D: National Faculty Questionnaire (Questionnaire II)

Consent

The Department of Speech Language Hearing at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are conducting this study to better understand how widespread Interprofessional Education (IPE) is within our field's undergraduate and graduate programs, what and how outcomes are measured, and what barriers and proponents of success are evident in programs implementing IPE. This will entail your completion of this questionnaire. Your participation is expected to take approximately 10- 15 minutes to complete. The content of the questionnaire should cause no more discomfort than you would experience in your everyday life.

Although participation may not benefit you directly, we believe that the information obtained from this study will help us gain a better understanding of how IPE is being incorporated in CSD programs across the United States.

Your participation is solicited, although strictly voluntary. Completion of the questionnaire indicates your willingness to take part in this study and that you are at least 18 years old. Your name will not be associated in any way with the research findings. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. Survey Gizmo has the ability to compile the information gathered on the completed questionnaires and respondents are not directly associated with their completed questionnaire. The researchers will not maintain paper records of respondents and their corresponding questionnaires. Survey Gizmo employs multiple levels of security to decrease the possibility that third parties can access the gathered data. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response.

If you would like additional information concerning this study before or after it is completed, please feel free to contact us by phone or mail.

Sincerely,

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Page 1: Demographics

1) What is the name of your academic institution?

***The data from this question will only be used to analyze response rate, the name of your institution will not be published. ***

- Academic Institution:
- I prefer not to say.

2) In which discipline(s) do you teach?*

- Speech Language Pathology only
- Audiology only
- Both Speech Language Pathology & Audiology
- Other - Please specify:

3) Please describe your appointment.

- Tenure Track
- Clinical Track
- Adjunct
- Other - Please specify:

4) Please describe your appointment.*

- Full time (100%)
- Part time (50-99%)
- Less than part time (49% and under)

Page 2: Current Status of Interprofessional Education

IPE is best defined as the process by which a group of students from two or more health, social care, and educational professions are learning interactively with each other during certain periods of their education.

IPE should not be confused with multiprofessional education where students of two or more professions learn alongside one another: in other words, parallel rather than interactive learning (Freeth et al., 2005).

5) Does your program currently incorporate Interprofessional Education (IPE)?*

Yes

No

Question Logic: This question appeared when participants answered “Yes” to question "Does your program currently incorporate Interprofessional Education (IPE)?"

6) In which programs and settings does your program offer IPE experiences to your students?

****If you are not sure which settings undergraduate and graduate students have available to them, please select "Unsure"**

	Undergraduate Program	Unsure	Graduate Program	Unsure
Medical Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education Setting. For example, with special education and/or school psychology students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: Please Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: Please Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question Logic: This question appeared when participants answered “No” to question "Does your program currently incorporate Interprofessional Education (IPE)?"

7) Why does your program not incorporate IPE?*

****Please select ALL that apply.**

- IPE is not a priority right now.
- Geographical isolation from other disciplines (e.g. Our campus does not have other departments/programs in which we can incorporate IPE).
- Our lecture and clinical curriculum is already too crowded.
- We have difficulty identifying and involving key partners and stakeholders to develop, plan, and implement IPE.
- Lack of resources (e.g. faculty and staff time, technology, adequate space, professional development).
- Insufficient funding for IPE activities (courses & clinical placements).
- Lack of support from institutions/colleges.
- Resistance from staff in your department.
- Resistance from staff in other departments.
- Lack of sufficient data, standard setting, bench-marking, and dissemination of best practice in IPE.
- IPE would be considered an "extra" to my workload.

Other:

Other:

Other:

Other:

Page logic: This page ended the questionnaire when:

A participant selected “Other-Please specify) to the question "In which discipline(s) do you teach?" #2,

OR

A participant selected “No” to the question "Does your program currently incorporate Interprofessional Education (IPE)?"

Participants would then be shown the Thank you Page:

Thank you!

At this time, we are only researching CSD programs that are currently implementing IPE. Thank you for completing this questionnaire!

Page 3: Lecture & Clinical Based IPE Activities

Page Logic: This page was shown when participants answered “Yes” to question "Does your program currently incorporate Interprofessional Education (IPE)?"

8) What types of IPE activities are students from your program/department exposed to in lecture based & clinical based learning?*

These can be activities that you personally supervise, or activities that you know take place within your department (even though another faculty member may facilitate them).

Please select all that apply.

	Program Setting		
	Undergraduate	Graduate	Both Undergrad & Grad
Guest lectures from faculty of various disciplines	[]	[]	[]
Students present/educate other disciplines about their scope of practice	[]	[]	[]
Students learn about OTHER disciplines roles/responsibilities (scope of practice)	[]	[]	[]
Training on professionalism	[]	[]	[]
Team building exercises	[]	[]	[]
Reciprocal observation (ex: A speech-pathology student observes a student from another discipline, and vice versa)	[]	[]	[]
Team based telepractice	[]	[]	[]
Interdisciplinary ethics	[]	[]	[]
Interdisciplinary evaluation	[]	[]	[]
Interdisciplinary therapy	[]	[]	[]

<p>Simulation exercises (everything from tabletop exercises and simple role-play to medium-fidelity simulation onto high-fidelity clinical simulations supported by sophisticated technology).</p>	<p>[]</p>	<p>[]</p>	<p>[]</p>
<p>Problem based learning (i.e., process beginning with a patient problem serving as the stimulus, small cross-disciplinary groups work through problem to come to a team decision on patient care)</p>	<p>[]</p>	<p>[]</p>	<p>[]</p>
<p>Case based learning (ex: written or oral cases are presented to students and they are expected to correctly identify roles/responsibilities of other students, or are expected to work through the cases with students from other disciplines-</p>	<p>[]</p>	<p>[]</p>	<p>[]</p>

Page 4: Lecture/Class Based IPE

Page Logic: This page was shown when participants answered “Yes” to question "Does your program currently incorporate Interprofessional Education (IPE)?"

For the purpose of this questionnaire, Lecture/Class based IPE refers to a course in which:

- students from more than one discipline are enrolled
- specific activities take place to help students learn about other disciplines
- majority of course content is directed towards IPE

EXAMPLE:

A capstone course incorporating philosophical and theoretical foundations of interprofessional health care, ethics, and/or team work/building across multiple disciplines would be considered a lecture/class based example of IPE.

9) Do the students in your program have the opportunity to enroll in lecture/class based IPE?

If your department does not have both an undergraduate or graduate program, please select "NA" for that corresponding program.

	Yes	No	I do not know	NA
Undergraduate Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Graduate Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question Logic: This question appeared when participants answered “Yes” to question “Do the students in your program have the opportunity to enroll in lecture/class based IPE,” in either the undergraduate or graduate program(s).

10) Do you teach or co-teach any lecture/class based IPE?*

Yes

No

Page 5: Lecture/Class Based IPE

Page Logic:

This question appeared when a participant answered “Yes” to question “Do the students in your program have the opportunity to enroll in lecture/class based IPE,” in either the undergraduate or graduate program(s).

AND

A participant selected “Yes” in response to “Do you teach or co-teach any lecture/class based IPE?” #10

11) While it may vary from course to course and semester to semester, how many different disciplines are represented in lecture/class based courses that you teach?

	Undergraduate Program	Graduate Program
1-2 different disciplines	<input type="checkbox"/>	<input type="checkbox"/>
3-4 different disciplines	<input type="checkbox"/>	<input type="checkbox"/>
5-6 different disciplines	<input type="checkbox"/>	<input type="checkbox"/>
More than 6 different disciplines	<input type="checkbox"/>	<input type="checkbox"/>

12) What other student backgrounds do students from your program learn with in lecture/class based learning?

Please select all that apply.

	Undergraduate	Graduate	BOTH Undergrad & Grad
Adaptive PE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applied Behavioral Analysis (ABA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Athletic Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical & Health Psychology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counseling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deaf Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dental	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dietetics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education (not including special education, see below)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geriatrics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Care Administration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Information Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Health Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Sciences Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kinesiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laryngology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical Laboratory Science (MLS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Music Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nursing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Optometry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physician Assistants (PA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-Physical Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-Social Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prosthetics and Orthotics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Psychology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiation Therapy (RADT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading/Literacy Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rehabilitation Science and Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sports Medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 6: Lecture/Class Based IPE

Page Logic:

This question appeared when a participant answered “Yes” to question “Do the students in your program have the opportunity to enroll in lecture/class based IPE,” in either the undergraduate or graduate program(s).

AND

A participant selected “Yes” in response to “Do you teach or co-teach any lecture/class based IPE?” #10

13) What topics make up the IPE curriculum content in your courses?

Please select all that apply.

- | | |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <input type="checkbox"/> Students’ scope of practice | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Scope of practice of other disciplines | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Training & specializations of YOUR students’ discipline | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Training & specializations of other disciplines | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Professional Cultures | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Treatment practices of YOUR students’ discipline | <input type="checkbox"/> Other - Please Specify:
<input type="text"/> |
| <input type="checkbox"/> Treatment practices of other disciplines | |
| <input type="checkbox"/> Team building skills | |
| <input type="checkbox"/> Ethics | |

Page 7: Clinical Based IPE

Clinical based IPE refers to a clinical placement in which:

- students from more than one discipline are represented
- specific activities take place to help students learn about other disciplines
- majority of content is directed towards IPE
- students are **interactively** learning with each other versus learning alongside each other

EXAMPLE:

A simulation activity incorporating philosophical and theoretical foundations of interprofessional health care, ethics, and/or team work/building across multiple disciplines would be considered a clinical based example of IPE.

14) Do students in your program have the opportunity to enroll in a clinical based IPE experience?

If your department does not have both an undergraduate or graduate program, please select "NA" for that corresponding program.

	Yes	No	I do not know	NA
Undergraduate Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Graduate Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question Logic: This question appeared when participants answered “Yes” to question “Do you supervise or facilitate any clinical based IPE activities?” in either the undergraduate or graduate program(s).

15) Do you supervise or facilitate any clinical based IPE activities?

- Yes
- No

Page 8: Clinical Based IPE

Page Logic:

This question appeared when a participant answered “Yes” to question “Do the students in your program have the opportunity to enroll in lecture/class based IPE,” in either the undergraduate or graduate program(s).

AND

A participant selected “Yes” in response to "Do you supervise or facilitate any clinical based IPE activities?" #15

16) What types of interprofessional teams do students from your program have the opportunity to work on?

These do not necessarily have to be teams you supervise.

Please select all that apply.

	Undergraduate Program	Graduate Program	BOTH Undergrad & Grad
Advocacy Teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deaf Education Teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Early Childhood Teams (e.g. Learning through Everyday Activities and Partnerships -LEAP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individualized Education Plan Teams (school based IPE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individualized Family Service Plan Teams (Part C IPE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language & Literacy Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Student Intervention Teams (Response to Intervention)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amyotrophic Lateral Sclerosis (ALS) Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cranio-Facial and Cleft Palate Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dementia Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developmental (Autism) Evaluation Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dysphagia/Swallow Evaluation Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ear Nose & Throat (Assessment and treatment of phonatory and swallow disorders)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parkinson's Teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Augmentative Evaluation Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 9: Clinical Based IPE

Page Logic:

This question appeared when a participant answered “Yes” to question “Do the students in your program have the opportunity to enroll in lecture/class based IPE,” in either the undergraduate or graduate program(s).

AND

A participant selected “Yes” in response to "Do you supervise or facilitate any clinical based IPE activities?" #15

17) What other professional students do students from your program learn with in clinical based learning?

Please select all that apply.

	Undergraduate	Graduate	BOTH Undergrad & Grad
Adaptive PE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applied Behavioral Analysis (ABA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Athletic Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical & Health Psychology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counseling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deaf Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dental	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Dietetics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Education (not including special education, see below)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geriatrics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Care Administration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Information Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Sciences Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kinesiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laryngology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical Laboratory Science (MLS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Music Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nursing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Optometry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Pharmacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physician Assistants (PA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-Physical Therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-Social Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prosthetics and Orthotics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Psychology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiation Therapy (RADT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading/Literacy Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rehabilitation Science and Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special Education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sports Medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other- Please Specify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 10: Potential Barriers

We would like to get an idea of what kind of barriers CSD programs have faced in implementing IPE.

18) To what extent do these BARRIERS play a factor for your program?

	1- Not a barrier at all	2	3	4	5- Extreme barrier
Inequalities in the number of students enrolled across programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aligning clinical placement timetables to enable a range of professions to participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incorporating IPE activities into an already crowded class/lecture curriculum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of faculty resources (e.g., time/workloads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of a unified focus by participating disciplines on developing curricula and interactions that can truly be termed interprofessional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being able to involve key partners/stakeholders in the development, planning and implementation of IPE activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Professional or “turf” protectionism and/or pre-existing role stereotypes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having insufficient clinical sites or room space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of technology needed to implement IPE activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of time for staff development (e.g., mentor and faculty training)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 11: Success in IPE Initiatives

We'd like to get an idea of what has contributed to the success of IPE initiatives in CSD programs.

19) To what extent have the following played a role in the **SUCCESS** of your IPE initiatives?

	1- No Impact on Success	2	3	4	5- Very Big Impact on Success
Authenticity and customization of IPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allocation of funding and faculty time for infrastructure to help with both IPE coordination and program development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development and exploration of common goals, values, and beliefs of the different professional groups involved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collaboration in the planning process (e.g. curricular/clinical content), and sharing the conceptual model (or choice of models) for the development process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of faculty role models and mentorship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Informing faculty about the aims of the IPE initiative and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

where it fits within existing programs.					
Preparation and continuing support of staff (e.g. professional development, faculty-colleague role modeling partnership).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faculty and staff are devoted to the IPE initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The establishment of strong community partnerships (for clinical placements).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page logic: This page ended the questionnaire. Participants were then shown the Thank you Page:

Thank You!

Thank you for completing this questionnaire. Your response is vital to finding out how IPE is incorporated within our field's undergraduate & graduate training!