Preparing Speech–Language Pathologists for Early Intervention: An Exploration of Practice–Based Interprofessional Education

by

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Abstract

Providing high–quality early intervention (EI) services to young children with disabilities requires a dedicated team of collaborative practice–ready professionals. Yet, speech–language pathologists (SLPs) report feeling unprepared to collaborate in EI. Recent research on IPE at the pre–service level for SLPs is limited and consists primarily of case–based learning activities focused on building collaborative knowledge and skills. However, the mechanisms that foster willingness to collaborate in future practice settings are not well understood. The emerging concept of interprofessional socialization (IPS) captures this transformative learning process. This mixed methods case study employed a pre–post design to investigate the IPS process in pre–service SLPs (n = 3) who engaged in an innovative practice–based IPE program through a university–community partnership. During the program, participants collaborated with in–service early care providers at a licensed child day center to provide developmental services. Results were that participants began the IPS process and enhanced their perception of collaborative competence after the program. Challenges to the IPS process included limited time and space as well as professional misconceptions. Further research is needed to better understand the IPS process during practice–based IPE in pre–service SLPs as well as the factors underlying successful collaboration across service levels in the early childcare setting.

Keywords: Collaborative competence, collaborative practice, early care provider, early intervention, practice–based interprofessional education, interprofessional socialization, speech–language pathologist

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And to a little daydreamer from long ago: You have a good brain, I promise ♥

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List of Abbreviations

Term	Definition
ASHA	American Speech–Language–Hearing Association
ECSE	Early Childhood Special Education/Educator
ECP	Early Care Provider
EI	Early Intervention/Interventionist
ICCAS	Interprofessional Collaborative Competency Attainment Survey
IFSP	Individualized Family Service Plan
IDEA	Individuals with Disabilities Education Act
IPE	Interprofessional Education
IPEC	Interprofessional Education Collaborative
IPS	Interprofessional Socialization
ISVS	Interprofessional Socialization and Valuing Scale
OT	Occupational Therapy/Therapist
PT	Physical Therapy/Therapist
SLP	Speech–Language Pathology/Pathologist
PSP	Pre–service Professional
DBHDS	Virginia Department of Behavioral Health and Developmental Services

Glossary

Term	Definition
Caregiver (or caretaker)	Someone who is responsible for taking care of another person, for example, a person who has a disability, or is sick or very young (Collins English Dictionary, n.d.).
Child day center	A day program offered to (i) two or more children younger than 13 years of age in a facility that is not the residence of the provider or of any of the children in care or (ii) 13 or more children at any location (8VAC20–780–10).
Collaborative practice	When multiple health workers from different practice professional backgrounds work together with patients, families, caregivers or caretaker, and communities to deliver the highest quality of care across settings (IPEC, 2023, p. 32).
Competence	The state of proficiency of a person to perform the required practice activities to the defined standard. This incorporates having the requisite competencies to do this in a given context. Competence is multidimensional and dynamic. It changes with time, experience, and setting (IPEC, 2023, p. 32).
Competency (or competencies)	The abilities of a person to integrate knowledge, skills, and attitudes in their performance of tasks in a given context. Competencies are durable, trainable, and, through the expression of behaviors, measurable (IPEC, 2023, p. 32).
Developmental services	The design of learning environments and activities that promote the child's acquisition of skills in a variety of developmental areas, including cognitive processes and social interaction; curriculum planning, including planned interaction of personnel, materials, and time and space that leads to achieving outcomes in the IFSP; providing families with information, skills, and support related to enhancing the skill development of the child; and working with the child with a disability to enhance the child's development (Infant & Toddler Connection of Virginia – Practice Manual, Glossary, p. 2).
Early care provider	Adults who provide care to young children outside of the home in center–based or home–based programs, Early Head Start or Head Start programs, private or public preschools (Sheppard & Moran, 2021, p. 2).

Early intervention services	Services provided through Part C designed to meet the developmental needs of children and families and to enhance the development of children from birth to age three years who have (i) a 25% developmental delay in one or more areas of development, (ii) atypical development, or (iii) a diagnosed physical or mental condition that has a high probability of resulting in a developmental delay (Infant & Toddler Connection of Virginia – Practice Manual, Glossary, p. 3).
Individualized family service plan	A written plan for providing early intervention services to an infant or toddler with a disability (IDEA, 2004).
Interprofessional	Occurring between or involving two or more different professions or professionals (Merriam–Webster, n.d.).
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 (WHO, 2010, p. 10).
Interprofessional identity	The development of a robust cognitive, psychological, and emotional sense of belonging to an interprofessional community(s), necessary to achieve shared context–dependent goals (Tong et al., 2020a, p. 6).
Interprofessional socialization	An iterative process in which members from different professions come together to learn about and value each other's perspectives and contributions, while dispelling misconceptions and prejudices, continuously working toward formation of a dual identity: one for professional identity and one for interprofessional identity (Dolan & Nowell, 2023, p. 10).
Learner	A person who is trying to gain knowledge or skill in something by studying, practicing, or being taught (IPEC, 2023, p. 35).
Natural environment(s)	Settings that are natural or typical for a same–aged child without a disability and may include the home or community settings (Infant & Toddler Connection of Virginia – Practice Manual, Glossary, p. 5).
Pre–service professional	Refers to a learner prior to graduating and obtaining full professional certification in their discipline.
Socialization	Refers to the values and beliefs that underlie a discipline or profession (King et al., 2016, p. 171).
Program evaluation	The application of social research methods to systematically investigate the effectiveness of social intervention … to improve social conditions (Rossi et al., 2019, p. 6).

Speech–language pathologist	The professional who engages in professional practice in the areas of communication and swallowing across the life span. *Communication* and *swallowing* are broad terms encompassing many facets of function. *Communication* includes speech production and fluency, language, cognition, voice, resonance, and hearing. *Swallowing* includes all aspects of swallowing, including related feeding behaviors (ASHA, 2016b).
Student	Learner (IPEC, 2023, p. 11).
Team–based interprofessional practice placement	A dedicated and prearranged opportunity for a number of participants from health, social care, and related professions to learn together for a period of time in the same setting as they perform typical activities of their profession as a team focused on a client–centered approach (Brewer & Barr, 2016, p. 747).

Chapter 1. Background

Defining Early Intervention

Governed by Part C of the Individuals with Disabilities Education Act (IDEA), early intervention (EI) services refer to developmental supports for infants and toddlers birth to 2 years with disabilities and their families (IDEA, 2004). States may extend EI eligibility to 5 years; however, children 3 to 5 years typically receive early childhood special education (ECSE) services under IDEA (2004), Part B. For brevity, support services for young children with disabilities will at times be referred to as EI/ECSE services.

EI services are designed to meet identified needs in one or more of the following developmental areas: physical, cognitive, communication, social or emotional, and adaptive (IDEA, 2004). These services are provided in the child's natural environment (IDEA, 2004). For most families (92.7%) this is the home, but childcare centers, preschools, and other community–based settings may serve as the natural environment (IDEA, 2004; U. S. Department of Education, 2022; Weglarz–Ward et al., 2020a).

EI services are family–centered and must use a team–based approach (ASHA, n.d.; IDEA, 2004). In addition to being a federal mandate, using a team approach is considered best practice for supporting young children with disabilities (Bruder, 2010; Division of Early Childhood, 2014; Horn & Jones, 2004) because no one provider has the expertise to completely support this population (Lieberman–Betz et al., 2019). Therefore, high–quality EI services depend heavily on high–quality teaming practices between service providers, the family, and other support personnel in the child's natural environment.

Role of Speech–Language Pathologists in Early Intervention

In addition to the family, speech–language pathologists (SLPs) are germane to the EI process. SLPs are masters–level clinicians who practice in the areas of communication and swallowing (ASHA, 2016b). In EI, SLPs screen, evaluate, and treat young children with

delays and disabilities in these areas (ASHA, n.d.). Other roles and responsibilities include making eligibility determinations, writing Individualized Family Service Plans (IFSPs), and coordinating services (12VAC35–225–90; ASHA, n.d.). Speech–language pathology represents a plurality (33%) of clinically based EI services in Virginia with physical (23.9%) and occupational therapy (18.5%) being the second and third most common, respectively (DBHDS, 2021, p. 9).

Role of Early Care Providers in Early Intervention

General members of the early childcare workforce or early care providers (ECPs) assume various titles such as center director, lead teacher, or assistant teacher (Sheppard & Moran, 2021). Although ECP qualifications differ by state (Moran, 2021), licensed child day center personnel in Virginia must hold a high school diploma and possess a bachelor's degree in a child–related field or equivalent work experience (8VAC20–780–180 et seq.).

Given that many children with disabilities spend significant time in childcare settings, ECPs play an important role in supporting the EI population (Sheppard & Moran, 2021). ECPs may initiate the EI referral process by noticing and communicating developmental concerns to families (Sheppard & Moran, 2021). In addition to their role as a primary referral source (12VAC35–225–120), ECPs serve as valuable sources of information about how a child is functioning in the natural environment (Sheppard & Moran, 2021). This supports evaluation and assessment processes in EI. ECPs also carry over SLP services into daily routines in the childcare environment, which supports treatment (Sheppard & Moran, 2021).

Role of Collaboration in Early Intervention Provider Training

Since effective teaming is foundational to EI, training programs for EI providers must impart the knowledge and skills to collaborate across disciplines (Bricker et al., 2022; Crais et al., 2004; Prelock & Deppe, 2015). SLPs in particular are obligated by Principle IV of the code of ethics to maintain "collaborative and harmonious" interprofessional relationships

(ASHA, 2016a). Standard V–B of the Standards for the Certificate of Clinical Competence in Speech–Language Pathology requires that clinicians participate in supervised clinical experiences at the pre–service level to enhance capacity for collaborative practice (Council for Clinical Certification in Audiology and Speech-Language Pathology, 2018). Accordingly, the Council on Academic Accreditation in Audiology and Speech–Language Pathology (CAA) requires graduate programs to incorporate interprofessional education (IPE) opportunities into their curricula (CAA, 2023).

Defining Interprofessional Education

According to the World Health Organization (WHO), IPE "occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p. 13). IPE facilitates a "collaborative practice–ready workforce" equipped with the knowledge and skills to engage in effective teaming practices (WHO, 2010, p. 10).

Core Collaborative Competencies

IPE programs aim to develop competency across four core domains (see **Table 1**). The Interprofessional Education Collaborative (IPEC) created these competencies to be broad enough to meet discipline–specific standards but narrow enough for educational institutions to meet their individual needs (IPEC, 2016, p. 3).

Table 1

Core Competencies for Interprofessional Collaborative Practice

Competency	Definition
Values and ethics	Work with team members to maintain a climate of shared values, ethical conduct, and mutual respect.
Roles and responsibilities	Use the knowledge of one’s own role and team members’ expertise to address individual and population health outcomes.
Communication	Communicate in a responsive, responsible, respectful, and compassionate manner with team members.
Teams and teamwork	Apply values and principles of the science of teamwork to adapt one's own role in a variety of team settings.

Note. Sourced from IPEC (2023, p. 15).

Although originally designed to prepare pre–service professionals (PSPs) in healthcare, the IPEC (2023) competencies have been adapted for training PSPs in early childhood and educational settings (Coufal & Woods, 2018; Ludwig & Kerins, 2019).

Interprofessional Education Formats

The IPE literature is vast and particularly heterogeneous in format (Reeves et al., 2016). Common IPE formats are listed in **Table 2** and include case–study discussions, lectures, workshops, or collaborative projects (Barr et al., 2005).

Table 2

Types of Interprofessional Education Formats

Type	Activities
Action–Based	Collaborative inquiry, problem–based learning, case–based learning, joint projects or research.
Exchange–Based	Debates, games, case studies, narrative–based learning, appreciative enquiry, workshop.
Observation–Based	Joint visits, shadowing member(s) of another profession.
Practice–Based	Work related assignments, joint placements, out–placement in another professional setting.
Simulation–Based	Experiential groups, role playing activities, joint skills acquisition laboratories.

Note. Sourced from Barr (1996, pp. 344–346) and Barr (2005 et al., pp. 98–102).

Chapter 2. Conceptual Framework

The Theory–Practice Gap in Early Intervention

SLP graduate program directors report that their institution adequately prepares students for EI (Caesar, 2022). Yet, SLPs employed in EI settings report feeling unprepared by their graduate programs for collaborative practice in EI (Caesar, 2022). Indeed, SLPs appear to learn their collaborative skills through first–hand experience and on–the–job training rather than through their graduate training (Wallace et al., 2022, p. 805). Even when training on effective teaming is provided, the majority of SLPs employed in educational settings feel that this training is "not enough" (Pfeiffer et al., 2019, p. 644) and express a desire for more training in this area (Heilmann & Bertone, 2021; Wallace et al., 2022). Therefore, investigation is warranted of methods to promote closure of this apparent theory–practice gap in EI provider training.

Defining Interprofessional Socialization

The goal of IPE is to facilitate collaborative practice such as team–based EI service provision. Yet, understanding of this learning process is severely limited due to over–reliance on outcomes–based measures to evaluate IPE programs (Reeves et al., 2016). In other words, IPE is known to promote collaborative knowledge and skills but the mechanisms that drive this learning process and the context for effective IPE delivery are less understood (Reeves et al., 2016). The emerging concept of interprofessional socialization (IPS) seeks to describe this transformative learning process. IPS is defined as:

> [A]n iterative process in which members from different professions come together to learn about and value each other's perspectives and contributions, while dispelling misconceptions and prejudices, continuously working toward formation of a dual identity: one for professional identity and one for interprofessional identity. (Dolan & Nowell, 2023, p. 10)

Thus, IPE describes the learning environment and ideal outcomes while IPS refers to the learning process.

Theoretical Basis of the Interprofessional Socialization Process

Summarized in **Table 3**, Khalili et al. (2013) proposed a three–stage framework to describe the IPS process. In stage one, learners discuss professional misconceptions to diffuse potential professional identity threats and thus foster openness to collaboration (Khalili et al., 2013, p. 450). Stage two involves interprofessional role learning through team–based interactions that promote a sense of belonging to the interprofessional community (Khalili et al., 2013, p. 450). This facilitates the valuing of different professional perspectives, equity of roles, and, ultimately, increased readiness to collaborate in stage three (Khalili et al., 2013, p. 451). This iterative process culminates in formation of the dual professional and interprofessional identity (Khalili et al., 2013).

Table 3

Interprofessional Socialization Framework

Stage	Goal	Process	Outcome
I. Breaking down barriers	Reduce threats to professional identity	Discuss common misconceptions about professional roles	Improve readiness for interprofessional role learning
II. Interprofessional role learning	Increase capacity for shared decision making and power–sharing	Discuss shared roles and show mutual respect for professional roles	Enhance sense of belonging to the interprofessional team
III. Dual identity development	Internalize the dual identity	Reflective discussion of interprofessional partnership	Increase readiness to collaborate

Note. Adapted from Khalili & Orchard (2020, p. 2).

Khalili et al.'s (2013) framework relies on two theories from social psychology: social identity theory (SIT; Tajfel & Turner, 1986) and intergroup contact theory (ICT; Pettigrew, 1998). In the IPE context, SIT predicts that learners form a group professional identity as they are socialized into their discipline (Khalili et al., 2013; Tajfel & Turner, 1986). This fosters an in–group–out–group bias that may serve as a barrier to collaborative practice (Khalili et al., 2013). However, SIT predicts that modification of this identity may facilitate behavior changes, such those that promote collaborative practice (Khalili et al., 2013). ICT predicts that positive contact during IPE between in–groups and out–groups (i.e., groups of different professionals) could shift cognitive representation of the in–group to include members of the interprofessional team rather than only members of one's profession (Khalili et al., 2013; Pettigrew, 1998). There are four conditions that are necessary for this recategorization process to occur: perception of equal status within the situation, working towards common goals, intergroup cooperation (i.e., no competition between groups), and authority support (Pettigrew, 1998, p. 75).

Ideally, IPE programs that meet these conditions foster a safe learning environment within which PSPs recognize each other as valuable interprofessional team members, leading to collaborative practice and, therefore, more opportunities for positive interprofessional exposure that drives the IPS process (Dolan & Nowell, 2023). The interprofessional identity—"a robust cognitive, psychological and emotional sense of belonging to an interprofessional community(s), necessary to achieve shared context–dependent goals" (Tong et al., 2020a, p. 6)—forms in response to this iterative process over time (Khalili et al., 2013).

Challenge to the Interprofessional Socialization Framework

Tong et al. (2020a, p. 6) cautioned that conceptualizing the interprofessional identity primarily in terms of group membership does not account for the complex interplay of socio–cultural variables impacting identity development. However, Khalili et al. (2020)

acknowledged that the IPS process is mediated by individual (e.g., previous IPE experience) and systemic factors (e.g., healthcare delivery models). Additionally, the IPS framework has only been explored in exchange– and action–based IPE programs (e.g., Khalili & Orchard, 2020). Given that the IPS literature is both novel and limited, more research is ultimately needed to crystalize understanding of the IPS process, particularly in the practice–based IPE context (Dolan & Nowell, 2023).

Defining Practice–Based Interprofessional Education

Definitions of practice–based IPE vary by author and institution (Thistlethwaite, 2013) but for present purposes may be conceptualized as a subset of IPE delivered during fieldwork placements (Barr & Brewer, 2012). The success of this format depends on factors such as the degree of university support, quality of clinical supervisors, and the degree to which PSPs understand other team members' professional roles (Barr & Brewer, 2012; Thistlethwaite, 2013).

The specific type of practice–based IPE under investigation is a team–based interprofessional practice placement, which (Brewer & Barr, 2016) is defined as:

> A dedicated and prearranged opportunity for a number of participants from health, social care, and related professions to learn together for a period of time in the same setting as they perform typical activities of their profession as a team focused on a client–centered approach. (p. 747)

Conceptual Basis for Practice–Based Interprofessional Education

Unlike didactic training and case study discussions, practice–based IPE aims to close the theory–practice gap through experiential learning (Thistlethwaite, 2013). This form of learning involves the process of "connect[ing] knowing with doing" through interactions with others in the workplace (Gherardi, 2000, p. 218). According to Thistlethwaite (2013, p. 17), this is valuable because other IPE formats are merely proxies that do not fully capture the

complexity of real clinical practice settings. Additionally, coherence of educational and practice settings enhances student learning (Reeves et al., 2016). Therefore, practice–based IPE programs could provide an ideal context for the IPS process as potentially more authentic interprofessional learning opportunities (Thistlethwaite, 2013, p. 17).

Study Rationale

IPE is associated with positive gains in knowledge, skills, and attitudes among PSPs regarding collaborative practice (Reeves et al., 2016). Thus, IPE programs may contribute to closure of the theory–practice gap in EI by fostering the IPS process and building collaborative competence. However, the IPS process has yet to be documented between pre–service SLPs and in–service ECPs during practice–based IPE in the EI context. This study addressed these gaps in the IPE literature through a formative and process–focused evaluation of an innovative practice–based IPE program delivered to SLP graduate students at Radford University. The present investigation will address the following primary and secondary research questions:

1) To what extent does a practice–based IPE program support the IPS process in pre–service SLPs?
2) What is the perceived impact of a practice–based IPE program on collaborative competence in pre–service SLPs?

Chapter 3. Literature Review

Introduction

IPE interventions are well documented for a variety of PSPs (Reeves et al., 2016), but understudied in SLPs (Goldberg, 2015), particularly in the context of early childhood education and care (McMillan et al., 2020). Given that collaborative practice is foundational to the EI process (IDEA, 2004), it is imperative that providers are equipped with the knowledge and skills to collaborate effectively with other professionals in the child's natural environment. However, the siloed model of PSP training limits opportunities to develop these skills (Sargeant, 2009), which broadly contributes to the theory–practice gap in EI/ECSE settings (McMillan et al., 2020; Prelock & Deppe, 2015). This informs calls to expand IPE opportunities specifically for pre–service SLPs to promote effective teaming as licensed clinicians (Dobbs–Oates & Wachter Morris, 2016; Goldberg, 2015; Prelock & Deppe, 2015). Unfortunately, IPE experiences dedicated to preparing SLPs for the EI workforce are exceedingly limited (Olszewski et al., 2019). Practice–based IPE interventions may support closure of the theory–practice gap in EI by fostering an ideal context for interprofessional socialization and collaborative competence development in pre–service SLPs.

Potential Benefits of Interprofessional Education

While both siloed and IPE training pedagogies can support collaborative competence, certain learning outcomes are more likely to be achieved during IPE activities (Thistlethwaite & Moran, 2010). In general, these include outcomes related to gaining knowledge and skills for collaboration, enhancing interprofessional communication, and increased understanding of professional roles and responsibilities (Thistlethwaite & Moran, 2010, p. 511).

For Pre–Service Speech–Language Pathologists

Evidence from interviews and self–report measures indicate that pre–service SLPs who participate in IPE activities demonstrate greater knowledge of and comfort with

transdisciplinary teaming (Suleman et al., 2014; Weiss et al., 2020) as well as improved collaborative competence across all four IPEC domains (e.g., Miolo & DeVore, 2016). Namely, benefits of IPE for pre–service SLPs include improved awareness of one's own professional role and the roles and responsibilities of other professionals, improved perceived value of teamwork, and enhanced understanding of how collaborative practices benefit the patient (Curro et al., 2022; Lieberman–Betz, Brown, Vail, et al., 2023; Miolo & DeVore, 2016; Paul et al., 2020; Strunk et al., 2019; Wilson et al., 2017).

For Families

Additionally, while most collaborative models struggle to incorporate the family as a team member (D'Amour et al., 2005), IPE builds pre–service SLPs' capacity for family–centered care (Pawłowska et al., 2020; Suleman et al., 2013). For example, Suleman et al. (2013) found that after a brief, action–based IPE intervention, pre–service SLPs used less profession–specific terminology (e.g., articulation, graphemes, intelligible) when asked to describe their professional role to a parent on a reflective survey. This suggests that IPE promotes communicative efficacy across all EI team members, including the family.

In short, both quantitative and qualitative findings illustrate that IPE has the potential to equip pre–service SLPs with requisite knowledge and skills for high–quality, team–based EI service provision.

Potential Limitations of Non–Practice–Based Interprofessional Education

However, few studies in the last decade have examined IPE activities specifically dedicated to pre–service EI providers. The extant literature varies widely in IPE format (e.g., online course, workshop, skills laboratory), which limits comparison depth. More problematic, however, are the limitations to ecological validity accompanying each IPE format given that EI providers must deliver services in the natural environment (IDEA, 2004).

Consider that Myers et al. (2014) assessed perceptions of collaborative practice from discussion posts at the beginning and end of online graduate coursework for pre–service SLPs (n = 11), OTs (n = 6), and PTs (n = 2) training for EI or school–based practice. This online, exchange–based format could have contributed to surface–level conversation about interprofessional roles as evidenced by the PSPs maintaining stereotypical perceptions of their own and other disciplines across the semester (Myers et al., 2014). By contrast, Lieberman–Betz et al. (2023) reported that SLPs (n = 7), EI/ECSEs (n = 6), OTs (n = 16), and PTs (n = 7) improved understanding of professional roles across a weekend–long training institute. However, PSPs expressed confusion about when to consult other professionals in EI and how to address real–world barriers to collaboration (Lieberman–Betz et al., 2023). This suggests that while exchange– and action–based IPE experiences may add value to the curriculum, they potentially offer a less ideal platform for transformational learning.

These studies highlight the pitfall of incongruence between educational and clinical practice context (Thistlethwaite, 2013) when examining the impact of IPE on pre–service EI providers. Practice–based IPE may address this by offering potentially more authentic learning experiences (Thistlethwaite, 2013).

Potential Benefits of Practice–Based Interprofessional Education

Practice–based IPE programs are reported less frequently in the literature relative to other IPE formats because they are costly to develop and maintain (Barr & Brewer, 2012). As a case in point, only five small–scale investigations report on practice–based IPE experiences for pre–service SLPs in educational settings (Miolo & DeVore, 2016; Pfeiffer et al., 2022; Weiss et al., 2020; Wilson et al., 2017, 2019). Of these, three involve a public–school (Weiss et al., 2020; Wilson et al., 2017, 2019) and just two involve an EI/ECSE practice setting (Miolo & DeVore, 2016; Pfeiffer et al., 2022).

Collaboration at the Pre–Service Level

Both Miolo and DeVore (2016) and Pfeiffer et al. (2022) conducted field experiences in a preschool with first-year SLP graduate students, but the PSP dyads and nature of collaboration differed. In Miolo and DeVore's (2016) study, pre–service SLPs (n = 29) and ECSEs (n = 56) provided consultative services with ECPs across a 16–week semester, whereas pre–service SLPs (n = 6) and OTs (n = 3) in Pfeiffer et al.'s (2022) study co–planned and delivered an emergent writing intervention directly to young children for 5 weeks. Additionally, while both studies reported improvements to perceived collaborative competence across all IPEC (2023) domains, Miolo and DeVore (2016) relied on post–only qualitative data from reflective surveys. By contrast, Pfeiffer et al. (2022) employed a quantitative pre–posttest design. Together, Miolo and DeVore (2016) and Pfeiffer et al. (2022) confirmed that practice–based IPE enhances collaborative competence in pre–service SLPs, but neither study explored the IPS process or involved teaming directly with in–service ECPs to provide EI services.

Collaboration Across Service Levels

Research on collaboration in the early childcare setting specifically between pre–service SLPs and in–service ECPs is limited and lacks the pre–service SLP perspective (e.g., Brebner et al., 2017). However, focus groups with ECPs indicate that collaborating with pre–service SLPs generates more knowledge sharing opportunities compared to when children receive individual therapy sessions outside the classroom (Attrill et al., 2018). Additionally, modeling of strategies to support communication skills by pre–service SLPs enabled ECPs to incorporate these strategies into daily routines even after the program ended (Brebner et al., 2017). This suggests that practice–based IPE experiences between in–service ECPs and pre–service SLPs may be a conduit for specialist knowledge to enter EI practice settings and potentially improve outcomes for children with disabilities.

Barriers to Collaboration in the Early Childcare Setting

Despite the known benefits of collaboration in EI, there are many challenges to collaboration between EI providers and ECPs in practice.

Environmental Barriers

Both ECPs and EI providers report a strong willingness to collaborate but are often faced with suboptimal environmental conditions in which to do so (Hong & Shaffer, 2014; Mohay & Reid, 2006; Weglarz–Ward et al., 2020b, 2020a). Limited time and space and difficulty coordinating schedules are commonly cited by early childhood personnel as barriers to collaboration (Anderson, 2013; Hong & Shaffer, 2014; Sheppard & Moran, 2021; Weglarz–Ward et al., 2020b). Systemic issues such as limited institutional funding, low wages, and inadequate staffing further reduce collaborative capacity in the early childcare setting (Hong & Shaffer, 2014; Sheppard & Moran, 2021; Weglarz–Ward et al., 2020b). IPE programs examined through the perspective of EI providers in this setting would support understanding of these barriers to inform potential stopgap measures at the personnel level.

Attitudinal Barriers

However, barriers to collaboration between ECPs and EI providers are not entirely administrative. Even under optimal organizational conditions, poor interprofessional communication thwarts efforts to collaborate in the early childcare setting (e.g., Hong & Shaffer, 2014). For instance, misunderstanding of professional roles among ECPs and EI providers results in difficulty initiating and maintaining collaborative relationships (Weglarz–Ward et al., 2020b). The use of discipline specific jargon also limits information sharing across disciplines (Anderson, 2013).

ECPs also report difficulty collaborating with EI providers due to limited exposure to children with disabilities and poor understanding of the EI/ECSE process (Hong & Shaffer, 2014; Sheppard & Moran, 2021; Weglarz–Ward et al., 2020b). These barriers to

collaboration ultimately serve as antagonists to implementing evidence–based inclusive strategies to support children with disabilities in the early childcare setting (Barton & Smith, 2015; Montoya et al., 2022). Given the efficacy of IPE in mediating attitudinal barriers in the EI context (e.g., Lieberman–Betz et al., 2023), IPE experiences between ECPs and SLPs may address this concern.

Methodologies Used to Evaluate Interprofessional Education Programs

To better understand the IPE landscape, it is important to note the ways in which IPE programs are evaluated as well as the limitations of this research. There is no standard protocol for IPE program evaluation; rather, each program must select the most appropriate method based on the purpose, learning outcomes, and unique needs of the institution (O'Leary et al., 2023).

Heterogeneity

IPE evaluation research for pre–service SLPs frequently involves collecting data from multiple sources and employing a variety of quantitative (Pfeiffer et al., 2022; Wilson et al., 2019), qualitative (Miolo & DeVore, 2016; Myers et al., 2014), and mixed methods research designs (Curro et al., 2022; Lieberman–Betz, Brown, Wiegand, et al., 2023; Pawłowska et al., 2020; Strunk et al., 2019; Weiss et al., 2020; Wilson et al., 2017).

Attitudinal scales are common, and while efficient, the variety of available instrumentation prevents pooling of data that would allow for more rigorous investigation of IPE efficacy (Almoghirah et al., 2021; Berger–Estilita et al., 2020; Blue et al., 2015). A recent systematic review identified 22 different attitudinal scales used to evaluate IPE programs for healthcare students (Berger–Estilita et al., 2023). IPE programs for pre–service SLPs also employ a variety of attitudinal scales (see **Table 4**).

Table 4

Scales Used to Evaluate Interprofessional Education Programs

Author	Scale
Curro et al. (2022)	*Interprofessional Education School–Based Survey*
Leiberman–Betz et al. (2023)	*Interprofessional Socialization and Valuing Scale*
Paul et al. (2020)	*Interdisciplinary Education Perception Scale*
Pfeiffer et al. (2022)	*Interprofessional Collaborative Competency Attainment Survey*
Strunk et al. (2019)	*Attitudes Toward Health Care Teams Scale*

Note. Each study included pre–service SLPs.

Quality

Critical appraisals of these instruments suggest that they have suboptimal psychometric properties (Almoghirah et al., 2021; Oates & Davidson, 2015; Thannhauser et al., 2010). Additionally, these scales are vulnerable to ceiling effects especially when administered to PSPs early in their graduate education (Karasinski & Schmedding–Bartley, 2018; McFadyen et al., 2010; Pollard & Miers, 2008).

Moreover, small sample sizes are common in IPE evaluation research, and most studies focus on short–term outcomes (Reeves et al., 2016). These outcomes consist of student reactions to their IPE program, acquisition of clinical knowledge and skills, and attitude changes toward IPE (Almoghirah et al., 2021; Reeves et al., 2016). Long–term IPE outcomes, behavioral changes, and the effects of IPE on patient care are less frequently reported (Almoghirah et al., 2021; Reeves et al., 2016). Relatedly, observation of the IPS process is severely lacking in the IPE literature (Dolan & Nowell, 2023).

Summary

Despite the need to collaborate effectively in EI, IPE programs dedicated to collaboration in EI are rare. Of the programs that exist, few are practice–based and even fewer involve collaboration between pre–service and in–service professionals. Although IPE programs consistently provide opportunities for pre–service SLPs to develop collaborative competence, the mechanisms underlying this learning process are not well–understood. Therefore, investigation of the IPS process during practice–based IPE in the early childcare setting could yield valuable information regarding optimal delivery of this IPE format to promote willingness to collaborate.

Chapter 4. Methods

This pilot study used a constructivist approach and employed a within–subjects, intrinsic case study research design to evaluate a practice–based IPE program (Creswell, 2013, pp. 98–99). Approval was obtained from the Radford University Institutional Review Board in the summer of 2023 (Reference #: 2023–074).

Participants

The participants were pre–service SLPs (n = 3) in their first semester of a 2–year master's program. All participants were Caucasian females between the ages of 22 and 25. Each participant held a bachelor's degree with no prior graduate–level education. One participant reported having formal interprofessional experience in a related field. The other two participants endorsed having only informal interprofessional experience prior to entry into the master's program.

Program Description

This pilot IPE program took place through a partnership between the Department of Communication Sciences and Disorders at Radford University and a licensed child day center. Three SLP–ECP pairs were given the opportunity to provide collaborative developmental services to children between the ages of 15 and 30 months in 2–hour sessions twice weekly for 12 weeks. Each pre–service SLP was assigned two children for which they conducted initial evaluations and wrote plans of care to address communication, speech, and language development. The goals of the program were for pre–service SLPs to gain experience with providing push–in developmental services, embedding communication opportunities within daily routines, and fostering collaborative relationships with personnel in the natural environment to promote meaningful participation of the children in their care. Opportunities for collaboration included modeling of communication–enhancing strategies, joint planning of therapeutic activities, and coaching ECPs on how to integrate SLP services

into everyday routines. The thesis committee chair served as the clinical educator for the program but did not participate in data collection to align with recommended procedures for gathering student feedback of practice–based IPE programs (O'Leary et al., 2023, p. 153).

Measures

Quantitative Measures

Interprofessional Socialization and Valuing Scale–21. The *Interprofessional Socialization and Valuing Scale–21* (ISVS–21) is a self–report tool designed to measure transformative learning through IPS during IPE (King et al., 2016). Respondents indicate on a scale of 1 (*not at all*) to 7 (*to a very great extent*) the degree to which they hold or display a belief, attitude, or behavior described across 21 statements (King et al., 2016). For example, "I have gained an enhanced perception of myself as someone who engages in interprofessional practice" (King et al., 2016). Summed ratings across all 21 items yield the Total Score, with higher scores indicating increased IPS salience (King et al., 2016).

Interprofessional Collaborative Competency Attainment Survey. The *Interprofessional Collaborative Competency Attainment Survey* (ICCAS) is a 20–item survey that measures perceived change in collaborative competence (MacDonald et al., 2010; Schmitz et al., 2017). The ICCAS is a retrospective pre–post measure (Schmitz et al., 2017). This means that respondents rate skills twice, once as they recall their skill level prior to the IPE experience and a second time as they perceive their present skill level (Schmitz et al., 2017). A scale of 1 (*poor*) to 5 (*excellent*) is used to rate each statement (Schmitz et al., 2017). For example, "Identify and describe my contributions to the team" (Schmitz et al., 2017). Question 21 asks respondents to indicate their overall perceived change in collaborative ability from "much better now" to "much worse now" (Schmitz et al., 2017).

Qualitative Measures

A focus group was conducted by the graduate student researcher to supplement the quantitative scales. This semi–structured interview consisted of five prepared questions (e.g., "How did you feel about working with [the ECPs] at the beginning and how did that change across the semester?") with follow–up questions as needed to further assess the participants'

attitudes and beliefs regarding the IPS process, elucidate perceptions of collaborative skills, and identify facilitators and barriers to the program as appropriate during the conversation.

Procedures

Participant Selection

Participants were recruited via email from the graduate student researcher. Selection criteria included being a first-year SLP graduate student assigned to complete an interprofessional practicum as part of their clinical training. Note, however, that practicum placement decisions were made by the director of the Radford University Speech–Language–Hearing Clinic independently from the research effort.

Data Collection

Data collection occurred across two sessions at the beginning and end of the fall 2023 semester. In session one, written consent was obtained from the participants prior to administration of a demographics questionnaire and the ISVS–21. To accommodate a week–long holiday break, session two occurred approximately 2 weeks following the last collaborative session. The ICCAS was administered, the ISVS–21 was readministered, and the focus group was conducted during session two. The focus group was recorded, and this recording was uploaded to Microsoft OneDrive and transcribed automatically in Microsoft Word. A clean verbatim transcript was generated through light editing to remove fillers, repetitions, false starts, self–corrections, and interjections, and to correct grammatical errors without changes to meaning.

Data Analysis

ISVS–21 and ICCAS scores were analyzed descriptively due to lack of statistical power on account of the small sample size. An inductive thematic analysis was performed on the focus group transcript (Braun & Clarke, 2006). The transcript was coded by the graduate student researcher in consultation with the thesis committee chair. Initial codes were

generated at the semantic level and refined through an iterative process to ensure that final themes were represented across the data set (Braun & Clarke, 2006). Codes were managed in version 4.3.2 of R Statistical Software (R Core Team, 2023) using version 0.1.0 of the QCoder package (Duckles et al., 2023).

Chapter 5. Results

Quantitative

Interprofessional Socialization and Valuing Scale–21

All participants descriptively demonstrated Total Score gains on the ISVS–21, possibly indicating greater salience of beliefs, attitudes, and behaviours associated with IPS following the IPE program (see **Table 5**).

Table 5

ISVS–21 Total Scores

Participant	Pre	Post	Change
1	106	117	+11
2	112	126	+14
3	89	94	+5

However, median scores for Participants 1 and 3 remained constant pre–post at 6 (*to a great extent*) and 4 (*to a moderate extent*), respectively. Only Participant 2 increased from a median score of 5 (*to a fairly great extent*) to 6 (*to a great extent*) pre–post (see **Table 6**).

Table 6

ISVS–21 Median Scores

Participant	Pre	Post	Change
1	6	6	0
2	5	6	+1
3	4	4	0

When pooled (see **Table 7**), nine items were observed to increase in median score, six items remained constant, and six items decreased pre–post. Among the items noted to increase was the statement of "I have gained an enhanced perception of myself as someone who engages in interprofessional practice," which increased from a median rating of 3 (*to a small extent*) to 6 (*to a great extent*). The statement of "I feel comfortable being the leader in a team situation" maintained a median rating of 4 (*to a moderate extent*) pre–post. The statement of "I am able to share and exchange ideas in a team discussion" decreased from a median of 6 (*to a great extent*) to 4 (*to a moderate extent*) pre–post. Although most ISVS–21 items increased or stayed the same in median rating pre–post, this suggests notable variation in responses by item.

Table 7

ISVS–21 Median Scores by Item

Item	Pre	Post	Change
1	4	5	+1
2	4	6	+2
3	4	6	+2
4	6	4	–2
5	3	6	+3
6	4	4	0
7	5	5	0
8	5	6	+1
9	6	6	0
10	5	6	+1
11	4	6	+2
12	4	5	+1
13	6	5	–1
14	6	5	–1
15	5	5	0
16	7	7	0
17	7	5	–2
18	6	5	–1
19	6	6	0
20	3	6	+3
21	7	6	–1

Interprofessional Collaborative Competency Attainment Survey

Each participant descriptively demonstrated gains in median ratings on the ICCAS, indicating improvement in self–reported collaborative competence across all assessed domains (see **Table 8**). Participants endorsed that their overall collaborative ability was “much better now” in response to question 21.

Table 8

ICCAS Median Scores

Participant	Pre	Post	Change
1	2	3	+1
2	2	4	+2
3	2	3	+1

Qualitative

A total of 59 codes were initially generated from the focus group transcript at the semantic level. A total of 44 final codes were identified at both the semantic (e.g., “mentioned time”) and latent (e.g., “fear of being judged”) levels. However, most codes were semantic in nature. There were four main themes that emerged (see **Table 9**).

Table 9

Description of Main Themes

Main Theme	Description
Increasing preparedness for collaboration in early intervention	Discussion of skills gained at least in part through interactions with early care providers.
Collaborating to benefit the child	Discussion of how collaborative practices may have supported positive developmental outcomes.
Collaboration as multifactorial	Discussion of the facilitators and barriers to collaboration.
Suggestions for program improvement	Discussion of possible solutions to barriers to collaboration.

Theme 1: Increasing Preparedness for Collaboration in Early Intervention

The participants reported growth in a range of skills obtained at least in part through interactions with the ECPs. In general, the participants felt more prepared for developmental service provision in the natural environment for the children in their care.

Subtheme 1A: Collaborative Skillset. The participants reported improvement in their ability to explain their professional role, adapt to a dynamic clinical environment, and navigate working with different personalities. These skills developed over time and coincided with self–reported growth in confidence (e.g., Participant 2 stated, “I realized maybe I do know what I’m talking about!”) and comfortability (e.g., Participant 3 stated, “I definitely felt more comfortable asking for assistance.”) in the professional relationship. Moreover, Participant 2 expressed how their enhanced collaborative skillset may benefit them in future practice settings: “I’ve definitely learned how to advocate for what we even are … now I can feel a little bit less intimidated next time I’m collaborating and know how to explain my role better.”

Subtheme 1B: Clinical Skillset. Perceived improvements to clinical skills included the ability to incorporate therapy into daily routines, elicit spoken language (e.g., Participant 3 stated, “I learned … how to take every opportunity to elicit any language possible.”), and select developmentally appropriate therapy materials (e.g., Participant 3 stated, “I learned … what works with my age group versus not.”). Additionally, all participants agreed with Participant 1 who endorsed learning “techniques to deescalate if a child was upset” from the ECPs, indicating growth in their ability to respond effectively to young children when dysregulated.

Theme 2: Collaborating to Benefit the Child

Beyond professional skill growth, the participants discussed instances of how collaborative practice may have supported positive developmental outcomes for their clients.

The participants reported that the ECPs were more knowledgeable of the children in their care and thus provided valuable insight about their functioning in the natural environment. This supported the initial evaluation process when the ECPs communicated developmental concerns about potential clients to the participants (e.g., Participant 3 stated, "[The ECP] would say 'I've noticed this, you may want to look into this.'"). The participants also obtained information regarding the child's likes and dislikes from the ECPs, which promoted more efficient lesson planning. Moreover, the ECPs supported carry over of SLP activities into daily routines, including increasing participation from typically developing peers during group activities.

Theme 3: Collaboration as Multifactorial

The participants reported several facilitators and barriers to collaboration with the ECPs. In general, attitudinal barriers appeared to lessen throughout the IPE program while environmental barriers were constant. Facilitating factors were more challenging to identify from the transcript as the participants discussed barriers to collaboration more frequently.

Subtheme 3A: Attitudinal Factors. The participants were wary of crossing professional boundaries (e.g., Participant 3 stated, “I felt like [the ECP] would think I was invading their space.”) especially at the beginning of the IPE program. This appeared to be driven by initial uncertainty of how to collaborate (e.g., Participant 1 stated, “At the beginning … I was not sure how to interact with [the ECP]. We both were a little ‘standoffish.’”) coupled with resistance to role sharing (e.g., Participant 2 stated, “My biggest challenge was I had to take on a teacher role a lot of the times.”) and professional misconceptions (e.g., Participant 2 stated, “[The ECP] was like … ‘[I] just thought that you just did speech,’ and I’m like … ‘It’s also language.’”). However, Participant 1 felt that the ECP in their classroom “was really collaborative from the beginning,” suggesting variation in the degree to which each dyad was open to collaborating at baseline. Specifically, Participant 1 reported receiving “feedback on how to make the lesson plans run more smoothly” while Participant 3 reported that the ECP in their classroom “didn’t really give [them] feedback.” Taken together, communicative efficacy varied amongst the SLP–ECP dyads but improved as the participants enhanced their collaborative skillset.

Subtheme 3B: Environmental Factors. The participants discussed how a lack of dedicated meeting space and time (e.g., Participant 3 stated, "I don't think the [ECPs] have time unless it was time taken after school to meet with us.") posed a constant barrier to collaborative efforts. Other barriers such as ECP turnover and limited classroom structure were experienced more by Participant 2 than by Participants 1 or 3. Participant 2 commented on how the difference in nap schedule between classrooms reduced opportunities to provide collaborative services: "[We] were supposed to have the same schedules … but my class would go down for a nap almost 30 minutes before her class … you can't really give speech when they're asleep, you know?" Participant 2 ultimately worked with one of the other SLP–ECP dyads during this time, but this inconsistency reduced depth of the collaborative relationship. In contrast, Participants 1 and 3 experienced consistent classroom structure without naps interfering with intervention sessions. Thus, consistency in the clinical environment likely facilitated collaboration.

Theme 4: Suggestions for Program Improvement

Based on the barriers experienced by the participants, they offered some suggestions as to how the program could be improved. Namely, they suggested increasing the time and space allotted for collaborative activities. To promote knowledge of therapy targets among the ECPs, the participants suggested providing the ECPs with a copy of the care plan with the family's consent. The participants also suggested syncing classroom schedules so that all children would take a nap at the same time. To facilitate rapport building with the ECPs, the participants suggested implementing icebreaker activities at the beginning of the program.

Chapter 6. Discussion

Given that high–quality EI services depend on high–quality teaming practices, it is essential that EI providers be equipped with the knowledge and skills for collaborative practice (Lieberman–Betz et al., 2019). Yet, the apparent theory–practice gap in EI suggests that SLPs may be unprepared to collaborate (Caesar, 2022). IPE programs purport to facilitate collaborative practice; however, the mechanisms underlying the application of collaborative knowledge and skills learned during IPE in practice are unclear (Reeves et al., 2016). The emerging concept of IPS seeks to explain how IPE programs promote a cognitive shift in PSPs orienting them towards collaborative practice (Dolan & Nowell, 2023). At present, little is known about the IPS process, especially during practice–based IPE in the EI context across service levels. This investigation addressed these gaps through a formative and process–focused IPE program evaluation.

Interprofessional Socialization

The primary research question was: To what extent does a practice–based IPE program support the IPS process in pre–service SLPs? All participants exhibited increases in Total Scores on the ISVS–21, but only Participant 2 increased in median score pre–post. This suggests that the degree to which transformational learning (i.e., dual identity formation) occurred across the IPE program was limited.

Idealistic Expectations

One reason for this could be that PSPs tend to have idealistic expectations of their IPE programs at baseline, which contributes to ceiling effects on the scales commonly employed to evaluate these programs (e.g., Pollard & Miers, 2008). Recent evidence suggests that measures of interprofessional identity are also vulnerable to this phenomenon (Tong et al., 2020b). However, PSPs' expectations become more realistic as they progress through their IPE program (Pollard & Miers, 2008). Accordingly, the items on the ISVS–21 that received a

median rating of a 6 or 7 noticeably overlapped with the items that either decreased or stayed the same pre–post. By contrast, all of the related constructs on the ICCAS—delivered only in Session 2 as a retrospective pre–post measure—increased in median rating. Moreover, item 20 on the ISVS–21 (“I have gained more realistic expectations of other professionals on a team.”) was one of only two items to increase from a median rating of 3 to 6 pre–post (King et al., 2016). Although cautious interpretation is warranted, these observations are consistent with the possibility that participants were initially overconfident in their ratings at baseline but gained more realistic perspectives regarding the IPS process throughout the IPE program.

Unmet Antecedents

According to the IPS framework, expansion of the professional identity during IPE relies, in part, on a safe learning environment created by satisfying the conditions for positive intergroup contact (Khalili et al., 2013; Pettigrew, 1998). Thus, another reason that the IPS process was limited for the participants in this study is that the IPE program itself only partially met these conditions. The condition of authority support appears to be met on account of the program being sanctioned by Radford University. The participants in this study did not report difficulty collaborating specifically due to competition with the ECPs even though the participants experienced other barriers to collaboration. Therefore, the condition of intergroup cooperation also appears to be met.

However, the participants arguably never achieved a perception of equal status. As novice clinicians, the participants were hesitant to coach the ECPs. The participants reported similar feelings of hesitation from the ECPs who may have felt that they were being assessed by the SLPs. Beyond the tension generated by collaborating across service levels, the participants experienced possible threats to their professional identities due to misconceptions from the ECPs. Ultimately, these factors may have impeded the process of breaking down

barriers between professions, resulting in a suboptimal environment for interprofessional role learning.

Finally, the participants struggled to work towards common goals. Although the participants reported engaging in collaborative practices with the ECPs (e.g., informal communication regarding the children's developmental needs), this was often inconsistent and varied in nature among the SLP–ECP dyads. Initial uncertainty of how to collaborate, resistance to role sharing, and a persistent lack of time and space to collaborate were identified by the participants as negative contributors to the overall quality and quantity of collaborative teaming. These challenges to the IPS process coincide with barriers reported by ECPs to collaborating with EI providers in the early childcare setting (Weglarz–Ward et al., 2020b).

Collaborative Competence

The secondary research question was: What is the perceived impact of a practice–based IPE program on collaborative competence in pre–service SLPs? Both quantitative from the ICCAS and qualitative findings from the focus group provide evidence that the participants perceived improvements to their collaborative competence. These results coincide with previous findings that practice–based IPE delivered in EI practice settings enhances collaborative competence in pre–service SLPs (Miolo & DeVore, 2016; Pfeiffer et al., 2022).

This suggests that the IPE program provided an opportunity for participants to begin to develop their collaborative skillset, particularly in the roles and responsibilities (RR) and communication (C) domains (IPEC, 2023). For instance, sub–competency RR3 ("Incorporate complementary expertise to meet health needs including the determinants of health.") was addressed as the participants reported leveraging the ECPs' expertise in an attempt to support positive developmental outcomes for the children in their care (IPEC, 2023, p. 17). Moreover,

the participants reported improvements in their ability to explain their role and navigate challenges related to working with different personalities. These reflect sub–competencies C1 (“Communicate one’s roles and responsibilities clearly.”) and C7 (“Examine one’s position, power, role, unique experience, expertise, and culture towards improving communication and managing conflicts.”), respectively (IPEC, 2023, p. 18).

This is significant because building collaborative competence is essential for clinical practice in EI (e.g., Lieberman–Betz et al., 2019). For SLPs specifically, collaborative knowledge and skills are ultimately needed to achieve clinical certification (CFCC, 2018, Standard V–B), provide high-quality services (ASHA, 2016b), and even uphold the code of ethics (ASHA, 2016a, Principle IV).

Limitations and Future Research

A significant limitation of this investigation is the small sample size. This restricts generalization of results, especially considering that the IPE program was unique to Radford University, and the nature of collaboration varied among the SLP–ECP dyads. Additionally, since the goal of IPE is to facilitate a “collaborative practice–ready workforce” (WHO, 2010, p. 10), another limitation is that outcomes were only assessed shortly after the IPE program. Follow–up is needed to determine the potential long–term impact of the program by, for example, interviewing the participants once they become working professionals. Moreover, evaluation of the IPS process was limited as the ECPs were not included in the focus group. While the participants reported attitudinal barriers to the IPS process involving the ECPs, interviews with the ECPs themselves would be needed to confirm assumptions from the SLPs regarding crossing professional boundaries. Triangulating these data with classroom observations would further support understanding of the IPS process as a more objective means by which to assess interactions within and between the SLP–ECP dyads.

Conclusions

Pre–service SLPs who collaborated with ECPs in this study demonstrated evidence of beginning the IPS process during a practice–based IPE program in the early childcare setting. Both attitudinal and environmental factors may have restricted the quantity and quality of collaborative interactions, thus limiting the IPS process and dual identity formation. Despite this, participants reported improved perceived collaborative competence after the IPE program. Therefore, this program offered an opportunity for participants to build their collaborative skillset. More research is ultimately needed to better understand the IPS process in pre–service SLPs during practice–based IPE in the EI context.

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