Early Childhood Intervention Teachers' Beliefs and Use of Peer Social Interaction Interventions

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Teachers’ ability to facilitate social interactions between children in the early childhood classroom is necessary for the development of social competence in all children, including those with disabilities. Peer social interaction interventions are a group of interventions to promote social engagement by focusing on the reciprocal social exchanges between children with and without disabilities. However, the literature base around teachers’ use of peer social interaction interventions indicates teachers use these practices infrequently and their use is related to their beliefs about the acceptability and feasibility of the interventions. This study validates prior research related to teachers’ beliefs and use of peer social interactions interventions and contributes new knowledge by identifying the importance of training, as well as the role of ecological factors. The results indicated that teachers find interventions to be more acceptable to use than they believe them to be feasible to use. Furthermore, teachers reported using these interventions less often than they believe them to be acceptable or feasible. Training was statistically significantly associated with teachers’ ratings. Ecological implementation barriers were identified by teachers, which illustrate a potential cause for teachers report and use of peer social interaction interventions. The implications of these findings are discussed, and future research, policy, and training directions are identified.

*Keywords*: peer social interactions, social competence, teachers, interventions
Early Childhood Intervention Teachers’ Beliefs and Use of Peer Social Intervention Interactions

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Early Childhood Intervention Teachers’ Beliefs and Use of Peer Social Interaction Interventions

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Chapter One: Introduction

Early childhood is a critical time in our lifespan that extends from birth to age eight (Copple & Bredekamp, 2009). Early childhood education (ECE) is the field that is designed to support and promote optimal learning and developmental outcomes for young children prior to their entry into Kindergarten. Early childhood intervention (ECI) is a specialized area of ECE, in which interdisciplinary professionals support the development and learning of young children birth to five with disabilities. Promoted by societal need and governed by law, ECI is a combination of systems of services for infants and young children with disabilities and their families. The purpose of ECI service is to mitigate the effects of the child’s disability to improve the quality of life for both the child and their family (Guralnick 1997; Tjossem, 1976). A key premise of ECI is the idea vulnerable children and their families be afforded the same experiences as all young children, and these experiences could offset the child’s vulnerabilities (Dunst, 2000). Considering this premise, a main goal of ECI is the integration of young children with disabilities and their families into the same settings and activities afforded all families with young children (Guralnick & Neville, 1997).

Of the five child developmental domain areas (cognition, communication, social-emotional, motor and adaptive) required to be a focus under the Individuals with Disabilities Education Act (IDEA), the social-emotional area is the focal-point of this dissertation. Specifically, this dissertation addresses the social competence of young children with disabilities. Social competence is a developmental construct, meaning that it is an idea or theory containing various conceptual elements (Guralnick, 1990; Merriam-Webster Dictionary, 2019). Social competence materializes in the social interactions’ children have with their peers and is defined as “the ability of young children to successfully and appropriately carry out their interpersonal
goals” (Guralnick, 1994, p. 48). Children’s success in achieving their interpersonal goals is observed in their use of positive social behaviors during social interactions with their peers. Positive social behaviors with peers include initiating interactions, responding to peer initiations, sharing during play, smiling, laughing, showing affection towards peers, and helping peers (Howes, Rubin, Ross, & French, 1988; Strain, 1984; Strain, Shores, & Hester, 1976; Wolfberg, et al., 1999). Children who successfully use these social behaviors are liked and make friends, leading to a sense of belonging in a larger peer group.

Social competence is vital to children’s development as it leads to positive child outcomes, as well as positive outcomes across the life span (e.g., Ladd, 2005). Social competence is associated with academic success, and academic achievement correlates with being liked or accepted by peers (Denham, 2006; Denham, et al., 2003; Ladd, 2005; Rose-Krasnor, 1997; Vandell & Hembree, 1994). Socially competent children do better when they enter formal schooling in kindergarten (Birch & Ladd, 1997; Denham, 2006) with the pathway between academic achievement and social competence providing support for children as they adjust to school (Denham, 2006). For young children, a “cross-domain influence” (Raver & Zigler, 1997, p. 366) exists between social competence and school readiness.

Children with disabilities are more at risk for being socially rejected from their peer network and not having friendships due to the nature of their disability (Brown, Odom, & Buysse, 2002). For example, children with cognitive delays, autism, and/or behavioral disorders struggle to develop positive relationships with their peers (Guralnick & Neville, 1997; Guralnick, Neville, Connor, & Hammond, 2003; Hatfield & Williford, 2017; Strain & Bovey, 2011; Webster-Stratton & Hammond, 1997). A young child’s disability status can interfere with their ability to engage in interactions with their peers, and this is important because “social withdrawal
represents one of the most profound forms of developmental delay” (Strain & Fox 1981, p. 167) requiring intervention. Furthermore, children with disabilities are more often rated as socially rejected (Odom et al., 2006) and are more often excluded from peer play than peers without disabilities (Wolfberg, et al., 1999).

Specialized instruction, or interventions, to support the development of social competence for preschool age children with disabilities is an area that has been studied extensively and evidence indicates the effectiveness of interventions leading to improved social competence (e.g., Brown, Odom, & McConnell, 2008; Odom, McConnell & McEvoy, 1992). Interventions to support the development of social competence range from simple to complex utilizing multiple practices (Brown & Conroy, 2011; Brown, Odom, & Conroy, 2001; Brown, Odom, McConnel, & Rathel, 2008). Examples of simple instructional practices includes creating small play areas and grouping children with and without disabilities together during classroom activities. Examples of complex multistep interventions include deliberately teaching children with disabilities social skills or utilizing peers (children without disabilities) to socially initiate and respond to children with disabilities. Research examining social competence interventions found all types are effective however, intensive interventions leads to more peer social interactions for young children with disabilities (Odom et al., 1999).

One facilitator for social competence intervention is grouping children with and without disabilities in early childhood classrooms together and this practice is described as inclusion. Inclusion is made up of the values, policies, and practices of ECI to support young children with disabilities and their families as full members of the ECE community. Inclusion contributes to a sense of belonging and membership in a community leading to the development of positive social relationships, including friendships (Buysse, Goldman, & Skinner, 2002; Guralnick, 1976,
Therefore, the policy and practice of inclusion is necessary to facilitate social interactions between children supporting the development of social competence (Guralnick & Bruder, 2016).

The purpose of this chapter is to provide a general background of ECI. This includes the laws that govern both early intervention for infants and toddlers and their families, as well as preschool age children and inclusion for preschool age children with disabilities. The background provided in this chapter will set the stage for a review the literature around social competence and teachers’ use of evidence-based peer social interaction interventions which are the focus of this research.

**Early Childhood Intervention**

Early childhood is an important time period in human development due to the amount of learning that occurs starting at the moment of a child’s birth. Young children’s development occurs along a predictable continuum, with more complex behavior emerging from the acquisition of simpler behaviors (Piaget, 1964). Young children’s development is comprised of multiple domains of learning (cognitive, communication, social emotional, motor, or adaptive), with each domain contributing in significant ways to young children’s overall learning and functioning (Masten et al., 1995). Developmental domains do not operate in isolation from each other. Rather domains work together in an integrated and synchronous manner, resulting in young children’s use of new behaviors and skills (Guralnick, 2010).

Young children’s development is sequential and predictable, meaning that milestones, markers of significant changes in children’s skills, can be used as benchmarks for gauging children’s developmental progress, and to ascertain possible delays (Piaget, 1932; Uzgiris & Hunt, 1975). A developmental delay is the child’s deviation from what is expected of their
knowledge, or skill in one or more of five developmental domains for a child of their chronological age (PL 108-446, 20 USC § 1400, Sec. 300.8 (b), 2004). The presence of a developmental delay can indicate a previously undiagnosed disability or may be the result of one or more biological or environmental risk factors (Guralnick, 2005; Sameroff, Seifer, Zax & Barocas, 1987; Tjossom, 1976). The presence of a disability can mean the child’s development may occur at a slower rate, or in some cases certain skills cannot be achieved in a typical manner because of the nature of the disability (e.g., sensory impairment, motor impairment; Sameroff et al., 1981).

There is substantial brain research indicating better outcomes for children with disabilities or development when early intervention is received at younger ages (Shonkoff & Meisels, 2000). The effect of early intervention for ameliorating developmental delays is attributed to both the neuroplasticity of the young child’s brain and the way a young child’s learning is affected by their environment (Shonkoff, 2010). The identification of either a disability or developmental delay at the earliest possible age is critical to support a child’s improved development through the provision of interventions to target the delay or disability. Interventions to mitigate the effects of the child’s disability or delay will result in benefit for the child and their family, across their life span.

**The field of ECI.** ECI is the professional field designed to support young children with disabilities or developmental delays and their families. The intent of ECI services is to minimize the effects of the child’s disability or developmental delay, enhance the child’s development, support the functioning of the family, and promote the families’ sense of belonging within their community (Guralnick, 2005). ECI is described as a complex field with one reason being the vast heterogeneity of the children and families it serves. Four factors contribute to the
heterogeneity of this population (a) the age of the child (e.g., infant vs. preschool age), (b) the nature of the child’s delay (e.g., mild vs. severe), (c) the etiology of the child’s disability (e.g., autism, cerebral palsy), and (d) the unique characteristics of the family (e.g., cultural, socio-economic status). Another reason ECI is deemed a complex field is it draws from multiple other areas of child development and education. For example, ECE, child development, maternal health and education, and special education have each contributed to the knowledge base which is the foundation for the coordinated work of the field (Nelson, 2000; Ramey & Ramey, 1998; Shonkoff & Meisels, 2000). A broad knowledge base is necessary because ECI is a field which addresses a specific age range of children, as well as the presence of a disability or developmental delay, and focuses on the well-being of the family. Thus, ECI is an interdisciplinary field made up of a range of services for young children from birth to five with an established disability or developmental delay, and their families. Examples of types of interdisciplinary service in ECI include special education, speech language pathology, occupational therapy, physical therapy, social work, psychology, and nursing (Stayton, 2015).

The field of ECI is built on the belief young children with disabilities and their families have the right to benefit from a sense of belonging in a community leading to a sense of well-being in which they experience a good quality of life. These beliefs are informed by research supporting the understanding biological traits are malleable by the environment (Skeels & Dye, 1939), as well as ethical perspectives about human rights (Wolfensberger, 1983). These values imbue the field and inform practices around characteristics of service delivery, program development, intervention, and research. Because of the importance of these values, they are embedded into special education legislation, and are a part of current laws which regulate ECI, making these values an integral part of the ECI system.
The Individuals with Disabilities Education Act. A series of major disability laws created legislation mandating and regulating special education services for children with disabilities birth to age five. First, in 1970 the Education of the Handicapped Act (PL 91-230) was passed providing grants to states for the education of children with disabilities from preschool through high school (Bricker, Xie, & Bohjanen, 2018). Then, in 1975 the Education for All Handicapped Children Act (EHA; PL 94-142, 20 USC § 1400, 1975) was passed, which mandated the provision of educational services to children with disabilities (Bricker et al., 2018). However, this mandate did not extend to children ages three to five. In 1986, ECI services were finally mandated for young children ages three to five utilizing the zero-reject provision of the EHA through an amendment to PL 94-142 (PL 99-457, 20 USC § 1400, 1986). PL 99-457 was reauthorized in 1990 (PL 101-476, 20 USC § 1400, 1990) and renamed the Individuals with Disabilities Education Act (IDEA). IDEA was amended again in 1997 (PL 105-17, 20 USC § 1400, 1997). The 1997 Amendment emphasized the importance of access to the general curriculum for children with disabilities. IDEA was again reauthorized, in 2004 (PL 108-446, 20 USC § 1400, 2004). The 2004 reauthorization stressed the importance of high expectations for children with disabilities by accessing the general curriculum in the regular classroom to the maximum extent possible. Section A of the law states:

Almost 30 years of research and experience has demonstrated that the education of children with disabilities can be made more effective by having high expectations for such children and ensuring their access to the general education curriculum in the regular classroom, to the maximum extent possible, in order to meet developmental goals and, to the maximum extent possible, the challenging expectations that have been established for all children; and be prepared to lead productive and independent adult lives, to the maximum extent possible. (IDEA, 2004; Sec. A)

Part B, 619, of PL 99-457 required states to provide a free and appropriate education (FAPE) in the least restrictive environment (LRE) to preschool children ages three to five with
disabilities. The importance of social interactions between children with and without disabilities, is a direct output of the 1986 reauthorization of IDEA (PL 99-457; Peck, Hayden, Wandschneider, Peterson, & Richarz, 1989) which mandated special education support for children from age three to five in the LRE. The LRE is defined in the law as:

Each public agency must ensure that to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are nondisabled; and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (IDEA, 004; Sec. 300.114).

The LRE mandates a continuum of placement options for children with disabilities (Taylor, 1988). In early childhood education there is a wide range of different types of classrooms that represent the LRE continuum. These range from preschool classrooms designed for all children, which include early care and education programs and publicly funded preschools, to specialized preschool special education classrooms which rely on reverse mainstreaming (preschool special education classrooms designed for children with disabilities, but which include children without disabilities), to restrictive placements in segregated classrooms (Odom et al., 1999).

The LRE mandate led to the development of preschool programs for young children with disabilities in which children without disabilities could also be served (Odom, Buysse, & Soukakou, 2011). A possible unintended consequence of this is that local educational agencies (LEA) may interpret these specialized preschool classrooms as the LRE, rather than regular early childhood classroom (e.g., publicly funded preschool classrooms and community childcare settings). Regular early childhood classrooms are the natural environment because they provide access to a general early childhood curriculum (Bricker et al., 2018; DeMonte, 2010;
Katsiyannis, Yell, & Bradley, 2001; U.S. Department of Health & Human Services, U.S. Department of Education, 2015). Furthermore, natural environments are the mandated setting for service in Part C of IDEA, which regulates early intervention services to infants and toddlers with disabilities. Natural environments are defined in IDEA as “settings that are natural or typical for same-aged infant or toddler without a disability, may include the home or community settings and must be consistent with the provision of §303.126.” (IDEA, 2004; Sec. 303.26).

Natural environments include early care and education classrooms. The use of natural environments, such as early care and education classrooms to support the development of young children with disabilities existed long before the passage PL 99-457 during the 1970’s (Guralnick, 1976). Research demonstration models utilizing early care and education settings indicates these settings are appropriate for enacting ECI and supporting positive outcomes for all young children (e.g., Bricker and Bricker, 1977; Bruder, 1998).

**Inclusion in Early Childhood Intervention**

The instruction of both children with and without disabilities together in regular early childhood classrooms is called inclusion and an effective inclusive classroom is necessary to support the development of social competence in young children with disabilities. The practice of inclusion has been described of being comprised of four goals: Access to inclusive classrooms, provision of accommodations to meet individualized needs is feasible, developmental progress of the child in an inclusive setting is equivalent or better than in a specialized program, and social integration as evidenced by meaningful social interactions between children with and without disabilities (Guralnick 2001; Guralnick & Bruder, 2016). A focus on inclusion comprised of these four goals means that an effective inclusive classroom relies on teachers’ use of instructional practices targeting both children with disabilities and their
peers. Focusing on both groups of children is necessary for ensuring the active participation of young children with disabilities in activities in the regular early childhood classroom. The active participation of young children with disabilities in these activities supports the development of their social competence.

This practice of inclusion has experienced challenges emanating from the merging of two fields of education, ECE and ECI, both with divergent views of child learning and development. The different foci between ECE and ECI has been cited as a challenge for supporting young children with disabilities in preschool classroom (Barton & Smith, 2015; Odom & McEvoy, 1990). The ECE field primarily uses a constructivist learning theory as a foundation for teaching and child learning (Kontos & Wilcox-Herzog, 1997; Odom & Wolery, 2003). Constructionist theory dictates that children are self-motivated to construct their own learning through the interactions they have with people and materials of interest to them in their proximal environment (Piaget, 1932; Prawat & Floden, 1994; Schunk, 1996; Vygotsky, 1978). Instructional practices based on constructivist theory include ensuring that a range of play and learning materials are available within learning centers and embedded into learning activities.

In contrast, ECI grew out of the needs of young children with disabilities who require explicit teaching to address their individualized goals and objectives as specified on their Individualized Education Program (IEP; Carta, Schwartz, Atwater, & McConnell, 1991). This teaching consists of preplanned interventions aimed at facilitating a child’s development in the area in which they are delayed. At times, this means a reliance on teacher directed or guided learning episodes in which interventions are implemented to support a child’s learning using more explicit and concrete teaching. The learning theory that underlies these specialized interventions is behavioral learning theory (Odom & Wolery, 2003). Behavioral learning theory
stipulates that children’s behavior can be shaped through antecedent manipulations and contingent reinforcement (Bijou & Baer, 1961; Ferster & Skinner, 1957). Interventions include the use of prompting and reinforcing during ongoing classroom activities that are of interest to young children (Hebbler & Spiker, 2016; Odom & McEvoy, 1990). The ability to address a child’s individualized goals and objectives is critical to successful inclusive placement (Guralnick, 1990, 2001). While challenging, the integration of the two theoretical approaches (constructivist and behavioral) within an inclusive classroom is feasible and best practice (Fox, Hanline, Vail, & Galant, 1994; Guralnick, 1993; Wolery & Bredekamp, 1994).

**National policy guidance to support inclusion.** The placement of children in the LRE has been supported in practice and policy over the many years it has been in statute and regulations (Yell, 1995). Placement in the LRE, or the regular early childhood classroom, is a dilemma for the field of ECI, as LEA’s may not have regular preschool classrooms available (Love & Horn, 2019). The lack of early care and education or publicly funded preschool classrooms puts parents in the position of facing decisions to have their child remain in community early childhood settings in lieu of receiving special education services (DeMonte, 2010). Furthermore, young children with disabilities may receive their special education services in a specialized preschool where all, or most children, also have disabilities but spend the remainder of their day in community early childhood settings with no specialized support. Of concern, children’s placement may not be dictated by their needs but rather district level policy (Love & Horn, 2019). For example, a recent study examining longitudinal effects of an inclusive preschool placement on children with autism found that children’s placement in Kindergarten (either a regular Kindergarten classroom or segregated Kindergarten setting) was unrelated to both their prior placement in an inclusive setting and their developmental level upon exiting
preschool (Strain, 2018). Despite these concerning practices in by LEA, the practice of early childhood inclusion has been historically supported by the field, most notable by the two professional organizations overseeing the fields of ECI and ECE and then more recently by the U.S. Department of Health and Human Services (USDHHS) and the U.S. Department of Education (USDOE).

In 2009, the Division for Early Childhood of the Council for Exceptional Children (DEC) and the National Association for the Education of Young Children (NAEYC) jointly put forth a position statement on inclusion. The purpose of this joint position statement is to describe a shared definition of inclusion in early childhood, recognizing that a wide variety of factors contributes to peoples understanding. They defined inclusion as:

> Early childhood inclusion embodies the values, policies, and practices that support the right of every infant young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families, communities, and society. The desired results of inclusive experiences for children with and without disabilities and their families include a sense of belonging and membership, positive social relationships and friendship, and development and learning to reach their full potential… (DEC & NAEYC, 2009, p. 2)

The guidance document focuses on three mechanisms to support inclusive placement and practices: access, participation, and supports. Access refers to a wide number of early childhood settings which can support young children with disabilities using Universal Design for Learning (UDL). UDL is defined as the “design of products and environments to be useable to the greatest extent by people of all ages and abilities” (Conn-Powers, Cross, Traub, & Hutter-Pishgahi, 2006, p. 2). Participation is the provision of accommodations, modifications, and specific instructional practices teachers use to ensure young children are full participants in classroom activities and routines (DEC & NAEYC, 2009). Supports are system level factors which facilitate inclusive placements, such as access to ongoing professional development (DEC & NAEYC, 2009). These
recommendations reflect the understanding successful inclusion requires a focus on both, the establishment of inclusive settings, as well as teachers’ use of inclusive practices. Further, the guidance document dictates state educational agencies (SEA) and LEA establish inclusive settings and ensure teachers use of inclusive practices, as they are important to the learning and development of young children with disabilities (DEC & NAEYC, 2009).

In 2015 the USDHHS and USDOE jointly issued policy guidance regarding inclusive settings and practices in early childhood. The position statement advocates for the inclusion of young children with disabilities into high quality regular early childhood classrooms. The issuance of this document by these two federal agencies represents shared concern related to the placement options for young children with disabilities, by both the field of ECE and ECI. The USDHHS houses early childhood programs, such as Preschool Development Grants, whereas the USDOE is the home for Part B, Section 619 of IDEA, which regulates special education services for children age three to five.

The joint USHHS/USDOE position statement (2015) highlights the importance of teachers’ use of inclusive instructional practices to support the learning and development of all children, including those with disabilities, in regular early childhood settings. The 2015 joint position statement notes, that despite an increase in the number of preschool classrooms funded by either state or federal dollars, the rate of inclusive learning opportunities for young children has not been proportionate. The document states that when LEA or SEA are creating high quality early childhood classrooms they need to consider the inclusion and instruction of young children with disabilities.

The USHHS/USDOE joint position statement (2015) describes inclusion as incorporating children with disabilities in early childhood settings with children without disabilities, and as
intentionally promoting active participation in all learning and social activities. To ensure the active participation of young children with disabilities in the ongoing classroom activities, teachers must possess the knowledge and skills to provide adaptations, modifications, and implement instructional practices to support a diverse population of children (Guralnick & Bruder, 2016). The 2015 joint position statement intends to provide recommendations to SEA and LEA regarding policies to support increased access to inclusive early childhood settings for infants, toddlers and preschool children with disabilities, as well as policy to ensure teachers possess the required knowledge and skills to utilize inclusive instructional practices.

Recommendations to SEA include allocating resources, coordinating and enhancing state professional development systems, ensuring state certification, credentialing, and preservice programs have a strong focus on inclusion, and statewide support to all early childhood personnel to support children’s social emotional and behavioral health. Recommendations for LEA’s include strategies to promote access for infants, toddlers, and preschoolers with disabilities, such as strategies for modifying environments, as well as strategies to promote children’s participation, such as embedded instruction. Other recommendations include reviewing resource allocation, enhancing professional development, ensuring access to specialized supports, partnering with families, and collaborating with community providers.

Recommendations to SEA and LEA also include guidance specific to supporting positive social interactions between children with and without disabilities. For example, the position statement provides recommendations to SEA for building a coordinated professional development system which includes a common set of competencies that will support all providers to have the knowledge and skills to ensure that all children have the opportunity to participate in high quality social interactions. Additionally, guidance to LEA includes
recommendations for teacher training to support the access and participation of young children with disabilities. Specifically, the document states teacher training should address access and participation by attending to practices that address the classroom environment and practices that embed naturalistic instruction within ongoing classroom activities (United States Department of Health and Human Services & United States Department of Education, 2015).

Taken together, these two guidance documents indicate that inclusion is valued in ECI, by both the early childhood sector and the special education sector. These two documents highlight inclusion encompasses both, a regular early childhood classroom, and teachers’ use of inclusive instructional practices to insure the active participation of young children with disabilities in ongoing classroom activities.

The national landscape of inclusion. IDEA requires that states provide data to the Office of Special Education Programs (OSEP) of the USODE annually. The data are included in an Annual Report to Congress and includes data regarding the percentage of children receiving services across a variety of settings, including the regular early childhood classroom (USDOE, Office of Special Education Programs, 40th Annual Report to Congress, 2018). The data are used as an indicator of how well the field is doing to include young children with disabilities in classrooms alongside children without disabilities. In the report, children without disabilities are defined as those without an IEP. Regular education classroom are settings that include children without disabilities. There are four classifications that OSEP uses for time spent in regular education classrooms (a) at least 10 hours per week with majority of services in the classroom, (b) at least 10 hours per week with the majority of services elsewhere, (c) less than 10 hours per week in the regular early childhood classroom with the majority of services in the classroom, and (d) less than 10 hours per week with the majority of services elsewhere. In addition to time spent
in the regular education classroom, OSEP gathers data on other settings that children with disabilities receive their special education services. These include (a) separate classes, (b) the provision of service by a provider in a separate location, (c) separate schools, (d) residential settings, or (e) the home.

The 2018 40th Annual Report to Congress presents data reported by states in 2016. These data indicated that 6.4% of the overall population three to five had an identified disability and were receiving special education services under Part B, 619 of IDEA. Of those children being served under Part B, 619, 66.8% spent some of their time in the regular early childhood classroom, with 45.3% receiving most of their services in that setting. These data highlight the importance of the use of inclusive practices, given the number of young children with disabilities receiving at least some of their services in regular early childhood classrooms.

While most children were spending some time in the regular early childhood classroom, there remains a significant number of children who are not benefiting from an inclusive setting. For example, young children with disabilities who receive services in separate schools (22.7%), from a service coordinator, such as a therapist in a clinical setting (6.2%), or in a separate school, residential treatment facility or at home (4.3%). This suggests that 33.2% of young children with disabilities do not even have access to the regular early childhood setting. Furthermore, a review of OSEP’s annual reports to congress from 2013 to 2018 indicates a flat trend line for the rates of children being served in the regular early childhood classroom across the four categories of placements, as well as for children served in separate settings. From 2013 until 2018 the rate of children who spent at least 10 hours a week in a regular early childhood setting and received most of their special education services in that setting increased from 35.4% to 39.9%, representing only a 4.5% increase in inclusive placements. At the same time, the rate of children
in separate settings decreased from 37.6% to 33.2, representing only a 4.4 decrease in the segregation. This indicates data highlights the trend for placement of children age three to five in either a regular early childhood classroom or special education setting is not changing. These statements are supported by data from the literature which indicates that the number of children receiving their specialized supports in the regular early childhood classroom has changed little since the passage of PL 99-457 (1986; Odom et al., 2011). Moreover, national data shows that from 1987 to 2012 inclusive practices increased by only 5.7%, with many young children with disabilities receiving their ECI services in separate classrooms and programs from their typically developing peers (Barton & Smith, 2015).

Children with more significant disabilities, such as intellectual disability, autism, or other developmental disabilities also benefit from an inclusive early childhood classroom (Hanline & Fox, 1993; Hunt, Soto, Maier, Liboiron, & Bae, 2004). A comparison of children in Part B, 619 under IDEA used 2018 data submitted to OSEP to investigate the placement of children by the type of disability category and determine placements for children with more significant disabilities (U.S. Department of Education, 2019). The setting category was created by collapsing all placements that did not include the regular early childhood classroom. These include (a) separate classroom, (b) separate school, (c) residential facility, (d) home, (e) service provider in other setting, and (f) other settings. This analysis indicated that children who carry diagnoses that indicate more complex and significant needs, such as sensory impairments, developmental disabilities including autism, and intellectual disabilities are placed in separate settings more frequently than in the regular early childhood classroom compared to children with less complex disability labels, such as speech and language impairments. For example, 66% of children with autism were placed in a separate setting compared to 34% who were in a regular
early childhood classroom, 68% of children with intellectual disabilities were in a separate setting compared to 32% in a regular early childhood classroom, and 74% of children with multiple disabilities were in separate settings compared to 26% in a regular early childhood classroom (USDOE, 2019). This indicates children with more significant disabilities, who benefit from an inclusive placement, are less likely to be placed in such a setting.

The stagnant progress for including young children with disabilities in regular early childhood classrooms is occurring against a backdrop of increasing numbers of children entering Part B, 619 of IDEA. From 2013 to the 2017, the number of children in the Part B, 619 system increased by 28,259 children, representing a 9.6% increase in the number of children needing ECI. This indicates inclusion is not moving forward fast enough to keep pace with the growing number of children who are needing early childhood intervention services.

In addition to the increasing number of children requiring early intervention services are the number of young children with disabilities who are further excluded through suspension and expulsion. Young children with disabilities are reported to be removed from classrooms more often than children without disabilities (USDOE, Office of Civil Rights, 2014). In 2013-2014, 11.6% of students with disabilities were suspended compared to 5.6% of students without disabilities (Disability Scoop, 2018). In May 2017, the Connecticut State Department of Education reported declining rates of suspension (in school and out of school), and expulsion for children in preschool through grade two during the 2015-2016 school year (from 2,365 to 1,674) across the state. However, the same report revealed that for children in this age group with disabilities, the rates increased from 20.1% to 22.5% (CT State Department of Education, 2017). The numbers of preschool children with disabilities being suspended is a concern given these children are our neediest and have a mandated right to an education in the LRE.
Early childhood classrooms are a setting to support the development of social competence by facilitating positive social interactions between children with and without disabilities (Brown & Conroy, 2011; Guralnick, 1990). As defined earlier, social competence represents children’s success meeting their interpersonal goals using appropriate behavior (Guralnick, 1994) and are an alternative to children’s use of challenging behaviors. A focus on positive social interactions between children is the most effective strategy to address challenging behavior, as well as to facilitate the participation of young children with disabilities in activities within the regular early childhood classroom.

Research points to the important role teachers play in facilitating social interactions between children with and without disabilities (e.g., Katz & Girolametto, 2013). While teachers play an important role, much of the research around peer social interactions has relied on researchers as the interventionist (e.g., Pokorski, Barton, & Ledford, 2019). This makes it challenging to understand how feasible it is for teachers to employ evidence-based practices which facilitate social interactions between children with and without disabilities leading to their social competence. Focusing on peer social interactions requires knowledge of what teachers’ do to support engagement of young children with disabilities in social exchanges with their peers. Furthermore, it is critical to link teachers’ use of strategies to facilitate peer social interactions to improved social competence in children.

Chapter 1 provided an overview of early intervention, the importance of inclusion, and a hypothesis teachers are important facilitators of social competence. The chapter also provided a description of social competence and how this construct is related to inclusion. Given the link presented in this chapter between inclusive settings as a context to support peer social interactions leading to social competence the purpose of this dissertation is to investigate ECI
teachers’ use of evidence-based practices to facilitate peer social interactions between children with and without disabilities.
Chapter Two: Literature Review

The purpose of this chapter is to review the literature on use of instruction and intervention to facilitate positive social interactions between young children with and without disabilities leading to the development of social competence. The review in this chapter will cover literature related to peer social interaction interventions (PSII) designed to promote social competence development in young children with disabilities. This review will lay the foundation for expanding upon prior research as a means of understanding what teachers believe about peer social interaction interventions and how this relates to their use of those interventions. This foundation will serve as the basis for the research conducted as part of this dissertation.

Social Competence in ECI

Social competence is an important area of development of all young children (Guralnick, 2010; Odom, McConnell, & Brown, 2008). As defined in chapter 1, social competence is a child’s success in achieving their interpersonal goals using appropriate social behaviors and social competence is observed when children engage in positive social interactions with each other (Guralnick, 1994, 2010). This definition describes social competence as an outcome for children which is the result of a variety of factors including teachers’ use of interventions to facilitate positive social interactions between children with and without disabilities. Social competence is more complex than a child’s social skills, or social emotional learning, because social competence describes a child’s success in social interactions with their peers, with success meaning that children’s experience in social interactions are positive and enjoyable (Domitrovich, Durlak, Staley, & Weissberg, 2017; Guralnick, 2010; Howes, 1987; Rubin & Rose-Krasnor, 1992; Vaughn et al., 2009).
As described in Chapter 1, social competence is an integration of developmental domains (Guralnick, 1990, 2010). This integration of domains requires a focus on the development of a variety of social skills that underlay children’s ability to positively socially interact with each other. These skills include self-regulation (Denham, 2006), social problem-solving (Crick & Dodge, 1996), successful entry into peer play groups (Putallaz & Gottman, 1981), and social initiations (Fox, Shores, Lindeman, & Strain, 1986). The ultimate result of focusing on these areas of development is the assurance that young children positively and successfully interact with each other (Guralnick, 1990, 2010).

Social competence is developmental, meaning that social interactions between children evolve over time as they grow with the topography of positive social interactions between children changing as children develop (Bornstein, Hahn, & Hayes, 2010; Denham, 2006; Elicker, Englund, & Sroufe, 1992; Vaughn et al., 2009; Waters & Sroufe, 1983). This evolution of social interactions is particularly true in early childhood, in which children’s rapid development leads to changes in the complexity and quality of young children’s social interactions (e.g., Buysse, Goldman, West, & Hollingsworth, 2008; Odom, et al., 2008). Peer social interactions occur gradually as young children grow and develop (Howes et al., 1988) and is influenced by both families and teachers in both the relationship they develop with young children, and the actions they take to create opportunities for social interactions with other children (McCollum & Ostrosky, 2008). In the course of typical child development an interest in peers emerges during toddlerhood (Ladd, 2005). However, an interest in peers does not translate into social competence, meaning that all young children require instruction to learn how to be successful in social interactions with their peers (Howes et al., 1988). The developmental nature of social
competence requires teachers be equipped with knowledge and skills to facilitate regarding young children’s social interactions across different developmental timepoints.

Social competence also requires a child’s adaption to different social settings (Attili, 1990), indicating that young children need to have the ability to enact a repertoire of social behaviors and skills across different social contexts. Contextual variables that require adaptation include the number of children in a playgroup (McCabe et al., 1996) and the materials present in a playgroup (Driscoll & Carter, 2009). Both the developmental nature of social competence and the need for children to adapt across social contexts requires teachers have knowledge and skill to use a variety of instruction and intervention supporting children’s skill acquisition under a variety of conditions.

One setting in which children have multiple opportunities for social interactions are early childhood classrooms, making the teacher an important factor in ensuring the development of social competence in young children. Teachers’ use of evidence-based instruction and intervention to promote social interactions between children with and without disabilities has been shown to improve their social competence (Bruder & Chen, 2007; Odom et al., 1999; Odom & Strain, 1986). Moreover, when young children lack social competence skills and/or have a disability they require more explicit instruction, or interventions, in order to learn the specific social behaviors that are necessary for successful peer social interactions, leading to the development of social competence (Sainato, Jung, Salmon, & Axe, 2008). The need for explicit instruction around social competence skills requires teachers possess knowledge and skill around a range of specialized instruction and interventions for children who lack social competence skills.
Interventions to Improve Social Competence

As described in the first chapter, an inclusive early childhood classroom is a vital setting which allows for instruction to support the development of social competence for young children with disabilities. Effective inclusive early childhood classrooms are unique in that they are based on a general early childhood curriculum, which is grounded in constructivist theory, conjoined with the use of individualized interventions grounded in behaviorist theory (Kontos & Wicox-Herzog, 1997; Mallory & New, 1994; Odom & Wolery, 2003). An important leaning target of interventions in inclusive classrooms is to support the active participation and engagement of young children with disabilities throughout the early childhood curriculum (McWilliam & Casey, 2008; McWilliam, Scarbourough, & Kim, 2003).

Naturalistic instruction. A group of instructional practices known as naturalistic instruction (NI) evolved as a result of the need to provide interventions to young children with disabilities in inclusive early childhood settings (Snyder et al., 2015) and span the divide between ECE and ECI regarding theoretical approaches for instruction and intervention (Rule, Losardo, Dinnebeil, Kaiser, & Rowland, 1998). NI, as a group of practices, include approaches that facilitate children’s participation and active engagement in the general ECE curriculum (Snyder et al., 2015). NI provides a mechanism for implementing systematic instruction to address a child’s individualized goals because they include intention on the part of the teacher to teach a specific behavior, with the method for teaching matching the desired child behavior, and with the topography of the child behavior defined in advance of the teaching (Rule et al., 1998). Furthermore, NI utilize early childhood teachers, or other typical classroom personnel, during regular classroom activities to deliver instruction based on child interests and initiations (Shepley, Lane, Grisham-Brown, Spriggs, & Winstead, 2018). Given both the systematic nature
of the instruction combined with child initiations and interests, NI integrates both constructivist and behavioral learning theories (Bruder, 1997).

Types of NI include incidental teaching, milieu and enhanced milieu teaching, as well as embedded or activity-based instruction. Different types of NI share several common features (Rule et al., 1998). They are situated within the ongoing activities and routines in which the child spends their time and instruction is delivered by the relevant people within those settings (Shepley et al., 2018). Children’s instructional goals are socially valid, functional, generalizable, and support the child's active participation in the natural environments. The instructional episode begins with the child’s initiation, instruction is brief, and occurs frequently across many different activities and within multiple routines (Snyder et al., 2015). Finally, the instruction uses natural consequences or reinforcement to increase the likelihood of the child reproducing the behavior (Horn & Banerjee, 2009; Rahn, Coogle, & Ottley, 2019).

NI were initially developed and used to support the language and communication development of young children with disabilities but evolved over time to include other domains of development, including children’s social skills (Rahn et al., 2019). A review of NI studies from 1980 to 2013 for preschool age children in classroom settings identified 43 studies utilizing NI within a range of early childhood settings including inclusive classrooms, self-contained classrooms, and Head Start classrooms (Snyder et al., 2015). Across these 43 studies NI was implemented within a variety of classroom activities including large group, small group, play, meals, and transitions. The children in the study ranged in age from 35 months to 54 months and had a variety of disabilities such as developmental delay, autism, speech and language delays and Down Syndrome. The child outcomes addressed across the 43 NI studies varied and included communication, pre-academic, social, motor, adaptive, and cognition skills suggesting that NI
are an effective intervention to address a variety of learning needs. NI are not only supported empirically, they are also a DEC Recommended Practice (Division for Early Childhood Recommended Practices, 2014). NI are an important set of practices for teachers to use to facilitate social interactions between children with and without disabilities leading to the development of their social competence (Brown, Odom, McConnell, & Rathel, 2008).

**Peer social interaction interventions.** A common framework for a group of interventions to support interactions between children with and without disabilities was first described in 1993 (Odom, McConnell, & Chandler, 1993) and included three categories of instructional and intervention practices; environmental arrangement practices, child specific interventions, and peer mediated interventions. This framework was further expanded upon to include a fourth category of interventions described as combined approach packages (West, Brown, Grego, & Johnson, 2007). The four categories of peer social interaction interventions (PSII) with examples are in Table 1.
### Peer Social Interaction Interventions

<table>
<thead>
<tr>
<th>Peer Social Interaction Intervention Category</th>
<th>Examples of Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Arrangements</td>
<td>Creating play groups of children with and without disabilities</td>
</tr>
<tr>
<td></td>
<td>Using toys that promote social interactions</td>
</tr>
<tr>
<td>Teacher Mediated Interventions</td>
<td>Using direct instruction to teach social skills</td>
</tr>
<tr>
<td></td>
<td>Prompting a child with a disability to use a social skill</td>
</tr>
<tr>
<td></td>
<td>Modeling social skills for children with disabilities</td>
</tr>
<tr>
<td>Peer Mediated Interventions</td>
<td>Prompting a child without disabilities to socially interact with a child with disabilities</td>
</tr>
<tr>
<td></td>
<td>Praising a child without disabilities for socially interacting with a child with a disability</td>
</tr>
<tr>
<td></td>
<td>Teaching a child without disabilities to persist in their efforts to get a child with a disability to respond to a social initiation</td>
</tr>
<tr>
<td>Combined Approach Packages</td>
<td>Prompting and reinforcing both children with and without disabilities during classroom activities</td>
</tr>
<tr>
<td></td>
<td>Teaching children with and without disabilities to self-monitor their use of social interaction behaviors</td>
</tr>
</tbody>
</table>
PSII have empirical support for their efficacy in supporting the development of positive peer social interaction behaviors in young children with disabilities promoting the development of social competence (Brown & Conroy, 2001; Brown, et al., 2008; Chandler, Lubeck, & Fowler, 1992; Goldstein, Lackey, & Schneider, 2014; Odom et al., 1999; Odom & Strain, 1984; Peterson & McConnell, 1996; Strain & Shores, 1977; Whalon, Conroy, Marinez, & Werch, 2015). Types of PSII include environmental arrangements (e.g., DeKlyen & Odom, 1989; Ivory & McCollum, 1999; Nordquist, Twardosz, & McEvoy, 1991), teacher-mediated interventions directed towards the child with a disability (e.g., Fox et al., 1986; Goldstein & Cisar, 1992), or peer-mediated interventions directed towards enlisting typically developing peer’s as confederates in eliciting social interaction behavior from young children with disabilities (e.g., LeFebvre & Strain, 1989; Odom & Strain, 1986; Strain & Shores, 1977). A fourth type of intervention is the use of a combined approach package, which incorporates the three preceding categories into a single social skill interaction training package to address a child’s social competence (e.g., Goldstein et al., 2014; Whalon et al., 2015). Studies describing each of the four categories of PSII are presented in Table 2.
Table 2.

Research on Peer Social Interaction Intervention Categories

<table>
<thead>
<tr>
<th>Peer Social Interaction Intervention Categories</th>
<th>Authors, Date</th>
<th>PSII Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Arrangements</td>
<td>Driscoll &amp; Carter, 2009; Ivory &amp; McCollum, 1999</td>
<td>Comparison of toys that promote social interaction to those that do not</td>
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<td></td>
<td>Chandler et al., 1992; Driscoll &amp; Carter, 2004</td>
<td>Modifying the environment, such as creating small spaces for close proximity of children</td>
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<td></td>
<td>Nordquist et al., 1991</td>
<td>Modifying the classroom schedule to include more opportunities for play</td>
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<td></td>
<td>McCabe et al., 1996</td>
<td>Size of the playgroup, smaller playgroups facilitate more social interactions</td>
</tr>
<tr>
<td>Teacher Mediated Interventions</td>
<td>Gena, 2006; Garfinkle &amp; Schwartz, 2002; Hendrickson, Gardner, Kaiser, &amp; Riley, 1993; Hundert &amp; Hopkins, 1992</td>
<td>Directing prompting and reinforcement to a child with a disability to teach them to socially interact with other children</td>
</tr>
<tr>
<td></td>
<td>Stanton-Chapman &amp; Brown, 2015</td>
<td>Used direct instruction to teach children specific social skills, such as how to ask for toys or how to share toys with other children</td>
</tr>
<tr>
<td></td>
<td>Kohler, Strain, Maretsky, &amp; DeCesare, 1990; McConnell et al., 1991</td>
<td>Used contingent reinforcement systems to teach children with disabilities to socially interact with other children</td>
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<tr>
<td></td>
<td>DeKlyen &amp; Odom, 1989; Odom et al., 1999; Odom et al., 2019; Odom, Jenkins,</td>
<td>Used curriculums to structure children’s play to teach a child with a disability to socially interact</td>
</tr>
<tr>
<td>Peer Social Interaction Intervention Categories</td>
<td>Authors, Date</td>
<td>PSII Practice</td>
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<tr>
<td></td>
<td>Speltz, &amp; DeKlyen,</td>
<td>Used video self-modeling to teach children with autism to initiate social interactions</td>
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<td></td>
<td>1982</td>
<td></td>
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<tr>
<td></td>
<td>Boudreau &amp; Harvey,</td>
<td>Used Social Stories™ (Grey, 1994), along with prompting to teach social interaction skills to three preschool children with autism.</td>
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<tr>
<td></td>
<td>2013</td>
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<td></td>
<td>Crozier &amp; Tincani,</td>
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<tr>
<td></td>
<td>2007</td>
<td></td>
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<tr>
<td>Peer Mediated Interventions</td>
<td>Strain, Shores, &amp; Kerr,</td>
<td>Taught children without disabilities to persist in initiating to a child with a disability until they responded</td>
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<td></td>
<td>1976; Strain, Shores, &amp; Timm,</td>
<td></td>
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<td></td>
<td>1977</td>
<td></td>
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<tr>
<td></td>
<td>Bass &amp; Mulick, 2007;</td>
<td>Literature reviews of peer-mediated interventions demonstrating that children without disabilities can be taught to get children with disabilities to socially respond leading to social interactions</td>
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<tr>
<td></td>
<td>DiSalvo &amp; Oswald;</td>
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<tr>
<td></td>
<td>2002; Goldstein et al.,</td>
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<td></td>
<td>2014; Sperry, Neitzel, &amp;</td>
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<td></td>
<td>Engelhart-Wells, 2010;</td>
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<td></td>
<td>Zagona &amp; Mastergeorge</td>
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<tr>
<td></td>
<td>Katz &amp; Girolametto, 2013</td>
<td>Taught speech language pathologists and early childhood teachers to teach peers to teach a child with autism to socially respond</td>
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<tr>
<td></td>
<td>Barber, Saffo, Gilpin, Craft,</td>
<td>Taught children without disabilities to get children with autism to socially respond to their initiations</td>
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<tr>
<td></td>
<td>&amp; Goldstein, 2016</td>
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<tr>
<td>Peer Social Interaction Intervention Categories</td>
<td>Authors, Date</td>
<td>PSII Practice</td>
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<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>Combined Approach Packages</td>
<td>Odom et al., 1999</td>
<td>For one group of preschool children used small play areas, direct instruction for social skills and peer mediation to increase children’s social competence (peer sociometric ratings)</td>
</tr>
<tr>
<td></td>
<td>Stanton-Chapman &amp; Brown, 2015</td>
<td>Used structured play activities, direct instruction for play skills and play vocabulary, and peer mediation to improve the social initiations and responses of children with developmental delays and language impairments</td>
</tr>
<tr>
<td></td>
<td>Schepis et al., 2003</td>
<td>Trained classroom assistants (i.e., paraeducators) to use children’s interests, to prompt and reinforce the child with a disability, and to use peer mediation (i.e., prompt and reinforce the child without a disability) to play cooperatively</td>
</tr>
<tr>
<td></td>
<td>Hundert, Rowe, &amp; Harrison, 2014</td>
<td>Social Stories™ (Grey, 1994) and use of a peer buddy had the strongest effect for changing social interaction behaviors for three preschool children with autism</td>
</tr>
</tbody>
</table>
Environmental arrangement practices. Environmental arrangement practices are a form of instruction which rely on the principles of constructivist learning theory. The focus of environmental arrangement practices is on creating settings that encourage children to socially interact using interest-based learning opportunities. Environmental arrangement practices are the most simplistic form of PSII, are the least invasive, least intensive, and require less teacher time. Examples of environmental arrangement practices include the deliberate use of small spaces for play, the selection of social versus isolate toys for use in play centers, structuring play activities to ensure cooperative social play, and deliberately grouping small numbers of children both with and without disabilities during play or other classroom routines (Odom et al., 1993; West et al., 2007).

Studies investigating environmental arrangement practices incorporate a behavioral learning lens by describing this type of instruction as a setting event (Carter & Driscoll, 2007; Chandler, et al., 1992; Davis & Fox, 1999; Driscoll & Carter, 2010; O’Gorman Hughes & Carter 2002; Nordquist et al., 1991; Wahler & Fox, 1981). Setting events in these studies are defined as “…environmental conditions that influence behavior rather than eliciting direct control” (Driscoll & Carter, 2004, p. 9). In studies utilizing environmental arrangement practices, setting events change the relationship between variables in the environment and the occurrence of young children’s behavior (Kennedy & Itkonen, 1993), which in this case are the social interaction behaviors between children with and without disabilities. This form of instruction serves to enhance the strength of reinforcement that occurs contingent to social interactions between children with and without disabilities by being temporally present in the play activity. For example, structuring a play activity in a small play area that includes materials to promote social interactions which are of interest to all young children increases the likelihood that young
children will socially interact because they are physically close together and engaged in an enjoyable activity (Carter & Driscoll, 2007).

Findings related to environmental arrangements have found differential effects for specific types of setting events. For example, the type of toys or materials used for social versus isolate play supports more frequent social interactions between children with and without disabilities (Driscoll & Carter, 2009; O’Gorman Hughes & Carter, 2002; Ivory & McCollum, 1999). Alterations to the environment (Chandler et al., 1992) and alterations to the schedule (Norquist et al., 1991) have also been found to relate to improved social interactions for children with disabilities. Additionally, social density (i.e., size) of the group (McCabe et al., 1996), and the spatial density of a play activity (size of the space; Driscoll & Carter, 2004) have also been linked to positive social outcomes for young children with disabilities.

**Teacher mediated interventions.** The category of teacher mediated interventions incorporate instruction and intervention practices deriving from both constructivist and behavioral learning theory. Examples of practices stemming from constructivist theory include modeling social skills and describing use of social skills within ongoing activities. An example of a teacher mediated intervention practice stemming from behavioral learning theory is direct instruction for children with disabilities. Direct instruction includes the presentation of a stimulus to elicit a prescribed behavior followed by reinforcement of the behavior to ensure the likelihood the child will use the behavior again (Alberto & Troutman, 2009). What unites teacher mediated interventions is the intentionality of instruction, whether from constructivism or behaviorism, towards children with an identified disability or peer social competence deficits (Odom et al., 1999). Teacher-mediated interventions include individualized interventions within both individual and small group instruction. Studies centered on teacher mediated interventions focus
on the use of targeted strategies such as, prompting and reinforcement to children with disabilities or social competence delays during ongoing play activities (Garfinkle & Schwartz, 2002; Gena, 2006; Hendrickson et al., 1993; Hundert & Hopkins, 1992), script training for children with disabilities to support their knowledge of pretend play activities prior to play (Goldstein & Cisar, 1992), direct social skill training to teach children with disabilities social initiations and responses in social engagement with other children (Stanton-Chapman & Brown, 2015), the use of contingency reinforcement systems of desired social skills for children with disabilities (Kohler et al., 1990; McConnell et al., 1991), and the use of curriculums designed to structure play and social activities to support social interactions between children with and without disabilities (DeKlyen & Odom, 1989; Odom et al., 1999, Odom et al., 2019; Odom et al., 1982).

More recently, Stanton-Chapman and Brown (2015) targeted teaching three children with developmental delays and language impairments specific social interaction skills such as, social initiations, social responding, using names, being close to peers, and turn taking. They found that the children in the study improved their social communication skills, which are necessary for peer social interactions. Crozier and Tincani (2007) used Social Stories™ (Grey, 1994) to teach pro-social behaviors to three preschool children with autism. They found that Social Stories™ (Grey, 1994) alone increased children’s pro-social behaviors, as well as decreased negative behaviors, for two of the children in the study. The addition of prompting led to changes in behavior for the third participant (Crozier & Tincani, 2007). Boudreau and Harvey (2013) used video self-modeling to teach three preschool children with autism social initiation strategies. They found that children’s use of social strategies, following intervention, was near that of what could be expected for typically developing children of the same age (Boudreau & Harvey, 2013).
These three examples provide a snapshot of the effectiveness teacher mediated interventions indicating these strategies facilitate social interactions between children with and without disabilities.

**Peer mediated interventions.** Peer mediated interventions rely on the principles of behavioral learning theory. Peer mediated interventions focus on deliberately utilizing typically developing peers to promote the ability of children with disabilities to engage in social interactions with them (e.g., Odom & Strain, 1986; Strain, Shores, & Timm, 1977; Strain & Timm, 1974). In peer mediated interventions, teachers train typically developing peers to socially initiate with children with disabilities, as well as to persist in their efforts, by providing prompts and reinforcement to the peers for their social interaction behaviors (Goldstein, Kaczmarek, Pennington, & Shafer 1992; Guralnick, 1976; Hughett, Kohler, & Raschke, 2013; Jung, et al., 2008; Katz & Girolametto, 2013; LeFebrve & Strain, 1989; Odom & McConnell, 1985; Strain, Danko, & Kohler, 1995; Strain, Hoyson, & Jamieson, 1985). Peer-mediated interventions rely on the concept of social reinforcement, in which the target child responds contingently to a social initiation from a peer, and is reinforced by the subsequent social response of the peer back to the target child (Strain, Shores, & Kerr, 1976; Strain et al., 1977; Strain & Shores, 1977). This category of interventions relies on teachers to identify peers who are socially skilled, and train them to use strategies to gain the attention of children with disabilities in order to request objects, share objects, and take turns with them (Bass & Mulick, 2007; DiSalvo & Oswald, 2002; English, Goldstein, Shafer, & Kaczmarek, 1997; Goldstein & Cisar, 1992; Goldstein et al., 1992, 2014; Sperry et al., 2010; Zagona & Mastergeorge, 2016). Peer-mediated interventions have significant empirical evidence, established through numerous single case design studies supporting peer mediated interventions efficacy for increasing the rates of social

Most recently Katz and Girolametto (2013) trained early childhood teachers and speech-language pathologists to implement a peer mediated intervention with three preschoolers with ASD and six of their peers to promote the social engagement of children with autism in play. All children with autism made gains in the frequency of their social interactions with the typically developing peers or confederates, as well as the duration of time they were socially engaged with their peers (Katz & Girolametto, 2013). Barber et al. (2015) used a peer mediated intervention, Stay Play and Talk (English et al., 1997), with three preschoolers with autism to promote their social communication skills during play. All three preschoolers demonstrated increases in their social responding and reciprocal exchanges with their peer confederates (Barber et al., 2015). Jung et al. (2008) used peer modeling and high probability requests to increase the social responses of three preschool children with autism. All three of the children increased their rate of social responses following the implementation of the intervention (Jung et al., 2008). These three studies illustrate the efficacy of peer-mediated interventions for supporting the peer social competence of young children with disabilities.

**Combined approach packages.** Combined approach packages include practices from all three categories of the prior PSII (Banda, Hart, & Liu-Gitz, 2010; Jung, et al., 2008; Nelson, Nelson, McDonnell, Johnston, & Crompton, 2007; Odom et al., 1999; Schepis, Reid, Owenbey, & Clary, 2003; Stanton-Chapman, Denning, & Jamieson, 2012). Combined approach peer social competence training packages theoretically offer a more advantageous approach to implementing an effective social interaction intervention given their comprehensiveness. However, they are
also more likely to be more intrusive and intensive, possibly decreasing their appeal to ECI practitioners (e.g., Odom et al., 1999).

A combined approach package for young children with disabilities was first described by Odom and his colleagues (1999). In this study, environmental arrangements, child specific (teacher mediated) interventions, peer mediated interventions, and a combined approach training package they identified as comprehensive, were compared to identify differences in child peer social competence outcomes for the type of intervention utilized. Ninety-two children in four classrooms in two states were randomly assigned to receive one of the intervention types and a fifth classroom served as a control. The experimental design utilized pre-test and posttest scores for children’s social competence via direct observation and peer socio-metric ratings. Interventions took place during free play activities within the classrooms. In the environmental arrangement conditions teachers were taught to utilize structured play groups, while in the child specific condition teachers were taught to use social skills training groups. In the peer-mediated condition teachers were taught to train peers to use specific social skills and then to prompt peers to use those skills with children with disabilities during free play activities. In the combined approach package teachers were trained to use all three of the previous strategies with children with and without disabilities. The researchers found that while all the interventions produced effects related to changes in children’s pre-test and posttest peer social competence ratings, the combined approach supported the development of peer social competence the least effectively. The researchers speculated that this may be due to the intensity of the intervention and that it required teachers to “do too much” (p. 89). However, upon follow up, the quality of peer social interactions was observed to be the same as those for children who received the environmental arrangements and peer-mediated conditions, and this was substantiated by teacher ratings for the
intervention. The authors further concluded that these types of intervention may require time for their effects to be felt by teachers and supported by child outcomes (Odom et al., 1999).

More recently, Stanton-Chapman et al. (2012) used a training package that consisted of structured play activities, direct instruction for play skills and play vocabulary, and peer mediation to improve the social communication skills of four children with either developmental delays or language impairments. All children increased, both their social initiations, and social responses with peers (Stanton-Chapman et al., 2012). Hundert et al. (2014) used both, Social Stories™ (Grey, 1994) alone, and in combination with a peer buddy to investigate the differential effects of these interventions on the interactive play of three preschool children with autism. They found that the combination of social scripts and the peer buddy had the most significant effect on the interactive play of the children with autism (Hundert et al., 2014). Shepis et al. (2003) trained classroom assistants to use children’s interests, prompts and reinforcement, as well as a peer-mediated intervention, to support cooperative play for two children with severe disabilities. The children made gains in their cooperative participation in play with typically developing peers, while the social participation of children whose support staff did not receive training, did not increase (Shepis et al., 2003). These three studies highlight the effectiveness of the use of multiple strategies combined into training packages to build the social competence of preschool children with disabilities.

### A PSII Hierarchy

A sequential hierarchy to support teacher decision making regarding use of PSII was described in 2001 and again in 2008 (Brown, et al., 2001, 2008). The hierarchy utilizes three levels. The first level are classroom interventions and includes a social competence curriculum in an inclusive preschool setting using developmentally appropriate practices. The second level
TEACHERS’ BELIEFS AND USE OF PSII

posits the use of NI, such as incidental teaching of social behavior for friendship activities. Friendship activities embed social behaviors within early childhood activities such as songs, games, and play. The third level postulates the use of explicit social skills intervention, such as buddy skills training and social integration activities. Buddy skills utilize peer mediated interventions (e.g., English et al., 1997) whereas social integration activities, promote social interactions by putting children close to each other, using activities that promote social interactions, and scaffolding or otherwise encouraging children to interact with one another (e.g., Chandler, 1998).

This hierarchy has never progressed beyond this description and has not been vetted in research. In their 2008 chapter Brown et al. proposed a deployment-focused model stemming from the mental health field (Weisz, Jensen, & McLeod, 2004). The deployment-focused model includes six phases. These phases include (a) the use of a protocol or manual, (b) subjecting the model to efficacy testing, (c) then field testing the model, followed by (d) two phases to examine the model’s effectiveness using randomized control trials with business as usual control groups, and then the final phase (e) assessing the sustainability of the model.

A hierarchal framework for PSII is helpful for thinking about a mechanism to promote social competence. However, there are concerns about this proposed hierarchy regarding systems level issues such as the availability of truly inclusive classrooms for young children with disabilities in which they experience a developmentally appropriate curriculum in an early childhood classroom. Furthermore, there are few social competence curriculums and those that are available (e.g., Incredible Years®, Webster-Stratton, 2012; Promoting Alternative Thinking Strategies (PATHS), Domitrovich, Cortes, & Greenburg, 2007) were developed and vetted for young children with mental health or behavioral problems precluding their efficacy for children
with social competence deficits due to other disabilities. Additionally, friendship activities and social integration activities do not encapsulate specialized instruction that young children with disabilities may require, meaning this hierarchal framework does not explicitly describe the use of specialized behavioral interventions for children who may have more significant disabilities.

**Teachers’ Implementation of PSII**

While the literature around these four categories of PSII suggests that they are effective in supporting more frequent social interactions between children with and without disabilities leading to improved social competence, they do not appear to be widely used by teachers (Baumgart, Filler, & Askvig, 1991; Brown & Conroy, 2011; Brown & Odom, 1995; McConnell, McEvoy, & Odom, 1992; Michnowicz, McConnell, Peterson, & Odom, 1995; Odom et al., 1999; Odom, McLean, Johnson, & LaMontagne, 1995; Odom et al., 1993; Peterson & McConnell, 1996; Rheams & Bain, 2005; Siperstein & Favazza, 2008; West, et al., 2007). When teachers do implement PSII, they tend to utilize simple instructional practices which are less intensive and less directive strategies and align with constructivist learning theory (Brown & Conroy, 2011; Buysse, Goldman, & Skinner, 2002; Kemple, Kim, Ellis, & Han, 2008; Odom et al, 1993; Odom, Peterson, McConnell, & Ostrosky, 1990; Peterson & McConnell, 1996; West et al., 2007). This finding is concerning considering the evidence for the effectiveness of interventions utilizing behavioral principles to support social competence for children with disabilities (Brown & Conroy, 2011). Lower rates of use reported in the literature may be due to a “dearth” (McConnell et al., 1992, p. 278) of social competence curriculum and intervention materials which can support teachers’ implementation of more complex PSII leading to social competence for young children with disabilities (Brown et al., 2008; Odom et al., 1993; Siperstein & Favazza, 2008; West et al., 2007).
A research to practice gap. While the gap between what research highlights as critical for the development of social competence in young children with disabilities and what occurs in the day to day practice in classrooms is clear, there is little research examining this gap, and the research that does exist is dated (Brown, & Conroy, 2011). While PSII are an effective group of instruction and intervention practices that align with NI and are particularly salient for supporting children’s social competence through their active participation in social interactions, there is little information to explain why teachers are not utilizing them.

One reason for this research to practice gap may be due flaws in the research literature base. The studies reviewed in this chapter are dated. Most social competence research including PSII occurred in the 1980’s and 1990’s. This indicates a current lack of focus on both social competence and social interactions in the field of ECI. Furthermore, there are few studies that utilize research methodology other than single case design. This means that too few children have benefitted from PSII and this limits are understanding of the effectiveness of PSII to a broader population of young children with disabilities. Furthermore, most studies described in this chapter focused on young children with autism. When the research base is constrained in such a way it limits the generalizability of findings and this presents an additional challenge for addressing a gap in practice. Additionally, many of the studies do not utilize the teacher as the implementor, relying instead on graduate students or researchers (e.g., Pokorski et al., 2019), further confounding our knowledge regarding implementation.

Acceptability, Feasibility, and Use of PSII in ECI

Two studies conducted 14 years apart produced remarkably similar evidence related to teachers’ beliefs and use of PSII that provide insight into a pattern regarding teachers use of PSII. In a 1993 study, Odom and colleagues used a questionnaire titled the Social Intervention
Program Features Questionnaire (SIPFQ), to gauge the beliefs of a sample of 131 ECI preschool classroom teachers across five states for the acceptability, feasibility, and reported current use of PSII for environmental arrangements, child specific interventions, and peer mediated interventions. In 2007, West et al. used a conceptual replication research framework of the Odom et al., 1993 study to update the 14-year old (West et al., 2007). In a conceptual replication framework, some components of the original study are altered (Coyne, Cook, & Therrian, 2016).

West et al. 2007 updated the results from Odom et al. 1993 using a contemporary sample of 337 DEC members, revised the questionnaire from the original study, and altered the analysis plan. DEC is the national professional organization that is dedicated to the educational support of infants, toddlers, and young children with disabilities and its members include ECI teachers (Sandall, McClean, & Smith, 2000). DEC was founded by a group of volunteers in 1973, who were concerned about the development of young children with disabilities, and its membership has historically included ECI teachers and ECE teachers (McLean, Sandall, & Smith, 2016). The DEC teachers in the 2007 study were primarily preschool special education teachers or EC teachers. The 2007 study revised the questionnaire by adding a fourth category of combined approach practices and changed the child specific category name to teacher mediated interventions. The researchers also changed the Likert scale from a five-point scale to a four-point scale stating the change in the scale created negative and positive poles by removing the ambiguous middle. The researchers renamed the questionnaire the Social Interactions Program Features Questionnaire-Revised (SIPFQ-R).

The SIPFQ-R measures teachers’ beliefs about the acceptability and feasibility of the four categories of peer social interaction interventions, as well as their reported current use of those
practices. These studies are supported by a line of research around the acceptability of behavioral treatments in school psychology literature. Acceptability research investigates teacher beliefs about the social validity of different types of behavioral treatment interventions (see Eckert & Hintze, 2000; Elliott, 1988; and Miltenberger, 1990). Beliefs about the acceptability of behavioral interventions is empirically linked to teachers’ perception for the feasibility to use practice (Chafouleas, Riley-Tillman, Briesch, & Chanese, 2008). Factors related to feasibility include the complexity of the interventions, access to resources needed for implementation, and the time required to implement the intervention (Sanetti, Chafouleas, Berggren, Faggella-Luby, & Byron, 2016). Research on the acceptability of behavioral interventions to school age general education classroom teachers has consistently found that teachers’ perception for the acceptability of a practice is linked to their reported use (Chafouleas et al., 2008; Cowan & Sheridan, 2003; Elliott, 1988; Finn & Sladeczek, 2001; Martens, Witt, Elliott, & Darveaux, 1985; Miltenberger, 1990; Turan, Ostrosky, Halle, & DeStefano, 2004).

West et al. (2007) used a repeated multivariate analysis of variance (MANOVA) to look at the mean differences between teachers’ ratings for the acceptability, feasibility, and current use for each of the four categories of peer interaction interventions. The mean differences indicated that teachers believed PSII to be more acceptable to use than they reported them to be feasible to use. Furthermore, they rated PSII as more feasible to use than they reported using the practices. Furthermore, the results showed statistically significant effects demonstrating that as interventions became more complex teachers perceived them as less acceptable, less feasible, and used the interventions less often.

The pattern of findings in the West et al. 2007 study matched the findings from the Odom et al. 1993 study. Both studies found that teachers rated instructional practices across the four
categories of PSII as more acceptable than feasible and more feasible than they currently used. This pattern of teacher response indicates the teachers in both studies reported that peer social interaction practices were a good philosophical fit but may not be feasible to use with their current resources, and thus, teachers used peer social interaction interventions less often. Furthermore, both studies found that teachers rated environmental arrangement practices as the most acceptable, feasible, and reported using them the most often. This finding suggests teachers prefer instructional strategies that are less intensive and grounded in constructivism.

These studies suggest that PSII are perceived as socially valid by teachers but use these practices to a lesser extent possibly due to a lack of resources. In both studies, the use of t-tests confirmed that as PSII became more intense and more complex teachers rated them as less acceptable, less feasible, and reported using them less often. Teachers’ description of implementation barriers was also similar across the two studies. Implementation barriers were associated with variables within the early childhood programs, such as access to children without disabilities, the severity of children’s disability, the number of personnel available, a lack of materials and a lack of time. The similarities in the reported barriers between the two studies suggest that factors related to early childhood programs may impede the ability of teachers to utilize PSII. Taken together, these two studies demonstrate that teacher beliefs about the acceptability of PSII, as well as the feasibility for their use, are factors that are associated with their reported implementation of those practices.

**Problem Statement**

The inclusion of young children in the same settings as their peers without disabilities is critical to foster the development of social competence. Data presented in Chapter 1 highlighted the stagnant nature of inclusion, even as more children are being identified as needing early
intervention. Furthermore, inclusion moves beyond the placement of a child in a classroom with typically developing peers, as it requires action on the part of a teacher. For example, an early study examining the effects of inclusion showed that the social behaviors of children with disabilities changed the most significantly when the teacher intentionally structured free play activities to support social interactions between children with and without disabilities (Wylie, Devoney, Guralnick, & Rubin, 1974). Despite evidence for the importance of teacher action, there is further evidence suggesting that teachers do not focus on instruction of social behaviors for young children with disabilities (e.g., Michnowicz, et al., 1995). The problem in ECI is then twofold. First, few children, especially those with more significant disabilities, are benefitting from an inclusive classroom setting, and second, when they do receive ECI services in an inclusive setting, they are not receiving interventions to facilitate social interactions with their peers which leads to their social competence.

The beliefs of personnel working with both young children with and without disabilities in inclusive settings may be associated with their use of evidence-based social interaction interventions in inclusive settings. For example, in a survey of early childhood administrators regarding barriers and solutions to inclusion, 30% of respondents indicated attitudes and beliefs contributed to barriers to inclusion (Barton & Smith, 2015). Furthermore, evidence in the research literature suggests that teacher attitude or beliefs around the inclusion of children with disabilities is related to teacher knowledge and training for the use of instruction and intervention (Baker-Ericzén, Garnand Mueggenborg, & Shea, 2009; Buysse, Wesley, Keyes, & Bailey, 1996; Dinnebeil, McInerney, Fox, & Juchartz-Pendry, 1998; Mulvihill, Shearer, & Van Horn, 2002). A 2019 report on general education teachers Kindergarten through grade 12 found teachers with a strong sense of self-efficacy had a more positive mindset about inclusion. This report further
indicated teachers with a positive mindset about inclusion were more likely to individualize instruction, as well as recognize that effective teaching practices supports the learning and development of children with disabilities (National Center for Learning Disabilities, 2019). These facts are backed up by the joint position statement issued by the USHHS and USDOE (2015) which posits that efforts to expand inclusion in ECI must include a “strong focus on shifting attitudes and beliefs” (USHHS & USDOE, 2015, p. 6).

Teachers’ internal beliefs may equate to their observed behavior, therefore understanding teachers’ beliefs about PSII may help identify why use, or fail to use, this valuable set of instruction and intervention. The literature on social validity suggests that implementers of interventions must recognize the value for the practice and deem it acceptable (Kazdin, 1977). Acceptability is defined as “the judgements of laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client” (Kazdin, 1981, p. 493). In fact, there is abundant research investigating teachers’ use of behavioral interventions which focuses on teachers’ beliefs about the acceptability of these interventions (e.g., Eckert & Hintze, 2000). Research investigating treatment acceptability has found that acceptability differentiates teacher response ratings by the type of intervention (e.g., Elliott, 1988), is associated with the effectiveness of the intervention on child outcomes (e.g., Fischer et al., 2016), as well as teachers’ knowledge about an intervention (e.g., Chafouleas et al., 2008), and is linked to teacher perceptions for the feasibility for implementing an intervention (Chafouleas et al., 2008; Odom et al., 1993; West et al., 2007). Taken together, this underscores the importance for understanding teachers’ beliefs related to the use of PSII.

Given the prior research on the acceptability and feasibility of PSII, a replication framework allows a comparison of a similar pattern of responding by teachers over time.
Replication studies in special education research are needed to ensure the evidence on which policy and practice is based is trustworthy (Cook, Lloyd, Mellor, Nosek, & Therrien, 2018). Carnine (1997) described trustworthiness in research results as “the confidence practitioners can have in research findings”, as well as “how practitioners can know what findings deserve their trust” (p. 514). Cook et al. (2018) define trustworthiness of research as the reliability and validity of the research methods and data. These two descriptions indicate replication studies are a means of expanding the scientific trustworthiness of past research findings and confirmation of past findings supports confidence in the field that research results are true (Banerjee, Movahedazarhouligh, Millen, & Luckner, 2018; Cook, 2014).

Much of past replication studies have focused on causal impact (National Science Foundation & USDOE, Institute of Education Sciences, 2018). However, there is a call to extend replications to other types of study designs such as exploratory (NSF & USDOE, IES, 2018). Replicating exploratory research designs builds a knowledge base from which future research designs, including causal designs, can test assumptions regarding intervention effectiveness (USDOE, IES, 2013). Replication studies expand the scope of understanding concerning prior research findings, by supporting the generalization of findings to different conditions, lending validity to original results (Coyne et al., 2016; Lindsay & Eherenberg, 1993; Travers, Cook, Therrian, & Coyne, 2016), including findings from exploratory studies. Duplicating prior exploratory research findings is one way to ensure the validity for foundational knowledge to support causal research.

In sum, teachers’ use of PSII are necessary to ensure social interactions between children with and without disabilities leading to the development of social competence for young children with disabilities. Two studies, 14 years apart, provide similar evidence via teacher report
regarding the use of PSII, painting a concerning picture. Replication research is a viable method to investigate if the same pattern of teacher report exists today. Such a finding has significant findings for personnel preparation in ECI, given the long-standing nature for teachers’ report. Confirming prior findings can point future research, policy recommendations, and teacher training in a direction to ameliorate this problem.

A Theory of Change

Ecological Systems Theory (Bronfenbrenner, 1977) explains how multiple factors amidst a range of places and people, both proximal and distal to the child, work interchangeably to impact the quality of life of the child by facilitating or impeding the child’s learning and development, including how the actions of the teacher affects the social competence of a young child with a disability. In this theory of change, the critical ecological variables influencing child social competence are teachers’ use of PSII, and teachers’ beliefs about the acceptability and feasibility of PSII.

The ecological model is depicted as a set of six nested concentric circles, with the child embedded in the center, and each surrounding circle representing an environmental system (Bronfenbrenner, 1977). Each system is made up of numerous factors impacting the development of the child. Ecological factors act as facilitators or barriers for supporting social competence and this includes factors related to teachers’ use of PSII. The first concentric circle surrounding the child is the microsystem. It is within this system that teacher actions directly affect the child’s development. Factors in this system include teachers’ beliefs regarding the type of PSII. Outside of the microsystem is the mesosystem containing factors influencing the strength of PSII. An example of mesosystem factors are the availability of resources to support inclusive practices, such as the number of children without disabilities in the classroom, and the availability of
curricular materials. The exosystem, a more distal system from the child and the teacher, also contains factors which affect the child’s peer social competence. These can include types of training opportunities for teachers, as well as SEA and LEA policies.

In an ecological framework, the system factors influence teachers, contributing to their beliefs and the actions they take in practice. In turn, these beliefs and actions affect the outcomes of children, including the development of their peer social competence. A hypothesized theory of change illustrates the relationship between ecological factors, teachers’ beliefs about PSII, teachers’ use of PSII, and outcomes for children. In this hypothesized theory of change, when teachers believe PSII to be acceptable and feasible, children with disabilities experience benefit through the receipt of PSII which create frequent opportunities for social interactions with their peers leading to the development of their social competence. This relationship is illustrated in Figure 1.
Figure 1. Theory of change for teachers’ use of PSII.

Chapter 2 provided a review of the literature on the importance of social competence and the types of evidence-based practices supporting social interactions between children with and without disabilities. Prior research has established that teachers’ use of PSII may be related to their belief about the acceptability and feasibility of these interventions. This prior research indicates that this phenomenon was present from 1993 to 2007. A hypothesized theory of change illustrates the connection between teachers’ beliefs and use of PSII and how their beliefs and use is then linked to young children’s social competence. If this phenomenon exists today, gathering additional information is a critical step to ameliorate this problem. It is hypothesized that ecological factors, such as training and the availability of resources, may contribute to teachers’ beliefs and use of peer social interaction interventions.
Research Questions

The following research questions are used to ascertain if teachers’ beliefs and use remain consistent to the prior research and if so to identify ecological factors that may contribute to teachers’ difficulty for using evidence based PSII. These questions guide the research in this dissertation, aiming to provide data that further extends knowledge about teachers’ use of PSII.

1. Using the SIPFQ-R, what PSII do teachers report are acceptable, feasible, and used?
   a. How do the results of this study compare to West et al., 2007?

2. What is the association between training and teachers’ beliefs about the acceptability and feasibility of PSII leading to their use of these practices?

3. What barriers do teachers report for the implementation of (a) environmental arrangements, (b) teacher mediated interventions, (c) peer mediated interventions, and (d) combined approach packages?
   a. What ecological factors are associated with teachers reported implementation barriers?
Chapter Three: Methods

A replication framework is used to answer the research questions related to teachers’ beliefs and use of peer social interaction interventions and suggest future research, policy, and training related to teachers’ use of PSII as a means of supporting inclusive education for young children with disabilities. Direct and conceptual replication are utilized. Direct replications confirm that the findings from an original study are not due to error or chance, whereas conceptual replications are useful for testing theoretical assumptions (Chhin, Taylor, & Wei, 2018; Coyne et al., 2016; Earp & Trafimow, 2013; Schmidt, 2009). The design and methodology of the West et al., 2007 study was used to examine the past results and confirm if a pattern of responses first noted in Odom et al., 1993 is true today. A conceptual replication of West et al. 2007 expands upon the direct replication by further specifying ecological factors associated with teachers’ responses.

This study used survey methodology and qualitative analysis of open-ended responses to answer the research questions. Data analysis includes comparison of the means and standard deviations, repeated measures ANOVA, univariate pairwise comparisons, and coding and theming. The methodology used to collect data to answer each research questions is explained in Table 3.
Table 3.

Overview of Methods

<table>
<thead>
<tr>
<th>Replication Framework</th>
<th>Research Questions</th>
<th>Data to Be Used</th>
<th>Methods of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Using the SIPFQ-R, what PSII do teachers report are acceptable, feasible, and used?</td>
<td>The overall means for each peer social interaction intervention category; environmental arrangement practices, teacher mediation interventions, peer mediated interventions, and combined approach packages</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td>a. How do the results of this study compare to West</td>
<td>The $F$-statistic and $p$-values as an omnibus test; Multivariate test statistics; Pairwise comparisons $t$-tests</td>
<td>Repeated Measures ANCOVA</td>
</tr>
<tr>
<td></td>
<td>b. What are the ecological factors that contribute to teachers reported implementation barriers?</td>
<td>Teachers’ responses to open-ended questions asking about perceived barriers for implementation of each PSII practice</td>
<td>Thematic Analysis</td>
</tr>
<tr>
<td>Conceptual</td>
<td>What is the association between training and teachers’ beliefs about the acceptability and feasibility of PSII leading to their use of these practices?</td>
<td>The $F$-statistic and $p$-values as an omnibus test; Pillai’s Trace</td>
<td>Repeated Measures ANOVA</td>
</tr>
<tr>
<td>Conceptual</td>
<td>What are the perceived barriers of practitioners to the implementation of; environmental arrangements, teacher mediated interventions, peer mediated interventions, and combined approach packages?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. What are the ecological factors that contribute to teachers reported implementation barriers?</td>
<td>Teachers’ responses to open-ended questions asking about perceived barriers for implementation of each PSII practice</td>
<td>Thematic Analysis</td>
</tr>
</tbody>
</table>
Instrumentation: The SIPFQ-R

The SIPFQ-R measures teachers’ beliefs and use of the four categories of PSII. The questionnaire includes items specific to teaching practices associated with each of the four categories of peer social interaction practices. Within the environmental arrangement practices category there are five items ($\alpha = .64$), within the teacher mediated interventions category there are 13 items ($\alpha = .86$), within the peer mediated interventions category there are 10 items ($\alpha = .90$), and within the combined approach packages category there are four items ($\alpha = .79$). Using the SIPFQ-R, teachers rated each practice for its acceptability ($\alpha = .75$), feasibility ($\alpha = .74$), and current use ($\alpha = .92$) using a four-point Likert agreement rating scale. The items were: (a) not at all acceptable, feasible, or used, (b) acceptable, feasible or used under rare conditions, (c) acceptable, feasible, or used under most conditions, and (d) very acceptable, feasible, or used.

The instrument utilizes the same operational definitions as both Odom et al. (1993) and West et al., (2007). The questionnaire also includes open-ended questions to probe teachers’ perceptions regarding implementation barriers for each teaching practice ($n = 32$). Teachers were asked to describe factors that prevent them from using a given PSII. Demographic information about the DEC members who participated was also collected. The demographic information includes their age, gender, type of professional position, years of experience, as well as experience with pre and in-service training for peer social interaction interventions. The survey was developed in a word document using the items from the 2007 study. The completed instrument was transferred to a web-based survey platform for ease of distribution.

The questionnaire was piloted with a small group ($n = 10$) of early childhood special education and early childhood education teachers to test the clarity of the items. Teachers completed the survey and provided both qualitative and quantitative feedback for each item.
Teachers rated the clarity of each item using a four-point rating scale: completely clear, somewhat clear, somewhat unclear, and completely unclear. A second question asked teachers if they were able to answer the question easily, providing binary data for their understanding of each item. Teachers also provided qualitative feedback using an open-ended question asking them if they understand the question. Participation by the teachers occurred via an email with the questionnaire attached in a word document as well as a paper and pencil version for teachers participating in a graduate level certificate program at the University of Connecticut’s University Center for Excellence in Developmental Disabilities. The pilot indicated that the teachers considered the items to be clear and they reported they understood what they were being asked. Once the pilot was completed the SIPFQ-R was uploaded to a web-based survey platform in preparation for IRB review followed by dissemination.

**Participants and Recruitment**

Participants in this study are members of the DEC. The entirety of the DEC organization was sampled (N = 1965) as it was not possible to identify only teachers given how the Council for Exceptional Children, the parent organization of DEC, collects membership information.

DEC members were sampled via three means all of which utilized a link to the web-based platform housing the SIPFQ-R. First, a request for participation was included in the DEC weekly newsletter. The newsletter is sent to DEC members through email two times per week. A URL link was included in the newsletter along with a brief description of the study and the request to participate. Second, a request for participation was posted to the DEC Facebook page. The post included a brief description of the study, a request to participate and a URL link. Third, DEC members were contacted via an email from Community of Practice and Sub-division leaders and asked to participate. The leaders were contacted via the executive director for the
DEC, who forwarded an email explaining the study, a request to participate, and the URL link. This request was submitted twice, with the second request including a personal written request from the executive officer of DEC which included more detailed information and urged members’ participation. This second appeal utilized data from the field to highlight the need for research related to understanding teachers use of PSII. Recruitment of DEC members began once the study was approved by the Institutional Review Board of the University of Connecticut Health Center.

**Procedures for the Direct Replication**

The direct replication answers the first question. The same data analysis is used in the direct replication that was used in the West et al. (2007) study. The Cronbach’s alpha for each category of the SIPFQ-R, acceptability, feasibility and use, was obtained to measure the internal reliability of the instrument. Following obtainment of the alphas, the participant responses were subjected to three levels of analyses to examine the relationship between ratings for the acceptability, feasibility, and use of the four categories of interventions. These analyses included descriptive statistics to examine item means, and standard deviations, as well as a repeated measures ANOVA with a priori coding.

**Descriptive analysis of the data.** Descriptive statistics explored the means and standard deviations for teachers’ report regarding their beliefs and use of the four categories of peer social interaction interventions. Following this t-tests evaluated teacher’s responses for each intervention practice relative to the grand mean of each of the three categories of the SIPFQ-R. That is, the means were examined to determine which PSII practices teachers rated as being relatively more or less acceptable, feasible, and used relatively more or less often. This analysis gauges if teachers’ ratings change regarding the acceptability, feasibility, and use of
interventions change as practices become more complex. Furthermore, it allowed for the comparison to the West et al. (2007) study.

Repeated measures ANCOVA. A repeated measures ANCOVA was used to answer the first research question regarding teachers’ judgements of PSII. The analysis examined the mean differences between PSII categories (environmental arrangement practices, teacher mediated interventions, peer mediated interventions, and combined approach packages) across each SIPFQ-R category (acceptability, feasibility, and current use). Teacher respondents experience, position, and age were used as covariates. These procedures are the same as those described by West et al. (2007). A priori comparisons using the Bonferroni correction at the .05 significance level was used to gauge the relationship between PSII across the SIPFQ-R. The a priori contrasts align with those conducted by West et al. (2007).

Comparison to West et al. (2007). The initial comparison of the results between the two studies compared the grand means for each of the four categories of PSII for acceptability, feasibility and reported use. A data table was created containing the grand means for each SIPFQ-R category (acceptability, feasibility, and current use) for each PSII (environmental arrangements, teacher mediated interventions, peer mediated interventions, and combined approach packages). The statistics from the repeated measures in the both the West et al. (2007), and this study were compared, using data tables, to examine the relationship of the data between the two studies. Statistical differences were identified using paired t-tests of the means of this study and the means contained in the published 2007 West et al. study. The use of parametric testing to examine findings from and original study and a replication are in line with recommendations from the National Science Foundation Report of the Subcommittee on Replicability in Science (2015). The subcommittee recommends that researchers report
associations using different metrics including, standardized and unstandardized coefficients (USDOE, IES, 2015).

**Procedures for the Conceptual Replication**

The conceptual replication answers research questions 2, 3, and 3a. To answer these questions two types of analysis were used. The first was a repeated measures ANOVA with teacher training as the between subject factor to answer question 2. The second analysis was thematic analysis of the open-ended questions to answer questions 3 and 3a.

**Teachers training experiences.** This research question investigated the association that teachers reported receipt of training had on their reported beliefs and use of PSII. This analysis used another repeated measures ANOVA. In this analysis there were four models for each PSII category. In each model, the PSII was entered as the within subject factor, with number of levels being the number of items in the PSII category. The three categories of the SIPFQ-R acceptability, feasibility, and current use were the measures in all four models. Teachers’ answers to the questions about their receipt of preservice and in-service training were used as the between subject factor in all four models. The training items were yes/no items, with yes being coded as one and no being coded as two. The Bonferroni correction at the .05 level was used to protect from type I error.

**Thematic analysis.** A re-analysis of the open-ended questions answers the research question regarding teachers’ reported implementation barriers and associated ecological factors. Teachers were asked to identify implementation barriers for each item of the SIPFQ-R. This analysis utilizes thematic analysis to investigate teachers’ responses to the open-ended questions. The teachers’ responses were transcribed into word documents and onto index cards. Each item response was labeled using one to three words to describe the perception for the content of the
response. Then for each item, those responses were sorted into categories of like items. These categories were then assigned a new code that explained the meaning for the group of responses. Once this was done for all items, the responses were then sorted into groups within each category of PSII, environmental arrangement practices, teacher mediated interventions, peer mediated interventions, and combined approach packages. Once they were sorted within the practice intervention category, new codes were assigned to those practices. Once this was completed those codes were sorted for the full SIPFQ-R. This provided three themes which describe this samples' perceptions for implementation barriers. Operational definitions for these themes were created. The operational definitions stemmed from the codes from the second level of theming. This allowed statements to be sorted into these three themes. To determine the reliability of these themes, a second coder was asked to sort seven (20%) of the SIPFQ-R items, providing codes for each statement that represented one of the themes. The reliability was calculated by dividing the number of agreements by the number of disagreements and multiplying by 100. The interrater agreement was 94%. Figure 2 provides an illustration of the thematic analysis.
Figure 2. Theming and reduction process for implementation barriers.

Phase I: Item Level Theming (Within Item)
- DEC members' responses were themed for each item within the SIPFQ-R.
- These themes were broad and produced a first order abstraction with a wide range of responses (e.g., an n of 1 to an n of 33) within a single practice encapsulated within a PSII category.

Phase II: PSII Category Level Theming (Within Category)
- The broad themes from Phase I were reduced within each PSII category.
- The themed responses within each practice of the intervention category was scanned and responses that addressed similar issues were collapsed into a new broader theme. This produced a second order abstraction of themes within each PSII category.

Phase III: Theming for SIPFQ-R
- The reduced themes from Phase II were then used to identify themes across all four PSII categories of the PSII.
- Three main themes emerged:
  - Lack of programmatic resources
  - Teachers' beliefs' and knowledge
  - Children's characteristics
Chapter Four: Results

Chapter 4 presents the results of the research methods described in Chapter 3. Each analysis answers each of the seven research questions posed in this study. These questions are:

1. Using the SIPFQ-R, what PSII do teachers report are acceptable, feasible, and used?
   a. How do the results of this study compare to West et al. (2007)?

2. What is the association between training and teachers’ beliefs about the acceptability and feasibility of PSII leading to their use of these practices?

3. What barriers do teachers report for the implementation of; (a) environmental arrangements, (b) teacher mediated interventions, (c) peer mediated interventions, and (d) combined approach packages?
   a. What ecological factors are associated with teachers reported implementation barriers?

Data Cleaning and Internal Consistency

The total number of responses to the SIPFQ-R by the membership of the DEC was 56. The responses were exported from the web-based survey platform utilized to collect the data to SPSS version 25 and to Excel. Excel was utilized to clean the data and prepare it for the full analysis. Cleaning the data included imputing the mean for items in which there was an 80% response rate. Two participant responses (4%) were deleted due to missing data, making the final sample 54. Once data was cleaned it was imported back into SPSS for analysis.

Cronbach’s alpha was used to measure the internal consistency of the current SIPFQ-R and compared to the estimates to the West et al. (2007) study using paired sample t-tests. The alphas for both studies can be found in Table 4. The alphas in this study ranged from $\alpha = .59$ (feasibility of environmental arrangements) to $\alpha = .89$ (current use of peer mediated
interventions). The alphas in the West et al. (2007) study’s alphas ranged from $\alpha = .51$ (feasibility of environmental arrangements) to $\alpha = .95$ (current use of teacher mediated interventions). There were no significant differences for acceptability and feasibility between the two studies. However, the $t$-test for current use was statistically significant, with the alphas in the West study being higher.

Table 4.

Comparison of Cronbach Alpha Estimates

<table>
<thead>
<tr>
<th>Teacher Belief and Use of PSSI</th>
<th>Acceptability</th>
<th>$t$-test -0.33</th>
<th>Feasibility</th>
<th>$t$-test 0.36</th>
<th>Current Use</th>
<th>$t$-test -4.6*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Arrangement Practices</td>
<td>Howe (2019)</td>
<td>.64</td>
<td>.55</td>
<td>.59</td>
<td>.51</td>
<td>.74</td>
</tr>
<tr>
<td>Teacher Mediated Interventions</td>
<td>West et al. (2007)</td>
<td>.76</td>
<td>.85</td>
<td>.82</td>
<td>.79</td>
<td>.81</td>
</tr>
<tr>
<td>Peer Mediated Interventions</td>
<td>Howe (2019)</td>
<td>.85</td>
<td>.88</td>
<td>.87</td>
<td>.90</td>
<td>.89</td>
</tr>
<tr>
<td>Combined Approach Packages</td>
<td>West et al. (2007)</td>
<td>.72</td>
<td>.76</td>
<td>.77</td>
<td>.91</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .05 level or less.
Demographics

This sample of DEC members was 100% female. The majority were between 41-60 years (66%) and had more than 10 years of experience (74%). The majority of responding DEC members were early childhood special education teachers (69%). Most DEC member respondents reported receiving both preservice (72%) and in-service training (76%) for PSII. Most also reported they benefitted from their preservice training (70%) and in-service training (76%) for PSII.

Z-scores were calculated, as in the 2007 study, to determine if there were any significant differences between the deleted responses and those included in this analysis by participant’s age, teacher type, or years of experience, the variables used as co-variates in the main analysis. Only one participant’s score was significant for age, this participant was older than 60 years of age. For years of experience, four participants were significantly different, with between one and five years of experience. Most of this sample had more than 10 years of experience. The demographic information can be found in Table 5.
### Table 5.

Demographics for Howe (2019) and West et al. (2007)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td><strong>N</strong></td>
<td></td>
</tr>
<tr>
<td>Age Between 41-60 years</td>
<td>49</td>
<td>Average 41-60 years</td>
</tr>
<tr>
<td>Years-Experience More than 10 years</td>
<td>49</td>
<td>Average More than 10 years</td>
</tr>
<tr>
<td>100% Children with Disabilities in Classroom</td>
<td>49</td>
<td>18%</td>
</tr>
<tr>
<td>50% or Greater Children with Disabilities in Classroom</td>
<td>49</td>
<td>31%</td>
</tr>
<tr>
<td>Less than 50% Children with Disabilities in Classroom</td>
<td>49</td>
<td>51%</td>
</tr>
<tr>
<td>No Children with Disabilities in Classroom</td>
<td>49</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ t = -2.73, \ p = < .072 \]
Direct Replication

**PSII teachers’ report as more acceptable, feasible, and used more often.** To answer this question the means and standard deviations were examined for acceptability, feasibility, and reported use of PSII. The descriptive statistics examined the means for specific items for each PSII category, environmental arrangement practices, teacher mediated interventions, peer-mediated interventions, and combined approach packages, within each category of the SIPFQ-R, acceptability, feasibility, and current use. The means are compared to the West et al study to determine if the pattern of response is the same between the two studies. The number of items that follows the response pattern of being rated as more acceptable than feasible, and more feasible than reported used is calculated for each of the four categories of PSII. Additionally, items scores that are one standard deviation above or below the mean and item scores greater than 3.5 are reported. This is followed by the identification of the most frequently reported practice item, and least reported practice item, for each PSII category within each category of the SIPFQ-R. The means and standard deviations for all four categories of PSII for the SIPFQ-R for both this study and the West et al. (2007) study are in Table 6.
Table 6.

Comparison of Howe (2019) and West et al. (2007) SIPFQ-R Means and Standard Deviation for Items and Grand Means

<table>
<thead>
<tr>
<th>Environmental Arrangement Practices</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Howe</td>
<td>West</td>
<td>Howe</td>
</tr>
<tr>
<td>Small well-defined play areas</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>3.66* (0.54)</td>
<td>3.71* 0.53</td>
<td>3.58* (0.60)</td>
</tr>
<tr>
<td>Toys to promote social interactions</td>
<td>3.83* (0.38)</td>
<td>3.95* 0.26</td>
<td>3.81* (0.44)</td>
</tr>
<tr>
<td>Play groups of children at different development levels</td>
<td>3.74* (0.44)</td>
<td>3.83** 0.44</td>
<td>3.63* (0.55)</td>
</tr>
<tr>
<td>Play groups of children with and without disabilities</td>
<td>3.91* (0.29)</td>
<td>3.94* 0.32</td>
<td>3.73* (0.55)</td>
</tr>
<tr>
<td>Stories emphasizing positive social interactions</td>
<td>Acceptability</td>
<td>Feasibility</td>
<td>Current Use</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Mean</td>
<td>3.83* (0.38)</td>
<td>3.81* (0.66)</td>
<td>3.5* (0.69)</td>
</tr>
</tbody>
</table>

| Environmental Arrangement Grand Mean             | 3.79* (0.27)  | 3.72* (0.35)| 3.66* (0.35)| 3.58* (0.35)| 3.52* (0.43)| 2.98 | 0.67 |

<table>
<thead>
<tr>
<th>Teacher Mediated Interventions</th>
<th>Howe</th>
<th>West</th>
<th>Howe</th>
<th>West</th>
<th>Howe</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities with high structure to promote social interactions</th>
<th>Howe</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>M SD</td>
<td>3.11** (0.82)</td>
<td>2.72** (0.96)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Videotaped models of social interactions</th>
<th>Howe</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>M SD</td>
<td>2.75** (0.95)</td>
<td>2.86** (1.00)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teach labels for emotions</th>
<th>Howe</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>M SD</td>
<td>3.91* (0.29)</td>
<td>3.87* (0.37)</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Teach how to recognize and label peer’s emotions</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.81* (0.34)</td>
<td>3.69* 0.56</td>
<td>3.60* (0.59)</td>
<td>3.39 0.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teach children interpersonal problem solving</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.87* (0.34)</td>
<td>3.81* 0.45</td>
<td>3.69* (0.50)</td>
<td>3.49 0.67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct instruction to teach social skills</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.64* (0.65)</td>
<td>3.91* 0.35</td>
<td>3.54* (0.66)</td>
<td>3.57* 0.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop individualized program for social skills</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.72* (0.60)</td>
<td>3.78* 0.51</td>
<td>3.33 (0.79)</td>
<td>3.42 0.71</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model social skills</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.94* (0.23)</td>
<td>3.97* 0.23</td>
<td>3.92* (0.26)</td>
<td>3.77* 0.48</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Describe use of social skills during the day</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.93* (0.26)</td>
<td>3.46 0.77</td>
<td>3.80* (0.40)</td>
<td>3.30 0.76</td>
</tr>
<tr>
<td></td>
<td>Acceptability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Test a child’s mastery of social skills</td>
<td>3.17**</td>
<td>(0.91)</td>
<td>3.06</td>
</tr>
<tr>
<td>Praise children who use social skills</td>
<td>3.87*</td>
<td>(0.34)</td>
<td>3.85*</td>
</tr>
<tr>
<td>Correct children who do not use social skills</td>
<td>3.17**</td>
<td>(0.76)</td>
<td>3.39</td>
</tr>
<tr>
<td>Create multiple opportunities for children to rehearse social skills</td>
<td>3.64*</td>
<td>(0.62)</td>
<td>3.61*</td>
</tr>
<tr>
<td>Teacher Mediated Intervention</td>
<td>3.58*</td>
<td>(0.31)</td>
<td>3.52*</td>
</tr>
</tbody>
</table>

Teacher Mediated Intervention Grand mean
<table>
<thead>
<tr>
<th>Peer Mediated Interventions</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Howe</td>
<td>West</td>
<td>Howe</td>
</tr>
<tr>
<td>Have a group of children work cooperatively to achieve a goal</td>
<td>3.64* (0.55)</td>
<td>3.84* 0.42</td>
<td>3.40 (0.62)</td>
</tr>
<tr>
<td>Prompt a group of children to work cooperatively together</td>
<td>3.82* (0.42)</td>
<td>3.80* 0.44</td>
<td>3.61* (0.62)</td>
</tr>
<tr>
<td>Prompt a group of children to play cooperatively together</td>
<td>3.89* (0.37)</td>
<td>3.83* 0.41</td>
<td>3.62* (0.29)</td>
</tr>
<tr>
<td>Praise groups of children for cooperating with each other</td>
<td>3.88* (0.39)</td>
<td>3.88* 0.38</td>
<td>3.87* (0.32)</td>
</tr>
<tr>
<td>Activity</td>
<td>Acceptability</td>
<td>Feasibility</td>
<td>Current Use</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Teach peers to persist in social interactions with children with disabilities</td>
<td>3.60* (0.65)</td>
<td>3.80* 0.71</td>
<td>3.38 (0.78)</td>
</tr>
<tr>
<td>Teach peers to share toys with children with disabilities</td>
<td>3.73* (0.62)</td>
<td>3.71* 0.63</td>
<td>3.63* (0.75)</td>
</tr>
<tr>
<td>Teach peers to request materials from children with disabilities</td>
<td>3.81* (0.52)</td>
<td>3.71* 0.63</td>
<td>3.54* (0.75)</td>
</tr>
<tr>
<td>Teach peers to suggest play activities with children with disabilities</td>
<td>3.75* (0.64)</td>
<td>3.64* 0.69</td>
<td>3.53* (0.79)</td>
</tr>
<tr>
<td>Praise peers for interacting with children with disabilities</td>
<td>3.50* (0.79)</td>
<td>3.58* 0.80</td>
<td>3.44 (0.88)</td>
</tr>
</tbody>
</table>
### TEACHERS' BELIEFS AND USE OF PSII

<table>
<thead>
<tr>
<th></th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide activities or tangible reinforcement to a peer for interacting with children with disabilities</td>
<td>2.52** (1.09)</td>
<td>2.68** (0.70)</td>
<td>2.31** (0.44)</td>
</tr>
</tbody>
</table>

Peer Mediated Intervention Grand Mean

<table>
<thead>
<tr>
<th></th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howe</td>
<td>M 3.61 (0.41)</td>
<td>M 3.34 (0.49)</td>
<td>M 3.61 (0.41)</td>
</tr>
<tr>
<td>West</td>
<td>M 3.61 (0.48)</td>
<td>M 3.64 (0.47)</td>
<td>M 3.61 (0.41)</td>
</tr>
</tbody>
</table>

Combined Approach Packages

| Social skills instruction within classroom instruction | M 3.84 (0.41) | M 3.65 (0.67) | M 3.32 (0.83) | M 3.29 (0.89) | 2.36 0.95 |
| Prompting and reinforcement for social interactions    | M 3.81 (0.44) | M 3.48 (0.75) | M 3.51 (0.65) | M 3.46 (0.68) | 2.52 0.98 |
### TEACHERS' BELIEFS AND USE OF PSII

<table>
<thead>
<tr>
<th></th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train both children with and without disabilities to use and self-monitor social skills</td>
<td>3.63* (0.65) 3.73* 0.55 3.38 (0.76) 3.31 0.81 3.29 (0.76) 2.23 0.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature discussions, parent involvement, and social contacts to foster social interactions</td>
<td>3.60* (0.62) 3.77* 0.45 3.24 (0.75) 3.17 0.86 3.09 (0.85) 2.38 0.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined Approach Package Grand Mean</td>
<td>3.72* (0.39) 3.76* 0.36 3.44 (0.39) 3.32 0.61 3.28 (0.62) 2.37 0.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: * scores are at or above 3.5. ** Score is 1 standard deviation or more below the grand mean.
Environmental arrangement practices. Teachers rated environmental arrangement practices as less feasible than acceptable and used them less than they rated them to be feasible. For acceptability and feasibility all (100%) of the practice items means were above 3.5, and for current use, 80% were above this marker. None of the item scores, across all three categories of the SIPFQ-R, were greater than one standard deviation below the mean. The highest rated item across all three categories was the use of toys to promote social interactions. The lowest rated for acceptability was the use of small well-defined play areas. The use of stories emphasizing positive social interactions between children with and without disabilities was rated the lowest for feasibility and current use.

Teacher mediated interventions. Teachers rated teacher mediated interventions as less feasible than acceptable and reported using them less often than they rated as feasible. In this category of PSSI five out of the 13 (38%) items followed this response pattern. These are videotaped models, teaching interpersonal problem solving, use of direct instruction, describing use of social skills across the day, and testing mastery of social skills. For acceptability, nine out of the 13 of the items (69%) were above the marker of 3.5, the same as was reported in the published West et al. (2007) study. For acceptability four out of the 13 items (31%) were one standard deviation below the mean. These were activities with high structure ($M = 3.11$, $SD = 0.82$), videotaped models ($M = 2.75$, $SD = 0.95$), testing mastery of social skills ($M = 3.17$, $SD = 0.91$), and correcting children who do not use social skills ($M = 3.17$, $SD = 0.76$). For feasibility, eight of the 13 items (62%) were above 3.5. For feasibility, two items (15%) were one standard deviation below the mean. These were videotaped models ($M = 2.44$, $SD = 0.90$) and testing mastery of social skills (2.98, 0.86). For current use, nine out the 13 (69%) items was above 3.5. For current use, two items (15%) were one standard deviation below the mean. These were also
videotaped models ($M = 2.19$, $SD = 0.87$) and testing mastery of social skills ($M = 2.82$, $SD = 0.91$). Across all three categories of acceptability, feasibility, and current use the highest rated teacher mediated intervention practice was modeling social skills and the lowest rated was use of videotaped models.

**Peer mediated interventions.** Teachers reported peer mediated interventions as more acceptable than feasible, but also reported they used them more often than they thought them feasible. Despite this, across peer mediated interventions, eight out of the 10 (80%) items were judged as more acceptable than feasible and reported used less than rated as feasible. These eight items are prompt a group to work cooperatively, prompt a group to play cooperatively, praise groups of children for cooperating, peers taught persistence, peers taught to share, peers taught to request materials from children with disabilities, peers taught to suggest play activities to children with disabilities, and praise peers for interacting with children with disabilities. For acceptability nine (90%) of the items were rated above 3.5. The only item that was below one standard deviation below the mean was the use of activities or tangible reinforcement to a peer for socially interacting with a child with a disability ($M = 2.52$, $SD = 1.09$). For feasibility, seven (70%) of the items had a mean of 3.5 or higher. Use of activities or tangible reinforcement for a peer, which was $M = 2.68$, $SD = 1.07$ was one standard deviation below the mean. For current use, three (30%) of the items had a mean at or above 3.5. These were; prompt a group of children to work cooperatively together ($M = 3.54$, $SD = 0.60$), prompt a group of children to play cooperatively together ($M = 3.60$, $SD = .55$), and praise groups of children for cooperating ($M = 3.79$, $SD = .45$). One item, use of activities or tangible reinforcement to a peer ($M = 2.31$, $SD = 0.44$) was below one standard deviation below the mean.
**Combined approach packages.** Teachers in this sample rated combined approach package items as more acceptable than feasible and reported using them less often than they judged them to be feasible. All four items (100%) in this PSII category followed this response pattern. For acceptability, all (100%) of the four items had means above 3. For current use, none of the combined approach packages had a mean of 3.5 or higher. The same was reported in the West et al. (2007) study. None of the combined approach package items was one or more standard deviations below the mean.

**Comparison to the West et al. (2007) study.** The next phase of the direct replication was to conduct a repeated measures ANCOVA (*Note. In their article they refer to their analysis as a MANOVA*) identify PSII that teachers rated as more acceptable, feasible, and used more often. Two models were produced with type of PSII as the within subject factor and the SIPFQ-R as the measure. In both models age, teacher type and years of experience were held constant as co-variates, as was done in the West et al. (2007) study. The first model used the grand means for each of the four PSII categories for each of the three SIPFQ-R categories as the within subject factor, whereas in the second model individual PSII item scores were used as the within subject factor. Both models had significant main effects for acceptability, feasibility, and current use for the grand mean of each PSII category, as well as for individual PSII items as was reported in the West et al. (2007) study. The means, *F*-ratios, degrees of freedom, *p*-values and multivariate test statistic (Wilks Lambda) can be found in Table 7. Pairwise comparisons using the Bonferroni correction at the .05 level were utilized to identify the specific mean differences for teachers’ ratings for the four categories of PSII within each category of the SIPFQ-R. These can be found in Table 8. The grand means of this study and the West et al. (2007) study were compared using paired sample *t*-tests. The *t*-tests can be found in Table 9.
Table 7.

Replicated Repeated Measures Table of Howe (2019) SIPFQ-R and PSII

<table>
<thead>
<tr>
<th>PSSI</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
<th>Within Intervention Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Arrangement</td>
<td>3.79(0.27)</td>
<td>3.66(0.35)</td>
<td>3.52(0.43)</td>
<td>( F (1, 48) = 133.66, p &lt; .001*** 1-\Lambda .11 )</td>
</tr>
<tr>
<td>Teacher Mediated</td>
<td>3.58(0.31)</td>
<td>3.45(0.38)</td>
<td>3.40(0.38)</td>
<td>( F (1, 48) = 104.73, p &lt; .001*** 1-\Lambda .13 )</td>
</tr>
<tr>
<td>Peer Mediated</td>
<td>3.61(0.41)</td>
<td>3.47(0.49)</td>
<td>3.61(0.41)</td>
<td>( F (1, 48) = 47.20, p &lt; .001*** 1-\Lambda .25 )</td>
</tr>
<tr>
<td>Combined Approach</td>
<td>3.72(0.39)</td>
<td>3.44(0.39)</td>
<td>3.28(0.62)</td>
<td>( F (1, 48) = 50.84, p &lt; .001*** 1-\Lambda .24 )</td>
</tr>
</tbody>
</table>

\( F (1, 50) = 344.15, p < .001*** \)
\( F (1, 50) = 233.378, p < .001*** \)
\( F (1, 50) = 153.46, p < .001*** \)

**Significant at the .001 or less level.**
Table 8.

Replicated Pairwise Comparisons

<table>
<thead>
<tr>
<th>PSII</th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
<th>Statistically Significant Contrasts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Environmental Arrangement Practices</td>
<td>3.79</td>
<td>.27</td>
<td>3.66</td>
<td>.35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Mediated Interventions</td>
<td>3.58</td>
<td>.31</td>
<td>3.45</td>
<td>.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Mediated Interventions</td>
<td>3.61</td>
<td>.41</td>
<td>3.47</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined Approach Packages</td>
<td>3.72</td>
<td>.39</td>
<td>3.44</td>
<td>.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistically Significant Contrasts</td>
<td>EA &gt; TM, $p = .001^{***}$</td>
<td>EA &gt; TM, $p = .005^{**}$</td>
<td>EA &lt; CA, $p = .001^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EA &gt; PM, $p = .016^*$</td>
<td>EA &gt; PM, $p = .025^{*}$</td>
<td>PM &gt; TM, $p = .0001^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TM &lt; PM, $p = .0001^{***}$</td>
<td>PM &gt; CA, $p = .001^{***}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CA &gt; PM, $p = .006^{**}$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .05 level or less. ** Significant at the .01 level or less. *** Significant at the .001 level or less.
Table 9.

*Comparison of the Grand Mean Between Howe (2019) & West et al. (2007) for the SIPFQ-R*

<table>
<thead>
<tr>
<th></th>
<th>Acceptability</th>
<th>Feasibility</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Howe (2019)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>3.68 (.26)</td>
<td>3.58 (.29)</td>
<td>3.45 (.37)</td>
<td></td>
</tr>
<tr>
<td>West et al. (2007)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>3.52 (.11)</td>
<td>3.32 (.12)</td>
<td>2.37 (.25)</td>
<td></td>
</tr>
</tbody>
</table>

\[ t(3) = .87, p = .45 \quad t(3) = 2.31, p = .10 \quad t(3) = 8.3, p < .01 * \]

* Significant at the .01 level or less

**Conceptual Replication**

**Association between training and teachers’ beliefs.** This analysis answers the question regarding the association between training and teachers’ beliefs about the acceptability, feasibility, and use of PSII. The analysis utilized a repeated measures ANOVA. The within subject factor were the four categories of PSII; environmental arrangement practices, teacher mediated interventions, peer mediated interventions, and combined approach packages. The measures are teachers’ beliefs (acceptability and feasibility) and reported use of PSII. The model included two between subject factors; teachers reported receipt of preservice training and teachers’ report of in-service training. This was a binary variable, with yes received preservice/in-service training coded as one and no, did not receive preservice/in-service training coded as two. The results demonstrated significant differences for category of the SIPFQ-R (acceptability, feasibility, and current use) explained by the interaction between both preservice and in-service training. The findings for the repeated measures ANCOVA can be found in Table 10. For acceptability, 14% of the variance in the model was explained by teachers’ training. For feasibility, 16% of the variance in the model was explained by the teachers’ training. For current use, 16% of the variance in the model was explained by teachers’ training. The multivariate test
statistic for teacher training was $V = .19, F(3, 48), p = .017$, indicating a statistically significant difference between the levels of PSII.

Table 10.

<table>
<thead>
<tr>
<th>SIPFQ-R</th>
<th>df</th>
<th>$F$</th>
<th>$\eta$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptability</td>
<td>1, 50</td>
<td>8.438</td>
<td>.14</td>
<td>.005*</td>
</tr>
<tr>
<td>Feasibility</td>
<td>1, 50</td>
<td>9.144</td>
<td>.16</td>
<td>.004*</td>
</tr>
<tr>
<td>Current Use</td>
<td>1, 50</td>
<td>9.726</td>
<td>.16</td>
<td>.003*</td>
</tr>
</tbody>
</table>

* Significant at the .01 level or less.

Four repeated measures ANOVA were used to investigate the role that both preservice and in-service training played on teachers’ ratings for each category of PSII. Each repeated measure produced a model reflecting the response of teachers for each category of PSII. The within subject factor for each model were all the items of the PSII category either environmental arrangement practices, teacher mediated interventions, peer mediated interventions, or combined approach packages. The measure for each of the four models was the rating for acceptability, feasibility and current use of the PSII. In all four models the between subject factors was teachers’ report of training. The statistics for these models can be found in Table 11.
Table 11.

*Association between Teacher Training and Beliefs and Use for Each PSII Category*

<table>
<thead>
<tr>
<th>PSII</th>
<th>df</th>
<th>F</th>
<th>V</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Arrangement Practices</td>
<td>3, 48</td>
<td>3.07</td>
<td>.16</td>
<td>.04*</td>
</tr>
<tr>
<td>Teacher Mediated Interventions</td>
<td>3, 48</td>
<td>3.46</td>
<td>.18</td>
<td>.02*</td>
</tr>
<tr>
<td>Peer Mediated Interventions</td>
<td>3, 48</td>
<td>4.00</td>
<td>.20</td>
<td>.01**</td>
</tr>
<tr>
<td>Combined Approach Packages</td>
<td>3, 48</td>
<td>4.70</td>
<td>.23</td>
<td>.006**</td>
</tr>
</tbody>
</table>

* Significant at the .05 level or less. ** Significant at the .01 level or less.

*Environmental arrangement practices.* For environmental arrangements there was a statistically significant effect for preservice training indicating a difference between each level of the SIPFQ-R. The statistically significant difference for preservice training was related to teachers’ beliefs about the feasibility of environmental arrangement practices, \( F(1, 50) = 3.959, p = .052, \eta = .07 \). This indicates that for this sample of DEC teachers’, 7% of the variance in teachers’ report for feasibility of environmental arrangement practices is explained by training.

*Teacher mediated interventions.* For teacher mediated interventions there was a statistically significant effect for training indicating differences between the three levels (acceptability, feasibility, and current use) of the SIPFQ-R explained by training. The statistically significant difference was training related to teachers report of the perceived feasibility of teacher mediated interventions, \( F(1, 50) = 5.952, p = .018, \eta = .1 \), as well as their report for their current use of teacher mediated interventions, \( F(1, 50) = 8.618, p = .005, \eta = .15 \). This indicates that 10% of the variance in DEC teachers’ ratings for the feasibility and 15% of their reported current use of types of teacher mediated intervention practices is explained by training.
Peer mediated interventions. For peer mediated interventions there was a significant interaction effect for training across the three categories of the SIPFQ-R, acceptability, feasibility, and current use. This indicates that differences between the levels of the SIPFQ-R for peer mediated interventions are explained training across all categories of the SIPFQ-R. The between subject test demonstrated a significant effect training related to DEC teachers’ ratings for the acceptability, feasibility, and use for the type of peer mediated intervention practice. Specifically, there were statistically significant differences for teachers report or the acceptability, \( F(1, 50) = 8.960, p = .004, \eta = .15, \) feasibility, \( F(1, 50) = 10.949, p = .002, \eta = .18, \) and current use, \( F(1, 50) = 9.985, p = .003, \eta = .17 \) of peer mediated interventions. This indicates that training explains 15% of the variance in DEC teachers’ ratings for the acceptability of peer mediated intervention practices, 18% for the feasibility, and 17% for their reported current use of peer mediated interventions.

Combined approach packages. For combined approach packages, there was a significant interaction effect training across teachers’ ratings for the acceptability, feasibility, and current use of PSII. This indicates statistically significant differences between the levels of the SIPFQ-R for combined approach packages is explained by a combination of preservice and in-service training. The between subject test demonstrated that training explained differences in DEC teachers’ ratings for combined approach packages for acceptability, \( F(1, 50) = 10.126, p = .003, \eta = .17, \) feasibility, \( F(1, 50) = 4.595, p = .037, \eta = .08, \) and current use \( F(1, 50) = 5.864, p = .019, \eta = .11. \) This indicates that training explains 17% of teachers’ ratings for acceptability, 8% of their ratings for feasibility, and 11% of their ratings for their current use of combined approach packages.
Ecological factors as implementation barriers. Out of the 54 DEC members who participated in this study, 42 (78%) provided at least one response to the open-ended questions. The range of responses per participant ranged from and $n$ of two (model social skills) to 25 (video tape models) across PSII items. Teachers’ responses to the open-ended questions was subjected to a thematic analysis. The first and second order level themes abstracted from the data can be found in Table 12. Three themes emerged from the thematic analysis; lack of program resources, teachers’ knowledge and beliefs, and characteristics of children. The results provide data related to why teachers rated videotaped models, testing mastery of social skills, and using tangible reinforcement with peers the least favorable.
Table 12.

<table>
<thead>
<tr>
<th>First and Second Order Themes about Implementation Barriers of PSII</th>
<th>Second Order Themes</th>
<th>Lack of Programmatic Resources</th>
<th>Teachers’ Beliefs’ and Knowledge</th>
<th>Children’s Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Order Themes</td>
<td>Limited Access to Children without Disabilities</td>
<td>Beliefs about the Acceptability of Praise</td>
<td>Challenging Behaviors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Enough Time</td>
<td>Beliefs about the Acceptability of Tangible Reinforcement</td>
<td>Behavior of Children without Disabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need More Staff</td>
<td>Beliefs about Intrinsic versus Extrinsic Reinforcement</td>
<td>Characteristics of Children without Disabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of Materials and Resources</td>
<td>Beliefs about Child Centeredness versus Teacher Directed Intervention Practices</td>
<td>The Delays of Children with Disabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of Parent Involvement</td>
<td>Beliefs about Child Centeredness versus Teacher Directed Intervention Practices</td>
<td>Facets of Children’s Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited Financial Support</td>
<td>Beliefs about Child Centeredness versus Teacher Directed Intervention Practices</td>
<td>Age of Children</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colleagues Beliefs</td>
<td>Knowledge of Intervention Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill to Implement Intervention Practice</td>
<td>Need to Individualize</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lack of program resources represents barriers that stem from programmatic decisions/factors which contribute to teachers’ perceptions about the feasibility for their use of PSII. These programmatic factors include vital resources such as access to children without disabilities.
disabilities, availability of materials (toys, books, and videos), a social skill curriculum, and availability of technology equipment. This theme also includes characteristics of the classroom such as; features of the space, classroom size, and the make-up of students in the classroom. This theme also includes teachers’ reported need for more time to implement intervention practices, as well as more staff to organize interventions and supervise children. Specific examples of DEC members’ statements related to this theme across each of the four categories of PSII can be found in Tables 13-16.

Teachers’ knowledge and beliefs represents teachers’ beliefs about the acceptability of PSII and their knowledge for using the practices encapsulated within the interventions. This theme includes numerous ways that teachers responded by indicating that a PSII practice was not acceptable to them. Some statements in this theme were direct and broad, such as stating the practice is not acceptable. But numerous other themes were developed in phase one that include statements about their beliefs for the use of extrinsic (versus intrinsic) practices to support social interactions, the use of praise, or tangible reinforcement to support social interactions, and their beliefs about parent involvement to support social interactions, with teacher indicating those are unacceptable to use to support social interactions. Specific examples of DEC members’ statements related to this theme across the four categories of PSII can be found in Tables 13-16.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Environmental Arrangement Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Program Resources</td>
<td>Limited Access to Children without Disabilities for Use of PSII</td>
</tr>
<tr>
<td></td>
<td>• Recess and “Theme Days” are the only opportunities we have access to children without disabilities. So, while I fully believe in inclusive environments and would love to have typically developing peers in my classroom, it is not a possibility at this time</td>
</tr>
<tr>
<td></td>
<td>• I am able to pull together playgroups in the inclusive gen education setting; however, I am not able to include students without disabilities in my pullout time. I often feel my students would benefit from “practicing” social skills with “typical” peers during pull out time where there are fewer distractions.</td>
</tr>
<tr>
<td>Need More Staff for Use of PSII</td>
<td>The adult child ratio is difficult when there are 10-15 kids per class and several who need one-on-one help to interact socially.</td>
</tr>
<tr>
<td></td>
<td>• Barriers—enough staff, classroom which include students with aggressive behavior.</td>
</tr>
<tr>
<td>Lack of Time for Use of PSII</td>
<td>I don’t have enough play time.</td>
</tr>
<tr>
<td>Not Enough Space for Use of PSII</td>
<td>Classroom assigned is small.</td>
</tr>
<tr>
<td></td>
<td>• Space for play groups in a small classroom. Noise level.</td>
</tr>
<tr>
<td>Space is not Appropriate for Use of PSII with Children with Motor Disabilities</td>
<td>There is a 5 ft. barrier around the entire playground, making it inaccessible for a child in a wheelchair.</td>
</tr>
<tr>
<td></td>
<td>• Walkers, wheelchairs cannot fit into small areas.</td>
</tr>
<tr>
<td>Lack of Materials to Support Use of PSII</td>
<td>Not supplied by school system</td>
</tr>
<tr>
<td></td>
<td>• Are not enough books that help…have to resort to animal stories and adapt the message.</td>
</tr>
<tr>
<td>Classroom Characteristics that Impede Use of PSII</td>
<td>Depending on the classroom makeup.</td>
</tr>
<tr>
<td></td>
<td>• Depending on the makeup of students in the class whether this is a feasible option or not.</td>
</tr>
<tr>
<td>Lack of Financial Support for Use of PSII</td>
<td>Budget</td>
</tr>
<tr>
<td>Teachers Knowledge and Beliefs</td>
<td>Colleagues Beliefs for Use of PSII</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Access to new (novel) and highly desirable materials is limited due to funds so I have purchase out of my limited personal funds.</td>
<td>The only barrier are other colleagues who wish not to include all students because they don’t feel they have the skills to address students with disabilities.</td>
</tr>
<tr>
<td>Need to Individualize for Use of PSII</td>
<td>Finding activities that engage all levels.</td>
</tr>
<tr>
<td></td>
<td>Preferred toys differ from child to child.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics of Children</th>
<th>Challenging Behavior Impedes Use of PSII</th>
</tr>
</thead>
<tbody>
<tr>
<td>No barriers, besides the challenging behaviors of some children.</td>
<td>Communication is challenging at times, those without disabilities get bored or annoyed, are impatient when trying to communicate with those who have disabilities.</td>
</tr>
<tr>
<td>Behaviors of Children without Disabilities for Use of PSII</td>
<td>Getting children without disabilities to refrain from treating their peers with disabilities like babies.</td>
</tr>
<tr>
<td></td>
<td>Discrimination among children.</td>
</tr>
<tr>
<td></td>
<td>Some children are bullies.</td>
</tr>
<tr>
<td>The Delays of Children with Disabilities for Use of PSII</td>
<td></td>
</tr>
<tr>
<td>Language, hearing may be a barrier in games.</td>
<td></td>
</tr>
<tr>
<td>Some toys cannot be manipulated by disabled children.</td>
<td></td>
</tr>
<tr>
<td>Characteristics of Children without Disabilities for Use of PSII</td>
<td></td>
</tr>
<tr>
<td>Child attention span is an issue.</td>
<td></td>
</tr>
<tr>
<td>Children having the self-regulation skills to attend to the story.</td>
<td></td>
</tr>
</tbody>
</table>
Table 14.

First Order Abstraction Themes and Examples of DEC Members’ Responses about Barriers for Use of PSII

<table>
<thead>
<tr>
<th>Teacher Mediated Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lack of Program Resources</strong></td>
</tr>
<tr>
<td>Limited Access to Children without Disabilities for Use of PSII</td>
</tr>
<tr>
<td>- Time with understanding and supportive peers to practice with can be challenging.</td>
</tr>
<tr>
<td>- I do when I am able to pair my student with a classmate.</td>
</tr>
<tr>
<td><strong>Need More Staff for Use of PSII</strong></td>
</tr>
<tr>
<td>- Not enough people in the classroom (staff) to do with every child who needs.</td>
</tr>
<tr>
<td>- More staff would facilitate better opportunities for teaching emotions.</td>
</tr>
<tr>
<td><strong>Not Enough Time for Use of PSII</strong></td>
</tr>
<tr>
<td>- There is limited time in a preschool session for this.</td>
</tr>
<tr>
<td>- Time to incorporate videotapes into lessons/activities.</td>
</tr>
<tr>
<td><strong>Lack of Materials for Use of PSII</strong></td>
</tr>
<tr>
<td>- No access to video equipment.</td>
</tr>
<tr>
<td>- A research based social skills curriculum would enhance social skills instruction.</td>
</tr>
<tr>
<td>- I do not have the equipment to videotape consistently.</td>
</tr>
<tr>
<td><strong>Adapting or Modifying for Use of PSII</strong></td>
</tr>
<tr>
<td>- Barrier-needing to adapt and modify lessons</td>
</tr>
<tr>
<td><strong>Lack of Financial Support for Use of PSII</strong></td>
</tr>
<tr>
<td>- Cost of screening/test materials</td>
</tr>
<tr>
<td><strong>Teachers’ Knowledge and Beliefs</strong></td>
</tr>
<tr>
<td>Differences between Child Centeredness and Teacher Directed Activities for Use of PSII</td>
</tr>
<tr>
<td>- Again, limitations of the free choice system</td>
</tr>
<tr>
<td>- I don’t believe that children can learn social skills in a classroom with high structure. They need to child-focused not adult-focused.</td>
</tr>
<tr>
<td>- Activities don’t have to have HIGH structure to make the connections! Too much is too much!</td>
</tr>
<tr>
<td>- Expectations in the field that children should play freely without structure.</td>
</tr>
<tr>
<td><strong>Beliefs about Acceptability for Use of PSII</strong></td>
</tr>
<tr>
<td>- Should be easier now with cell phones but it is not a strategy we are comfortable using</td>
</tr>
<tr>
<td>- Not appropriate</td>
</tr>
</tbody>
</table>
TEACHERS’ BELIEFS AND USE OF PSII

Limits of Teachers’ Knowledge for Use of PSII
• Teacher needs to know what programs to implement.
• Limits in ability to name emotions.
• Teacher knowledge and ability to model is a barrier.

Limits of Teachers’ Skills for Use of PSII
• Taking data on social skills is difficult during class

Beliefs about Acceptable Teaching Practices and Use of PSII
• ‘Test’ is a barrier-I assess through observation, anecdotal, photographic, and video evidence that measures various social skills on a continuum, but I do not ‘test’ and do not have a ‘test’ to administer.
• I would not correct a child for not using social skills. Modeling and prompting are better methods.

Beliefs about Intrinsic vs. Extrinsic Reinforcement and Motivation for Use of PSII
• Child begins to do so solely to get praised rather than for intrinsic desire.

Beliefs about Praise for Use of PSII
• I call it encourage not really “praise”!
• I don’t use praise. I use positive descriptive acknowledgement which promotes intrinsic motivation.

Characteristics of Children

Facets of Children’s Development for Use of PSII
• Child’s development level may be too low to understand this

Age of Children and Use of PSII
• Children are between 2-5 years.
• Preschool brains are just not ready to soak it all in!
• We have to keep practicing…this age won’t really master!

Delays of Children with Disabilities for Use of PSII
• This gets a little tricky as some emotions look a lot different in some people than in others…such as autistic children.

Behavior of Children for Use of PSII
• Barrier-students who are impulsive and need an adult close by to cue/prompt how to use conflict resolutions strategies.
Table 15.

*First Order Abstraction Themes and Examples of DEC Members’ Responses about Barriers for Use of PSII*

<table>
<thead>
<tr>
<th>Lack of Program Resources</th>
<th>Need More Staff for Use of PSII</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This is good but their safety may not be guaranteed if staff is not available to supervise them.</td>
</tr>
<tr>
<td></td>
<td>Need more adult supervision.</td>
</tr>
<tr>
<td></td>
<td>Enough adults to support cooperative groups.</td>
</tr>
</tbody>
</table>

Limited Access to Children without Disabilities for Use of PSII

- When able to structure a group including my child with VI.
- When able to incorporate multiple children with my student.
- Self-contained class with limited access to peers.

Not Enough Time for Use of PSII

- Finding time and identifying each child’s communication mode.

Teachers’ Knowledge and Beliefs

Beliefs about Praise for Use of PSII

- I would not give praise for this. It sets up a situation in a child’s mind that interacting with someone with a disability is a task or a chore, instead of a natural part of life and humanity.
- We do not really give “praise” for that…it’s considered a normal interaction.
- It is not good all the time so that it will not get into their heads.

Beliefs about Intrinsic vs. Extrinsic Reinforcement and Motivation for Use of PSII

- I don’t think children should be praised when it should be an instinctual thing for young children.
- I want them to do it without being “praised”! We may sing or dance instead!

Beliefs about Acceptability for Use of PSII

- A group will always cause provocation. It undermines others ability.
- It is not acceptable to me.
- It does not encourage a cooperative spirit.

Beliefs about Tangible Reinforcement for Use of PSII

- Heavens no…
- Not a fan of tangible reinforcement.
- Not acceptable.
- I feel this looks too much like bribery—prefer to focus on internal reinforcers.
I focus more on the intrinsic reward of being a friend. I believe it is ingenuous to “pay” a child for interacting with another child, and disrespectful to the dignity of the child with a disability.

**Characteristics of Children**

- Child disability may protest back in a harmful negative manner to the child without the disability.
- Sometimes they don’t want to continue the interaction if the child is not responsive or too active.
- Children with disabilities are often non-responsive, peers can become discouraged, give up.

**Behaviors of Children with Disabilities for Use of PSII**

- Some non-disabled peers need to be taught to share first.

**Characteristics of Children without Disabilities for Use of PSII**

- I try to not to draw as much attention to the “disability” factor. The students know that and I don’t want them to see interacting with students with disabilities as a job.

**Beliefs about Disability for Use of PSII**

- This is not something I believe is necessary for this age group.
### First Order Abstraction Themes and Examples of DEC Members’ Responses about Barriers for Use of PSI

| Combined Approach Packages |
|-----------------------------|-----------------------------|
| Lack of Program Resources   | Lack of Financial Resources for Use of PSII |
|                             | • Cost of reinforcements    |
| Need More Staff for Use of PSII | • With more staff, I could create more opportunities for this type of social interaction instruction. |
| Not Enough Time for Use of PSII | • Time consuming |
| Limited Access to Children without Disabilities for Use of PSII | • Limited access to non-disabled 3-year old [children]. |
|                             | • I train children WITH disabilities, because I work with them. I don to have children without disabilities to ‘train’ and work with or else I would. |
| Inability to Involve Parents for Use of PSII | • Difficulty finding time to talk with parents. |
|                             | • Parent Involvement is limited due to school policy as a result of safety measures after Marjory Stoneman Douglas. |
| Adapting or Modifying for Use of PSII | • Barrier-modifying stories |
| Need for Training for Use of PSII | • More trained staff members would facilitate more opportunities for this type of instruction |
| Teachers Knowledge and Beliefs | Beliefs about Intrinsic versus Extrinsic Reinforcement and Motivation for Use of PSII |
|                             | • Challenge to make theses intrinsic vs. extrinsic… |
| Knowledge or Understanding of Practices for Use of PSII | • Unsure of what “social contact” means, or if this question referring to supporting parent or literature discussions with students. |
|                             | • I’m not sure what the social contacts are referred to in this questions. |
|                             | • I’m bothered by the word “train” but I am assuming it just refers to a teaching method. I work on breathing and calming techniques for the children to use for self-regulation. |
### Beliefs about Parent Involvement for Use of PSII
- The main barriers can be the parent involvement or lack of and of course their willingness to foster social contacts and interactions with children outside of school!
- Parents can be wild cards in the classroom unless given specific tasks and or ideas of what to say.

### Delays of Children with Disabilities for Use of PSII
- There may be cognitive delays
- Students having the cognition and self-management to self-monitor.
Characteristics of children describes the role of features of the child play, which influence teachers’ perceptions regarding the use of PSII. Children in this theme are both children with disabilities and children without disabilities. For children with disabilities, there were factors associated with the child’s delay in specific developmental domains, such as cognition or social emotional. For all children, mentions of children’s attention span, self-regulation, executive functioning and challenging behavior were noted. The age and development of children are also referenced in this theme, with children being described as too young or not developmentally ready for the intervention practice. Examples of items for each of the three themes across all four categories of PSII are presented in Tables 13-16.

In environmental arrangements, lack of program resources was the most frequent theme followed by characteristics of children and teachers’ knowledge and beliefs. Teachers’ knowledge and beliefs was the most frequent theme in teacher mediated interventions, followed by lack of program resources, and children’s characteristics. In both peer mediated interventions and combined approach packages the most frequent theme was lack of program resources, followed by teachers’ knowledge and beliefs, then children characteristics. See Figure 3 for an illustration of the frequencies. The responses to the open-ended question regarding implementation barriers for the items identified as least favorable in the previous analysis is presented in Table 17.
Figure 3. Themed responses regarding perceived barriers.
Table 17.

<table>
<thead>
<tr>
<th>PSII</th>
<th>Acceptability Mean (SD)</th>
<th>Feasibility Mean (SD)</th>
<th>Current Use Mean (SD)</th>
<th>Open-Ended Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities with high structure (TMI)</td>
<td>3.11 (.82)</td>
<td>3.22 (.84)</td>
<td>3.19 (.85)</td>
<td>Activities don’t have to have HIGH structure to make the connections! Too much is too much!</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I don’t believe that children can learn social skills in a classroom with high structure. They need to be child-focused not adult-focused.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Probably reacting to the term “high structure.” I do think through how the activities will engage all children, but there are multiple “right ways” to engage, so not highly structured.</td>
</tr>
<tr>
<td>Videotaped models (TMI)</td>
<td>2.75 (.95)</td>
<td>2.42 (.90)</td>
<td>2.19 (.87)</td>
<td>Limited video tapes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No access to video equipment.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Too difficult to run playgroup and video what is happening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I don’t have access to many of these and I’m not sure if I would use them.</td>
</tr>
<tr>
<td>Test mastery of social skills (TMI)</td>
<td>3.17 (.91)</td>
<td>2.98 (.86)</td>
<td>2.83 (.91)</td>
<td>Taking data on social skills is difficult during class.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I’m not sure what you mean by “test”...I report on authentic observations I view.</td>
</tr>
</tbody>
</table>
### TEACHERS’ BELIEFS AND USE OF PSII

<table>
<thead>
<tr>
<th>PSII</th>
<th>Acceptability Mean (SD)</th>
<th>Feasibility Mean (SD)</th>
<th>Current Use Mean (SD)</th>
<th>Open-Ended Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correcting a child who does not use social skills (TMI)</td>
<td>3.17 (.80)</td>
<td>3.22 (.88)</td>
<td>3.17 (.80)</td>
<td>‘test’ is a barrier- I assess through observation and anecdotal, photographic, and video evidence that levels various social skills on a continuum, but I do not ‘test’ and do not have a ‘test’ to administer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Taking data on social skills is challenging- haven’t come up with a workable system yet!</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I would not correct a child for not using social skills. Modeling and prompting are better methods.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>We try positive redirection instead of correction-don’t want to embarrass the child...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not always appropriate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>We use positive reinforcement and praise around to “correct”</td>
</tr>
<tr>
<td>Activities or tangible reinforcement for a peer (PMI)</td>
<td>2.50 (1.09)</td>
<td>2.70 (1.07)</td>
<td>2.30 (1.11)</td>
<td>Not necessarily. To specifically reinforce a behavior towards a child with a disability further promotes the idea that they’re “different.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not a fan of tangible reinforcers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This is not something I believe is necessary for this age group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I feel this looks too much like bribery -prefer to focus on internal reinforcers.</td>
</tr>
</tbody>
</table>

*Note. TMI = Teacher Mediated Interventions. PMI = Peer Mediated Interventions.*
Chapter Five: Discussion

Within early childhood classrooms, the teacher plays an important role in facilitating positive social interactions by using PSII. However, research literature on PSII indicates teachers implement these interventions at low rates or not at all, especially when the interventions are specialized for children with disabilities. The purpose of this study was to explore teachers’ beliefs and reported use of PSII, which are instructional and intervention practices to facilitate social interactions between children with and without disabilities.

This replication study sought to ascertain if a phenomenon regarding teachers’ beliefs and use of PSII, first reported in 1993, would be found with a current sample of ECI teachers. Specifically, this study utilized the 2007 West et al. article to replicate the prior research and determine if findings are the same. The results of this study add to the literature on interventions to support peer social interactions by investigating the role of training and identifying ecological barriers which impede teachers’ use of PSII. This chapter provides a discussion of the results of this study about teachers use’ of PSII. Implications, future directions for research, as well as policy and training, will be described followed by limitations of this study.

Teachers’ Beliefs and Use of PSII

The results of this study indicated that across two different samples of DEC members, teachers’ ratings for the acceptability, feasibility, and reported current use of PSII are the same. This finding addresses the first research question asking what PSII teachers report are acceptable, feasible, and used. Both samples of teachers rated PSII more acceptable to use than feasible to use. Furthermore, teachers from both samples rated PSII more feasible to use than they reported currently using the practices. In addition, across both samples of teachers, environmental arrangement practices were rated the most acceptable, feasible, and reported used more often
than teacher mediated interventions, peer mediated interventions, or combined approach packages. Moreover, both samples of teachers rated the same five intervention practices as either the highest or lowest for acceptability, feasibility, and reported current use. The highest rated intervention practices were (a) using toys to promote social interactions and (b) praising groups of children for cooperating. The lowest rated intervention practices were (a) using videotaped models, (b) testing mastery of social skills, and (c) providing activities or tangible reinforcement to a peer for socially interacting with a child with a disability. Finally, across the two samples of teachers, responses to open-ended questions probing their perceptions for implementation barriers produced similar responses related to the availability of program resources.

The two previous studies (Odom et al., 1993; West et al., 2007) found a consistent statistical empirical link between teachers’ beliefs and use of PSII. The findings in this study support that empirical link from the previous research. This empirical pattern of response described in all three studies is of concern given the important role this set of instructional practices has for supporting the social interactions of young children with disabilities leading to the development of their social competence. These findings also highlights the link between what teachers believe and what they do, meaning it is crucial teachers’ beliefs are addressed in efforts to enact change in their behavior. These findings support other research related to teachers’ beliefs about the acceptability of interventions (e.g., Fischer et al., 2016), as well as their ability to use interventions (e.g., Guo, Dynia, Pelatti, & Justice, 2014). Though these previous studies differed in population and focus to this study, the findings suggest similarities in teachers’ beliefs and behavior about interventions.

One theory of adult learning as applied to teacher behavior suggests that changes in teachers’ beliefs are contingent on their ability to successfully deliver an intervention that results
in student learning (Guskey, 1985). The improvement in student outcomes then encourage the teacher to continue the intervention, and his/her belief system about the importance of the intervention increases. This phenomenon also illustrates the theory of self-efficacy (Bandura, 1997), in that as the teacher experiences success, he/she will continue the behavior(s) that led to the success (e.g., implementation of the successful intervention). The link between teachers’ beliefs and effective teaching behavior was illustrated in the theory of change developed for this study (see Chapter 2).

The findings in this study supported the finding of the two previous studies on teachers’ preference for interventions using environmental arrangements as opposed to more active and directive interventions that involved the teacher or peers (Odom et al., 1993; West et al., 2007). Environmental arrangement practices support the social skills and social competence of all young children (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Hemmeter, Snyder, Fox, & Algina, 2016), and do not include specialized interventions which usually rely on the application of behavioral learning theory.

The use of behavioral interventions is necessary to support the social interactions of young children with disabilities given their need for specific interventions to address delays in their development (e.g., Drasgow, Lowerey, Turan, Halle, & Meadan, 2008). Research on teachers’ beliefs about the acceptability of interventions consistently suggest that teachers do not use or believe in behavioral interventions (e.g., Hurley, 2012; Ledford, Hall, Conder, & Lane, 2016), however, research on the acceptability of behavioral treatments suggests training can influence teachers’ attitudes about such interventions (Fischer et al. 2016; Mitchem & Young, 2001). Given the link between knowledge and skills to beliefs about acceptability, it will be important to include content related to using behavioral interventions in teacher training for PSII.
Addressing teachers’ beliefs will be necessary to address their preference for environmental arrangement practices compared to teacher-mediated interventions, peer mediated interventions, or combined approach packages.

**The Role of Training on Teachers’ Beliefs and Use of PSII**

The second research question expanded upon the prior findings from West et al. (2007) by investigating the association between teachers’ reported receipt of training and their ratings for the acceptability, feasibility, and reported current use of PSII. The results indicated a statistically significant relationship between reported receipt of training, and their ratings about the acceptability and feasibility of PSII, as well as their reported use of PSII. Findings demonstrated a statistically significantly association between their beliefs and use of all four types of PSII interventions. This suggests the empirical link between training and beliefs about PSII is unrelated to they type of intervention category.

The overall finding of this question supports previous research on the professional development and training of teachers. Research on teacher professional development identifies an empirical link between training and increases in teachers’ knowledge and skills resulting in improvements in child learning or behavior (Desimone, 2009, 2011; Guskey, 1985, 2002). These findings also have implications for the self-efficacy of teachers as they implement an intervention. Social cognitive behavioral theory provides a rationale for explaining how persons’ beliefs systems can be conceptualized as the change agent that leads to observable differences in an individual’s behavior (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2002). Research investigating the implementation of new practices or innovations examines practitioner knowledge and beliefs about the new innovation and their self-efficacy for using a new innovation (Damschroder, et al., 2009; Durlak & DuPre, 2008; Frambach & Schillewaert, 2002).
As proposed by Bandura (1977) self-efficacy is a person’s beliefs about their capabilities to successfully enact a given behavior and influence the use of a behavior (Bandura, 1977). Research relating personal self-efficacy to teacher self-efficacy found teacher self-efficacy is explained by two factors: their knowledge, or confidence for the practice; and their competence, or ability, to use a practice (Bruder, Dunst, Wilson, & Stayton, 2013; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). The findings from this research question suggests that teachers could benefit from training on PSII and this training should focus on self-efficacy while building knowledge and skills.

**Ecological Implementation Barriers**

This study expanded on the prior research findings on the use of PSII (Odom et al., 1993; West et al., 2007) by including open ended questions about barriers teachers have experienced in the implementation of PSII. The teachers’ responses to the open-ended questions were read, categorized, and reduced to three categories of ecological barriers to classroom implementation of PSII. The three were: (a) a lack of program resources, (b) teachers’ knowledge and beliefs, and (c) children’s characteristics. Program resources included time, staff, materials, assessments, curriculum, and children without disabilities. Teachers’ knowledge and beliefs included statements indicating they did not think PSII practices were acceptable or statements indicating they did not use a practice. The third category of implementation barriers, children’s characteristics, were related to features of a child’s disability and/or the presence of challenging behaviors.

The ecological implementation barriers reported by these teachers explain the negative relationship between teachers’ beliefs about acceptability, feasibility, and reported use of PSII. This negative relationship highlights the importance of teachers’ perceptions of the social and
ecological validity of an intervention before they will adopt it and use it during everyday classroom routines (Hurley, 2012; Ledford et al., 2016). Ecological validity refers to the feasibility and generalizability of an intervention within and across classroom routines and activities (Ledford et al., 2016). Social validity relates to a teacher’s belief and acceptance of an intervention as being effective with students (Hurley, 2016). Social and ecological validity are critical to address in training and research on PSII to increase teachers’ use of these interventions to ensure the likelihood of positive social interaction behaviors in young children with disabilities.

**Future Recommendations from Findings of this Study**

**Research.** There is a continuing need to study the relationships found in this and two previous studies (Odom et al., 1993; West et al., 2007) between acceptability, feasibility, and use of PSII. Additionally, the findings related to teachers’ preference for environmental arrangement practices over more direct interventions involving teacher or peer mediation also provides an area for more study. The training of teachers is a critical area for future research in the area of PSII, given the rich literature and studies that have demonstrated the relationship between the knowledge and skills of a teacher, and their ability and likelihood to implement effective interventions (Desimone, 2009, 2011). Further research should study if focusing on the training of a teacher to implement PSII successfully to impact student learning also results in a change in teacher attitude and acceptance of PSII as suggested and demonstrated by Guskey (2002).

Additional research on training should utilize a research-based model of adult learning (Dunst, Bruder & Hamby, 2015). These key features include (a) illustration of PSII, (b) authentic job embedded practice using PSII, (c) opportunities for reflection and self-monitoring their use of PSII (d) performance feedback on their use of PSII, (e) on-site support from a mentor,
consultant, or coach, to guide their use of PSII, and (f) a training of sufficient duration and intensity to ensure teachers sustained use of PSII. It will be important to investigate which key features of these practices result in positive outcomes for both teachers and children.

Research on training must also include a focus on the pedagogy of teaching young children with disabilities. It has long been accepted that children who have disabilities or delays in learning require explicit teaching practices and interventions delivered by highly qualified and trained teachers and therapists (Strain et al., 1992). The foundation of these specialized interventions is behavioral learning theory (Ferster & Skinner, 1957). However, as inclusionary practices and programs for young children with and without disabilities have expanded and evolved, specialized teaching practices have been embedded within developmentally appropriate practices and activities. That is, teachers are adapting special education practices for use within typical early childhood curricula and classrooms. Unfortunately, little is known about how early childhood pedagogy has evolved to provide all early childhood teachers the knowledge and skills to adapt specialized practices for use in early childhood activities and settings that include all children.

Future research must include an examination of current preservice content and methods for early childhood teachers, especially in those programs that prepare both early childhood and early childhood special education teachers together. This focus could be expanded to examine specific pedagogy about social interactions and social competence, and mechanisms to expand future teachers’ knowledge and skills about the full range of PSII practices, including teacher and peer mediated interventions. In addition, there should be studies conducted to measure teachers’ use of preferred PSII, such as environmental arrangements compared to more intensive
teacher and peer mediated interventions, and the relationship between those types of PSII and changes in children’s peer social interactions.

Lastly, future research should also focus on the effects of program resources on training and implementation of PSII, as lack of program resources were reported as a barrier for the implementation of PSII by teachers across all three studies. Specifically, there is a paucity of materials, such as assessment and curricular materials, available to support teachers use of PSII. Therefore, research on training must include the development of assessments and curricular materials to facilitate teachers’ use of PSII.

Policy. As indicated in Chapter 1, the LRE represents a continuum of placement options. However, the delivery of early childhood special education services within typical early childhood classrooms, such as public preschool and community childcare settings, are often limited by state and local policies and practices (Bricker et al, 2018; USDHHS & USDOE, 2015). Yet, it has been long accepted that placement of a child with disabilities in a typical early childhood classroom with children without disabilities provides learning opportunities that are not available in classrooms that only have children with disabilities (Bruder, 2010; Guralnick & Bruder, 2016). Children in inclusionary classrooms have opportunities to learn together and special education interventions can be embedded within the general education curriculum, including the implementation of PSII.

One policy recommendation to facilitate the expansion of inclusionary practices and programs is the blending and leveraging of funding streams across multiple early childhood programs to support all young children within a single early childhood classroom and program (Bruder, 2010). Though different funding streams may have limitations regarding child and family eligibility, policy makers and administrators should develop guidance to enable local
programs to merge funding to support all children. This guidance may also result in combined resource pools for all teachers as participants in this study cited resource shortages as a barrier to the implementations of PSII.

Another area for policy reform to support inclusion is the governance behind the training, licensing, and credentialing of teachers. The expansion of the early childhood field has resulted in an increased interest in the qualifications of teachers across early education settings. Teaching licenses and credentials are used by states to ensure that teachers' meet the state criteria or requirements for highly qualified personnel (Bruder, 2016), and these credentialing and licensure requirements dictate the content of teacher training and personnel preparation programs. In general, teachers in general community based early education and care classrooms are not required to have a bachelor’s degree in early childhood teaching, meaning they may not have adequate nor appropriate training on evidence-based practices and interventions such as PSII. Likewise, a special education teacher may not be required or receive preparation to use evidenced based practices such as PSII in general early childhood curricula or classrooms with typical children. Policy guidance is needed support licensing and certification requirements that are applicable for teachers who will teach in inclusionary programs, and this must translate to preservice teacher training pedagogy. Linkages between state credentialing/licensing and institutes of higher education could facilitate the preparation of early childhood and early childhood special education teachers to use evidenced based practices such as PSII to address young children’s social competence. This will be a challenge given the variability across states regarding requirements for a wide range of ECE credentials and licensure types based on the type of early childhood program (Chen & Mickelson, 2015; Stayton et al., 2009). National policy
guidance describing the competencies teachers need to use PSII could be directed to state credentialing and licensure agencies, as well as institutes of higher education.

**Teacher training.** Teacher training plays an important role in the provision of quality education for all children (Espinoza, Saunders, Kini, & Darling-Hammond, 2018), and evidence suggests a relationship between teacher training and the outcomes of young children receiving early childhood education (Gomez, Kagan, & Fox, 2015). The findings from this study also support the relationship of teacher training to the implementation of the evidenced based practices of PSII. Teachers’ use of evidence-based PSII are necessary to ensure social interactions between children with and without disabilities occur leading to their social competence (Brown et al., 2008; Odom et al., 1992).

Effective training results in a gain in a teacher’s knowledge and skills, which can be measured as competencies. Competency-based learning focuses on the explicit knowledge and skill that teachers must demonstrate in order to be proficient in their practice (Voorhees, 2001). Due to the lack of focus in the early childhood field on social competence and teachers’ use of PSII, given the dated nature of the literature, it seems reasonable to suggest the development of teacher competencies on the implementation of PSII interventions that would facilitate social interactions between children with and without disabilities. These competencies should be provided through both preservice preparation programs and ongoing professional development for teachers in early childhood education. While different sectors, recommendations cross both, as suggested by the results of the study.

**Personnel preparation of preservice teachers.** Institutions of higher education (IHE) should be guided by national personnel standards and both ECE and ECI have personnel standards through their national organizations (DEC, 2012; NAEYC, 2010). Both sets of
personnel standards include evidenced based practice and pedagogy in developmental domains of behavior. While social development is encompassed in these standards, it is left to individual IHEs to translate such standards into coursework and practicum experiences.

Unfortunately, it has been found that there is differing emphases in IHE programs of study in early childhood, even in areas represented by personnel standards, as well as necessary for effective practice in inclusionary programs (Bruder & Dunst, 2005a, 2005b; Bruder, et al., 2013; Dunst & Bruder, 2014). Recommendations for the preservice preparation of early childhood and early childhood special education teachers would include a reexamination of the role standards play in the development of coursework and practicum, and a translation and operationalization of personnel standards to competencies, measures and content for students attending and graduating from programs of study in early. Additional emphasis could be placed on the training of early childhood and early childhood special education teacher candidates in blended or combined programs, to increase the likelihood of shared pedagogy in children’s social competence and use of PSII.

Preservice standards and competencies to support student teachers’ knowledge and skills in social competence as a content area, and PSII as an evidenced based practice, should occur during student practicum, field placements, and student teaching. These placements should occur frequently enough and long enough to support the intensity and duration student teachers may need to learn to use PSII during classroom activities. An added recommendation is that all such placements for both early childhood and early childhood special education teacher candidates should be in high quality inclusionary classrooms, where they will have the opportunity to implement PSII. This recommendation will also require IHE programs of study to assess field placement or practicum sites carefully, given the limited availability of inclusive classrooms.
**Professional development for teachers.** Professional development is “structured professional learning that results in changes to teacher knowledge and practices, and improvements in student learning outcomes.” (Darling-Hammond, Hyler, Gardner, & Espinoza, 2017, p. 2). Teachers working in early childhood classrooms may receive ongoing professional development as a requirement by their district or program, or they may seek professional development opportunities for their own identified need for more knowledge and skills. The results of this study strongly suggest a need for professional development opportunities to support teachers’ use of PSII.

All professional development provided to teachers working in the field should be provided within their practice and based on research on effective practices (Desimone, 2009, 2011; Guskey, 1985, 2002). Most importantly, any change in a teacher’s behavior, practice, attitude and beliefs will only occur when professional development or in-service training is delivered as described by Dunst and colleagues (Dunst et. al., 2015). A recommendation from this research is that professional development and in-service training include goals and objectives related children’s social competence and peer social interactions, lesson planning to use PSII, and interventions using PSII. In addition, in-service teachers should demonstrate competencies for individualizing PSII to support the social competence and peer social interactions of children with identified disabilities whose IEP includes social skills goals and objectives.

**Limitations**

This study has several limitations that should be noted. These include (a) the sample size, (b) participant self-selection, (c) the SIPFQ-R, (d) the data analysis, and (e) the research literature on PSII.
The sample size for this study was very small. The membership of the DEC is 1,965. As the members of DEC formed the population pool, this study had a 3% response rate. Multiple recruitment requests went out to the whole membership, and yet only 56 returned surveys. There may have been reasons for this, though speculation with the DEC executive director revealed no known limitations in the recruitment materials, nor in the understanding of the directions for the survey. This low response rate severely limits the generalizability of the findings, though the data and findings replicate the findings from two previous surveys with larger samples.

In addition to concerns about the sample size, the participants in this sample self-selected into the study. Their reasons for this self-selection are unknown and this sample of teachers may not be representative of the larger population of DEC teachers. In addition, it should be noted that teachers who are members of the DEC may not be representative of early childhood teachers in the field. It is possible that these teachers are a subset of the larger population of ECI teachers and have characteristics that make them unique. Given the small sample and the limited information regarding this sample, it is not possible to generalize these results, and all results found in this study should be considered preliminary evidence for future research.

An additional limitation is the instrument used for the survey, the SIPFQ-R. The instrument has had a factor analysis, which limits the construct validity of the items and the whole instrument. While the consistent pattern of responses between the three studies suggests the survey has content validity, this alone is inadequate. Furthermore, the lower Cronbach alphas in both this study, and the West et al. (2007) study, indicate the internal reliability of the environmental arrangement practices category of the SIPFQ-R is poor and the combined approach category is questionable (Note. The internal consistency for the Odom et al., 1993 study was not reported). Moreover, the SIPFQ-R is very long, and this hinders the practicality for
using this instrument in further research. The instrument was chosen in order to do a replication of the previous two studies, as such, the instrument was adequate for this use alone.

The data analysis procedures used in the direct replication question in this study also presents a limitation to the findings. One of the stated limitations about direct replications is repeating flawed methodology. The 2007 study described the use of MANOVA for its analysis, but the analysis that was conducted and reported was a repeated measures ANCOVA. Specifically, the authors stated, “We probed the relationships of respondents’ ratings of acceptability, feasibility, and current use for the four social interaction intervention strategies by modeling each respondents 12 averaged item ratings using a repeated measures multivariate analysis of variance (MANOVA) with teaching experience, position, and age as covariates.” (West et al., 2007, p. 44). The authors to this study did not provide details for how they entered variables into the model, nor how many models they created. This precluded absolute certainty that the data entry and analysis described in the methods of this study is a precise replication.

Furthermore, on its own a replication study does not guarantee validity (Nosek & Errington, 2017; USDOE, NSF & IES, 2018). For example, the reproduction of past findings may mask accidental or systematic errors that existed in the previous research. In fact, “Re-analyses that yield identical findings may reflect identical flaws in the execution of the data analysis or other study procedure” (USDOE, NSF & IES, 2018, p. 4). That possibility needs to be kept in mind when weighing the significance of these findings.

Finally, as noted earlier, the research base on social competence and PSII is date, indicating a focus on social competence does not currently exist in ECI. In addition to being dated, the findings from research cannot be generalized to diverse populations given the small samples that were used in the literature, which focused on young children with autism. In
addition, much of the prior social competence research was conducted in classrooms designed for children with disabilities rather than a general early childhood classroom, which questions the validity of these practices (Love & Horn, 2019). Finally, there are too few studies using classroom personnel, such as teachers, as the implementer of PSII, making it difficult to translate findings into early childhood community and school based classrooms (cf. Pokorski et al., 2019).

Conclusion

The results of this study confirm prior research about teachers’ beliefs and use of PSII. It also provides evidence that teachers’ failure to use PSII is a long-standing problem inhibiting peer social interactions and social competence for young children with disabilities. Supporting the ECI workforce on the use of PSII in inclusive settings is imperative given the empirical pattern of responses by teachers across 26 years and three studies. Attention to teachers’ knowledge, skills, and beliefs about PSII is critical to ensure the implementation of these interventions to improve social interactions between children with and without disabilities. The results of this study highlighted the role of teacher training as a mechanism to support teacher beliefs about the acceptability, feasibility and use of PSII to improve children social interactions and social competence.
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