Early Intervention Speech-Language Pathologists’ Knowledge, Beliefs, and Practices Surrounding Culturally and Linguistically Responsive assessment Practices for Dual Language Learners

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ABSTRACT

EARLY INTERVENTION SPEECH-LANGUAGE PATHOLOGISTS’ KNOWLEDGE, BELIEFS, AND PRACTICES SURROUNDING CULTURALLY AND LINGUISTICALLY RESPONSIVE ASSESSMENT PRACTICES FOR DUAL LANGUAGE LEARNERS

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Northern Illinois University, 2023
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Early intervention (EI) speech-language pathologists (SLPs) are required to provide culturally and linguistically responsive assessments for dual language learners (DLLs) within an increasingly diverse population. Previous research has documented gaps between SLPs’ beliefs related to assessments for DLLs and their implementation of best practices within school-based and pediatric outpatient settings. The purpose of this present research study was to better understand the current knowledge, beliefs, and practices of EI SLPs in relation to the use of culturally and linguistically responsive assessment practices within the context of EI programs. A total of 134 EI SLPs completed a nationwide survey in which they were asked to describe their assessment procedures for a DLL case scenario, to identify the degree to which they agreed with a variety of assessment practices for assessing DLLs, to demonstrate their knowledge related to cultural and linguistic influences on DLLs’ language development, to document their backgrounds, experiences, and current practice settings, and to provide information related to the barriers and facilitators of culturally and linguistically responsive assessment practices within their early intervention program.
The data obtained from this survey were analyzed to answer research questions in three different research studies. Study 1 was designed to document EI SLPs’ beliefs and practices related to assessing DLLs within EI programs. Results from Study 1 revealed that EI SLPs’ beliefs related to assessing DLLs aligned with best practices. However, a substantial gap in implementation of best practices was found. Although the majority of EI SLPs attempted to account for both of a DLL’s languages in their assessment practices, EI SLPs reported infrequent or very infrequent use of five out of seven best practices for assessing DLLs. Study 2 was designed to explore the relationships between EI SLPs’ beliefs, knowledge, and practices and their backgrounds, experiences, and practice settings. Results of this study revealed gaps in EI SLPs’ knowledge related to the cultural and linguistic influences on a child’s developing language systems. Findings from Study 2 further revealed that EI SLP knowledge was positively related to the sociolinguistic context in which they practiced and the percentage of their caseload composed of DLLs and was negatively related to time since graduation. EI SLPs’ use of best practices was positively related to the percentage of their caseload composed of DLLs. Study 3 was designed to understand EI SLPs’ perceptions of facilitators and barriers to culturally responsive assessment practices. Results revealed the interconnected nature of facilitators of and barriers to culturally and linguistically responsive assessment practices, which included access to and quality of interpretation, access to materials and assessments, location of service delivery, policies governing assessment practices, composition of the EI team, and specific SLP and family characteristics. Taken as a whole, the results from these three studies suggest a need for continued knowledge development around the cultural and linguistic influences on DLLs’ language development as well as the critical need for increased support related to the implementation of best practices across sociolinguistic contexts.
EARLY INTERVENTION SPEECH-LANGUAGE PATHOLOGISTS’ KNOWLEDGE, BELIEFS, AND PRACTICES SURROUNDING CULTURALLY AND LINGUISTICALLY RESPONSIVE ASSESSMENT PRACTICES FOR DUAL LANGUAGE LEARNERS

BY
REBECCA L. JARZYNISKI
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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY

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Doctoral Director:
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DEDICATION

This dissertation is dedicated to the family, friends, colleagues, and students who cheered me on. I felt each and every word of encouragement along the way. To the children and families who inspired me. And to my mom, who taught me to fight the good fight. Her deep love gave me the courage to take risks beyond my wildest imagination.

I think she would be proud.
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Chapter 1

INTRODUCTION:

EARLY INTERVENTION

Early Intervention (EI) services are designed to support children under the age of three who are either at risk for or who have a documented developmental delay, disability, or health condition impacting development, to lessen the impact of the delay/disability on the child’s developmental trajectory (American Speech-Language Pathology Association [ASHA], n.d.). Early intervention professionals work across a variety of domains, including cognition, communication, physical development, social-emotional development, and adaptive development. Speech-language pathologists (SLPs) play a vital role in helping children enrolled in EI services to thrive across these domains.

Early intervention services must be family-centered in nature (ASHA, n.d.). While children below the age of three years are the primary target of early intervention, the entire family is an essential part of service delivery. Families should be given the opportunity to act as equal, collaborative partners in all aspects of EI services. Family perspectives should be elicited and honored, services should be grounded in family priorities, and families as a whole should be the recipient of the EI services. Family-centered practices are not only best practice (ASHA, n.d.), but have also been shown to be effective and capable of maximizing outcomes across the domains serviced in EI, including speech and language outcomes for children (Roberts & Kaiser, 2011; Roberts et al., 2019).
EI services must also be both culturally and linguistically responsive (ASHA, n.d.). Culture is defined as, “a set of factors from multiple dimensions that can describe how one person or a group of people experience life and engage in daily practices” (Hyter & Salas-Provance, 2023, p. 6). Culture includes a range of factors such as values, beliefs, attitudes, problem-solving, religion, and communication. Each of these factors shapes the behaviors of those who are part of the culture, and each is learned through interactions with others in that culture (Hyter & Salas-Provance, 2023). Accordingly, culturally responsive SLP services include a family’s beliefs, values, practices, experiences, materials, and routines in all aspects of the child’s service provision (Larson et al., 2020). Linguistically responsive SLP services are achieved by honoring and supporting a child’s home language while simultaneously supporting the development of English. Culturally and linguistically responsive service delivery carries both social-emotional and linguistic benefits and has been demonstrated to increase outcomes for young children (Durán et al., 2016; Larson et al., 2020; Peredo, 2016).

**Early Intervention Children and Families**

The early intervention population in the United States continues to grow in cultural and linguistic diversity. Nearly half of the 842,413 children aged birth to 3-years old who currently receive EI services come from non-European American backgrounds. Specifically, they identify with one of the following racial or ethnic backgrounds: American Indian or Alaska Native (5,842), Asian (36,966), Black or African American (104,046), Hispanic/Latino (232,969), Native Hawaiian or Pacific Islander (2,557), and two or more races (35,650) (Annie Casey Foundation, 2022; U.S. Department of Education, 2019). Additionally, nearly 25% of children in the United States live within homes where a language other than English is spoken (Annie Casey Foundation, 2022). Children who are exposed to more than one language as they develop their
language system are called dual-language learners (DLLs); due to their increasing numbers throughout the United States, these children comprise an increasing proportion of an EI SLPs’ caseload.

All families want their children to thrive, but family systems differ in the languages used within the home, preferred activities and routines, belief systems, interaction styles, beliefs about child development, use of formal supports, perceptions and reactions to a child’s diagnosis or disability, and concerns regarding their child’s ability to learn multiple languages (DuBay et al., 2018; Magnusson et al., 2017; Yu, 2013, Wing 2007). EI SLPs must work within these variations in family beliefs and practices in order to provide culturally and linguistically responsive services. Despite the clear requirement for culturally and linguistically responsive early assessment and intervention, families from non-European-American backgrounds report being less satisfied with EI services (Bailey, et al. 2004). These families have also reported that EI SLPs do not always take culture into account and may not support their child’s home language (Nunez & Hughes, 2018; Yu, 2013). This may, in part, be explained by the lack of diversity within the SLP field, with only 8.5% of SLPs identifying as non-White and only 8% of SLPs identifying as bilingual service providers (ASHA, 2020).

**Early Intervention Evaluations and Assessments**

EI services are initiated with an assessment and evaluation completed by the early intervention team (ASHA, n.d.). High quality, culturally responsive assessment and evaluation services prevent over-and under-identification of children with language disorders (Bedore & Peña, 2008). Evaluation refers to the process of determining whether or not a child qualifies for EI services. EI teams use a variety of procedures to establish a child’s eligibility for EI services, including review of a child’s medical, educational or other records, thorough documentation of a
child’s developmental and medical history, use of a variety of assessment tools, identification of a child’s functioning across five specific developmental domains, and documentation of the child’s strengths and needs (ASHA, n.d.; U.S. Department of Education [USDOE], 2018). Assessment within EI involves using both formal and informal measures to more thoroughly identify the child’s strengths and areas of need and to initiate the provision of supports for successful intervention. Although evaluation and assessment are technically distinct terms, they are highly interrelated within the early intervention process. Therefore, the term assessment will be used to capture the entirety of the evaluation and assessment process for the remainder of this introduction.

SLPs are required to provide all services competently, including assessment procedures. The provision of competent services applies to all individuals receiving SLP services, regardless of the individual’s race, ethnicity, sex, gender identity/gender expression, sexual orientation, age, religion, national origin, disability, culture, language, or dialect (ASHA, 2023). Further, SLPs are obligated to meet federal and best practice guidelines which require evidence-based, culturally and linguistically responsive assessments that are free from discrimination and bias (ASHA, n.d., U.S. Department of Education, 2018).

EI SLPs provide assessment services within early intervention teams. EI teams typically include an occupational therapist, a physical therapist, and an early childhood teacher, with additional team members such as nurses, dieticians, and social workers as dictated by the needs of the child and family. Per IDEA Part C, EI assessments must be completed by qualified personnel as part of a multidisciplinary team, in the native language of the child and family, using a variety of instruments and procedures. Evaluators must ensure that the assessments are family-centered and culturally responsive by gathering information from families regarding the
family's resources, priorities, and concerns. Further, assessments must be selected and administered to ensure that they are not racially or culturally discriminatory.

IDEA Part C also dictates a timeline for the assessment process. The initial evaluation, assessment, and Individualized Family Service Plan (IFSP) must be completed within 45 days of the referral to EI. Initial assessments are completed by team members from two different disciplines who typically complete their assessments within the same single visit to the family’s home. EI teams may face tensions as they attempt to balance these multiple requirements, as meeting the established timeline may place constraints on the amount of time spent with the child and family and may limit the use of multiple, discipline-specific assessment tools.

**Ecological Systems Model**

The ecological systems model provides a framework for understanding and analyzing the factors which influence the development of DLLs and may complicate and assessment procedures, particularly those procedures administered by an EI SLP who speaks a different language and/or comes from a different background than the child and family they are serving. The ecological systems model (Bronfenbrenner, 1979, as cited in Hanson & Lynch, 2013) is focused on the relationship between a developing person and the surrounding environment. The ecological environment is conceptualized as a series of systems that are nested within and interact with each other (see Figure 1).
Within the ecological systems model, the microsystem is defined as an individual’s immediate environment, including the routines, activities, roles, and interpersonal relationships within that setting (Hanson & Lynch, 2013). For example, a child’s microsystems may include their family and their childcare setting. The mesosystem is the interaction between microsystems. A child’s mesosystem might include the relationships and interactions between the child’s family and childcare setting. The exosystem includes settings in which a person is not directly involved, but which impact the individual, nonetheless. A parent’s work policies, for example, might operate within a child’s exosystem. Finally, the macrosystem includes the cultural beliefs and values that shape and are shaped by each of the lower systems.

The ecological systems model posits that children cannot be understood outside of the context of their family, and the family cannot be understood without understanding the broader
cultural influences and societal beliefs which shape family systems. Further, the systems that interact with the child’s family are also shaped by broader societal beliefs and values. An understanding of the multiple, bidirectional influences of the environment on the individual and the individual on the environment provides a framework for understanding the need for culturally and linguistically responsive assessment practices.

**Cultural and Linguistic Influences on Child Development**

Language development is strongly influenced by the environment in which a child lives (Peredo et. al 2020; Unsworth, 2016). Children who hear multiple languages as they develop their language system are not delayed in the development of their language (Peredo, 2016; Unsworth, 2016). However, their developing language system will be influenced by the quantity and the quality of the language input they receive from their family and the broader community in which they live (Unsworth, 2016). The vocabulary of young DLLs will be distributed across the languages they speak in relative proportion to the amount of language input they receive in each of those languages (Hoff & Core, 2015; Paradis et al., 2021; Unsworth 2016). DLL toddlers will begin to produce two-word phrases at the same time as monolingual peers (Hoff et al., 2012). While the morphological and phonological skills of DLL children may lag slightly behind monolingual expectations and may be impacted both positively and negatively by cross-linguistic transfer, these skills should not be substantially delayed when considering both languages (Hoff & Core, 2015; Paradis et al., 2021). A child’s use of play, gestures, and pragmatics will also be influenced by cultural expectations (Ball, 2007; Guiberson, 2016; Hwa-Froelich, 2005; Johnston & Wong, 2002; Peredo et al., 2020).

Further, the quality of language input will impact the child’s developing language skills. Because language development is supported by density, richness, and variability of input (Hoff
& Core, 2015), a young child’s developing language skills appear to be best supported by hearing the language spoken by native speakers who are able to provide complex input in their home language (Hoff & Core 2015, Unsworth, 2016). Finally, broader macrosystem and exosystem factors, such as the acceptance of the language in the dominant culture and policies that dictate the use of English languages in educational settings may also impact the child’s use of their home language (Soto-Boykin et al., 2021; Unsworth, 2016).

**Best Practices for Assessing Dual Language Learners**

Quality EI service provision to all children begins with an accurate assessment of their speech and language skills. Accurate identification of children with speech and language disorders not only benefits the child and family but the entire community. For example, for every dollar spent early in development by providing early assessment and intervention, seven dollars are saved in terms of future education and services (Ruben, 2000). Assessment of DLLs, however, is challenging, given the multitude of cultural and linguistic factors which impact language development and the potential mismatch between the language and culture of the child and the SLP (Castilla-Earls et al., 2020; Hoff & Core, 2015; McLeod et al., 2017; Unsworth, 2016).

EI SLPs must consider the multiple and overlapping cultural and linguistic influences on child development when assessing DLLs in EI. Best practices for high-quality assessment require an EI SLP to gather information across a variety of categories, using a range of assessment tools (ASHA, n.d., Castilla-Earls et al., 2020). Using this “converging-evidence” approach, the SLP then considers the way in which the information gathered in each category forms a complete picture of the child to arrive at a high-quality clinical decision (Castilla-Earls et al. 2020). Specifically, early intervention assessments for DLLs should include:
- Gaining information regarding the child’s developmental, medical, and family history (ASHA, n.d.)
- Documenting a child’s detailed language history, including the quantity and quality of the languages heard by the child (Castilla-Earls et al., 2020)
- Eliciting and valuing the level of parent concern, especially in comparison to siblings (Castilla-Earls et al., 2020)
- Ethnographic or routines-based interviewing to understand a family’s beliefs, values, traditions, and routines (ASHA, n.d.; Peredo, 2016)
- Play-based, bilingual communication, speech, and language samples (Castilla-Earls et al., 2020; Guiberson, 2016)
- Standardized or criterion-based assessment appropriate for dual-language learners (Castilla-Earls et al., 2020; Hoff & Core, 2015)

As an SLP integrates information from each of these categories, the results must be situated within the child’s unique linguistic backgrounds, given the languages that they have been exposed to within their environment (Castilla-Earls et al., 2020; Hoff & Core, 2015). Further, EI SLPs must analyze a child’s language use, play, cognition, and social interactions within their specific cultural background (Hwa-Froelich, 2004; Peredo, 2016). Each of these aspects of assessment leads to a high-quality decision regarding eligibility for EI services. Further, use of ethnographic interviewing provides the information required to consider the child’s skills within the context of their culture and to establish family-centered, culturally and linguistically responsive goals and intervention services.
SLP Self-Efficacy for Assessing Dual Language Learners

SLPs consistently report low self-efficacy for working with culturally and linguistically diverse populations. Self-efficacy is defined as an individual’s perception of “how well one can execute a course of action required to deal with prospective situations” (Bandura 1992, as cited in Santhanam & Parveen, 2018). Survey research completed in 2003 revealed that although the vast majority of SLPs had at least one child who spoke a language other than English on their caseload, very few reported high personal efficacy for assessing DLLs (Kritikos, 2003). Since that time, numerous researchers have documented SLPs’ continued feelings of lack of preparedness and lack of confidence for working with DLLs. Most recently, Santhanam & Parveen (2018) completed a literature review of thirteen studies related to the self-efficacy of SLPs serving culturally and linguistically diverse clients. The results of their review indicated consistently low self-efficacy for assessing DLLs, across a variety of ages and settings. Although several positive changes were noted in select aspects of SLP self-efficacy, overall SLP self-efficacy had not changed substantially over the previous two decades.

Early intervention SLPs, specifically, also report low-self efficacy related to working with children and families from a variety of cultural and linguistic backgrounds. In 2013, only 25% of EI SLPs felt that their graduate program had prepared them to work effectively within diverse populations (Caesar, 2013). This same research revealed a significant relationship between perceptions of cultural/linguistic proficiency and age, with younger SLPs reporting higher levels of self-efficacy. Further, EI SLPs who had completed continuing education courses reported higher confidence for working with children from diverse backgrounds. More recently, Caesar (2020) documented EI SLPs’ lack of confidence in their knowledge related to the communication development of and milestones for DLL toddlers. This survey research also
documented EI SLPs’ low self-efficacy in their knowledge related to the role of cultural beliefs, values, and priorities for the child, family, and service providers.

**Impact of Low-Quality Early Intervention Assessments**

EI services are designed to mitigate the impact of delays and disorders, with a focus on identifying children as early as possible to maximize outcomes (Guralnick, 2011). Because speech and language skills are intricately related to emotional, social, academic, and vocational outcomes, inaccurate speech-language assessment procedures may have substantial, life-long adverse effects on a child’s outcomes by putting these children at risk for under-enrollment, over-enrollment, and low-quality service provision in EI programs (Hyter & Salas-Provance, 2023; Bedore & Peña, 2008). In fact, due to a multitude of factors, children from non-White and non-English speaking backgrounds are less likely to receive EI services (Magnussen et al., 2016; Morgan et al., 2016; McManus et al., 2020).

Under-enrollment places these children at risk for academic struggles, especially given that stronger home language skills at kindergarten are related to both the development of English that is needed for schooling and academic success (Arellano, et al., 2018; Peredo, 2016). Errors in assessment may prevent the identification of language delays in DLLs and may perpetuate or exacerbate the existing disparities faced by children from non-White, non-English speaking backgrounds (Magnusson et al., 2016; Morgan et al., 2016; The Education Trust, 2021).

Over-identification for special education is an additional undesirable outcome of low-quality assessment practices (Bedore & Peña, 2008; Hyter & Salas-Provance, 2023; Klingner & Artiles, 2003). Over-identification of children who speak more than one language leads to wasted resources which could be channeled to children with actual language and learning disorders. Further, the over-identification of children who speak multiple languages reinforces
the pervasive and inaccurate myth that learning two languages causes language delays and further stigmatizes bilingualism (Soto-Boykin et al., 2021).

Inaccurate assessment practices may have an additional negative impact on EI service delivery by reducing the quality of information used to establish and implement the treatment plan with families and other professionals (ASHA, n.d, McLeod et al., 2017). Research suggests that culturally and linguistically responsive SLP intervention services increase treatment outcomes for young children with language delays and disorders (Larson et al., 2020). Assessment within EI serves the purpose of establishing the foundation for culturally and linguistically responsive goal-setting and treatment planning, leading to culturally responsive service delivery. However, Latina and Chinese mothers have reported that SLPs may not always honor family wishes, may not support the development of home languages, and may not consider culture (Nunez & Hughes, 2018; Yu, 2013). Further, children from Latina backgrounds are more likely to have unmet therapy needs in EI services (Bailey et al., 2004; Magnusson et al., 2016). Low-quality assessment procedures may serve to perpetuate these disparities.

**Influences on Low SLP Self-Efficacy**

As is true throughout the field of early childhood, SLPs’ low self-efficacy is likely impacted by both practitioner-level variables and systems-level variables (Sexton & Rush, 2021). SLPs are expected to be competent in speech and language assessment procedures before receiving their master’s degree from an accredited program (Council on Academic Affairs, 2020). Assessment of DLLs, however, is complex and complicated by the multiple cultural and linguistic influences on language development (Castilla Earls et al., 2020). Both the quality and quantity of language input influence the language development of DLL children (Hoff & Core, 2015; Paradis et al., 2021; Unsworth, 2016). Further, a child’s family and culture influence a
child’s pragmatic behaviors and the early prelinguistic and extralinguistic milestones that are an essential aspect of EI assessments (Ball, 2007; Guiberson, 2016; Hwa-Froelich, 2004; Johnston & Wong, 2002; Peredo et al., 2020).

SLPs may not have the knowledge and skills needed to account for these variables in their assessments. Standing in contrast to the growing diversity within the EI population, only 8.5% of SLPs identify as non-White and only 8% of SLPs identify as bilingual service providers (ASHA, 2020). Despite the desire to be culturally and linguistically responsive, all SLPs may initially be limited by the culture and linguistic knowledge developed within their microsystems (Hyter & Salas-Provance, 2023). Further, knowledge within the field of speech-language pathology has historically been guided by theory, research, and practices developed by and with monolingual, English-speaking, European-American individuals (Ellis & Kendall, 2021; Guiberson & Vigil, 2021). The vast majority of research regarding early childhood language development and pediatric speech-language pathology service delivery has been centered on monolingual, English-speaking, European-American populations (Larson et al., 2020; Guiberson et al., 2019; Kohnert & Medina, 2009). The lack of diversity within the SLP field, coupled with the lack of diversity within the research base, likely has a negative impact on the ability of speech-language pathology training programs to effectively prepare speech-language pathologists to provide culturally and linguistically responsive services (Ellis & Kendall, 2021; Guiberson & Vigil, 2021). These factors are shaped and reinforced by English-centric policies with the exosystem and ideology within and macrosystem (Soto-Boykin et al., 2021). EI SLPs may wish to implement culturally and linguistically responsive assessment procedures but may be limited by their own cultural lens, their knowledge, their training, and systems constraints.
EI SLP practices are also influenced by additional systems-level policies at the exosystem level, which are again shaped by macro-level influences. Federal guidelines for EI require assessment in a child’s home language; however, other policies may interfere with the execution of these requirements. Though well-intentioned and valuable, interdisciplinary EI assessment practices may limit the time SLPs are allotted to complete all aspects of an evidence-based assessment. Further, funding for EI SLP services may be contingent on clinician-driven assessments and treatment plans guided by the biomedical model, in which language impairments are viewed through a decontextualized lens as if the impairment resides only within the person (Hyter & Salas-Provance, 2023). EI SLPs may also face difficulty accessing the resources essential to high-quality assessment practices, including interpreters, testing protocols for DLLs, and evidence-based information on language development across multiple languages (Santhanam & Parveen, 2018). For example, despite the rich cultural and linguistic diversity within the United States, the majority of assessment tools available to SLPs have been developed for monolingual English-speaking children and are not appropriate for DLLs (Castilla-Earls et al., 2020).

Even armed with full knowledge and resources, SLPs may encounter additional complexity when working within family systems to complete high-quality assessments. Due to pervasive myths regarding the hypothetically negative impact of learning two languages on language development and educational policies favoring English, families who speak a language other than English in their home may demonstrate ambivalence toward or concern regarding the continued use of their home language with their child (Yu, 2013; Soto-Boykin et al., 2021) and may request assessments and interventions in English only (Williams & McLeod, 2012). SLPs
who understand the value of assessment in a child’s home language may occasionally need to work within these tensions when implementing assessment procedures (Verdon et al., 2015).

**SLP Knowledge, Beliefs, and Practices**

Despite the well-documented reports regarding SLPs’ low self-efficacy around assessment of DLLs, little is known about the current state of EI SLPs’ actual knowledge and practices in relation to assessment of DLLs within EI systems. Low self-efficacy may be related to a lack of knowledge, inaccurate beliefs, and lower quality assessment procedures; however, this is not a given. In fact, due to the Dunning-Kruger effect, individuals with high competence on complex tasks may rate their skills more poorly while individuals with low competence may overestimate their skill level (Kruger & Dunning, 1999). This effect has been found in a variety of professions, including speech-language pathology (Riedemana & Turkstra, 2018). Therefore, documenting the actual knowledge, beliefs, and practices of early intervention SLPs is essential to confirming and describing the full nature of the problem.

A limited number of studies have been completed to understand SLP beliefs and self-reported practices surrounding assessment and intervention with young DLLs. Researchers have documented the use of English-only assessment tools by SLPs who assess the speech and language skills of DLLs within school-based and pediatric outpatient settings (Caesar & Kohler, 2007; Skahan et al. 2007; Williams and McLeod, 2012). Further, SLPs across practice settings have reported infrequent use of dynamic assessment, a well-established practice for assessing DLLs (Castilla-Earls et al., 2020; Williams and McLeod, 2012). Marinova-Todd et al. (2016) documented the gaps between professionals’ opinions regarding multilingualism and their actual practices with multilingual children in daycares, schools, and pediatric outpatient clinics. Although survey participants generally disagreed that DLLs should be assessed and treated only
in English, they also reported that DLLs in their practice settings were typically assessed and treated only in English. Additionally, the degree of disconnect between beliefs and practices appeared to be influenced by the cultural-linguistic context in which the SLPs and children lived. Professionals who practiced in locations where use of multiple languages was more generally supported by the majority culture were more supportive of best practices for DLLs and there was less of a disconnect between beliefs and practices in areas with high support for multilingual speakers.

The vast majority of the studies used to investigate knowledge, beliefs, and practices related to SLP assessment of DLLs have been completed with older preschool and school-age children receiving services at clinics or within school systems. A number of these studies, including the one study which included SLPs working with 2-4-year-old children as part of the sample, have been completed outside the United States. To date, no studies have solely investigated the beliefs and practices around assessing DLLs referred to early intervention programs within the United States. Further, no research studies have been used to examine SLPs’ knowledge regarding best practices for assessing DLL children referred to early intervention programs and no studies have been completed to understand the barriers and facilitators of culturally and linguistically responsive assessment within early intervention.

**The Current Dissertation**

The purpose of this research study is to better understand the current knowledge, beliefs, and practices of EI SLPs in relation to the use of culturally and linguistically responsive assessment practices within the context of EI programs. The specific research questions are as follows:
1. How do EI SLPs’ beliefs related to culturally and linguistically responsive assessment practices for DLLs compare to EI SLPs’ self-reported methods for obtaining culturally and linguistically responsive assessments for DLLs within real-world practice settings?

2. How do EI SLPs’ backgrounds, experiences, and current practice settings relate to knowledge of, beliefs about, and use of culturally and linguistically responsive assessment practices?

3. What are SLP perceptions of the systems-level barriers and facilitators influencing the provision of culturally and linguistically responsive assessment practices for DLL children referred to early intervention programs?

A mixed-methods survey design was utilized to answer the research questions. Specifically, a survey was designed to gather both quantitative and qualitative data. SLPs who worked in EI programs in the United States were recruited to complete the survey. Participants were recruited via social media as well as through e-mails sent via each state’s SLP organization and each state’s EI programs. The survey was administered electronically via Qualtrics. It was divided into six parts. Please see Appendix A for a full version of the survey. An overview of the six parts of the survey is provided in Table 1.
Table 1

<table>
<thead>
<tr>
<th>Topic</th>
<th>Survey Design</th>
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<tbody>
<tr>
<td>Part 1 Current Practices in EI</td>
<td>Vignette with an open-ended question</td>
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<tr>
<td>Part 2 EI SLP Self-Efficacy</td>
<td>Likert Rating Scale (Agreement)</td>
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<tr>
<td>Part 3 EI SLP Beliefs</td>
<td>Likert Rating Scale (Agreement)</td>
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<tr>
<td>Part 4 EI SLP Knowledge</td>
<td>Close-ended knowledge questions</td>
</tr>
<tr>
<td>Part 5 EI SLP Backgrounds, Experiences &amp; Current Practice Setting</td>
<td>Close-ended questions</td>
</tr>
<tr>
<td>Part 6 EI Perceptions: Barriers &amp; Facilitators</td>
<td>Open-ended questions</td>
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The data gathered via the survey were analyzed to answer the questions posed in three separate studies. Study 1 was designed to understand EI SLPs’ beliefs and current practices related to assessing DLLs referred to early intervention programs. Data from Part 1 and Part 3 of the survey were analyzed in study 1. Part 1 of the survey was designed to gather information on current EI SLP practices. SLPs were presented with a brief vignette describing a dual-language learner who had been referred to an EI program. They were asked to describe the procedures they would use to assess the child in their current EI program, including the specific tools they would use and the language in which the procedures would be completed. Part 3 of the survey was designed to gather information regarding EI SLPs’ beliefs around best practices for assessing DLLs referred to EI programs. SLPs were asked to rank their level of agreement in relation to using specific assessment procedures when assessing DLLs. Descriptive data analysis was used to analyze the results, with a focus on gaining a thorough understanding and
description of EI SLPs’ current real-world practices as well as on documenting the gap between EI SLPs’ beliefs and real-world practices related to assessing DLLs referred to EI programs.

Study 2 was designed to understand the ways in which EI SLPs’ backgrounds, experiences, and current practice settings related to their knowledge of, beliefs about, and use of culturally and linguistically responsive assessment practices. Parts 1, 3, 4 and 5 of the survey were used to complete study 2. Part 1 was designed to gather information on current EI SLP practices. Part 3 was designed to gather information regarding EI SLPs’ beliefs around best practices for assessing DLLs referred to EI programs. Part 4 was designed to understand EI SLPs’ knowledge related to the cultural and linguistic influences on language development. Part 5 was used to gather information about EI SLPs’ experiences, backgrounds and current practice settings. Descriptive and inferential statistics were used to understand EI SLPs’ beliefs, knowledge, and practices in relation to the sociolinguistic diversity of the location in which they worked. Inferential statistics were used to further analyze the presence and direction of relationships between EI SLPs’ knowledge and practices and a variety of factors including: time since graduation with their Master’s degree, the percent of their caseload composed of DLLs, and their completion of post-graduate school continuing education courses.

Study 3 was designed to understand EI SLPs’ perceptions of the systems-level barriers and facilitators influencing the provision of culturally and linguistically responsive assessment practices for DLL children referred to early intervention programs. Data from Part 6 of the survey were analyzed to complete study 3. In Part 6 of the survey, EI SLPs were asked to described the factors within their EI program systems which facilitated culturally and linguistically responsive assessments to DLLs. They were further asked to describe the factors within their EI programs which acted as barriers to their ability to provide culturally and
linguistically responsive assessments to DLLs. Data were analyzed using inductive coding procedures. The finalized categories and subcategories were presented using a visual diagram to demonstrate the interrelationships and connections between individual level and systems level barriers to and facilitators of culturally and linguistically responsive early intervention assessment practices.
Chapter 2:
EARLY INTERVENTION SPEECH-LANGUAGE PATHOLOGISTS’ BELIEFS AND PRACTICES RELATED TO ASSESSING DUAL LANGUAGE LEARNERS

Abstract: Early intervention (EI) speech-language pathologists (SLPs) are required to provide culturally and linguistically responsive assessments for dual language learners (DLLs). This study was designed to understand EI SLPs’ beliefs and practices related to assessing DLLs referred to early intervention programs. 134 EI SLPs completed a survey in which they were asked to describe their assessment procedures for a DLL case scenario and were further asked to identify the degree to which they agreed with a variety of assessment practices for assessing DLLs. Results revealed that EI SLPs’ beliefs aligned with best practices for assessing DLLs. However, substantial gaps exist between EI SLPs’ beliefs and their self-reported practices for assessing DLLs.

Early intervention (EI) speech-language pathologists (SLPs) are called to provide culturally and linguistically responsive services to an increasingly diverse population. Children who receive early intervention services in the United States represent a wide variety of racial, ethnic, and linguistic backgrounds (Annie Casey Foundation, 2022; U.S. Department of Education, 2019). Further, it is currently estimated that approximately 25% of children in the United States speak a language other than English at home (Annie Casey Foundation, 2022). Children who are exposed to multiple languages as they develop their language systems are called dual-language learners (DLLs). The percentage of DLLs is expected to increase as the country grows more diverse, necessitating an increased focus on the knowledge, beliefs and skills required to provide children from all backgrounds with high quality early intervention services.

Best practice guidelines require that EI SLPs provide both culturally and linguistically responsive assessment and intervention services (ASHA, n.d.). The provision of culturally
responsive services requires that an SLP build their practices around a family’s values, beliefs, experiences, materials, and routines (Larson et al., 2020). Linguistically responsive services call for EI SLPs to consider and support the development of all the child’s languages. Culturally and linguistically responsive service provision is grounded in high-quality evaluation and assessment procedures. Evaluation and assessment are similar and oftentimes overlapping, and yet distinct procedures. Evaluation refers to the processes and procedures used to determine whether a child qualifies for early intervention services, as determined by Part C of the Individual with Disabilities Education Act (ASHA, n.d., U.S. Department of Education [USDOE], 2018). Assessment refers to the use of both informal and formal measures to identify a child’s needs and strengths more thoroughly and to establish the most appropriate supports to ensure that the child’s needs are being met during the intervention process. In short, evaluation procedures are utilized to determine eligibility for early intervention, while assessment procedures are designed to gather the information needed to establish a family-centered, culturally and linguistically responsive treatment plan (ASHA, n.d.). Because evaluation and assessment are overlapping and intertwined processes which often occur simultaneously within early intervention, both will be referred to as assessment throughout the remainder of this research article.

Per IDEA Part C (U.S. Department of Education, 2018), EI assessments must be completed by qualified personnel as part of a multidisciplinary team, in the native language of the child and family, using a variety of instruments and procedures. Evaluators must ensure that the assessments are family-centered by gathering information from families regarding the family’s resources, priorities, and concerns. Evaluations must take place in the child’s natural
environment and must be administered in a way that ensures that they are not racially or culturally discriminatory.

As part of an assessment for DLLs within early intervention, SLPs are tasked with distinguishing between a difference due to cultural and linguistic variations in language development and a child with a true language delay or disorder. Although hearing multiple languages in the home does not cause delays in language development and carries benefits from both a linguistic and social-emotional standpoint (Peredo, 2016), language development in bilingual children is influenced by language input received by the child (Unsworth, 2016). A young child’s vocabulary skills will be distributed across the languages they hear in proportion to the amount they hear each language (Unsworth 2016; Hoff & Core, 2015; Paradis et al., 2021). Early morphology, syntax, and phonological skills will be within normal limits in at least one of a child’s languages but may be influenced by cross-linguistic transfer, in which one language influences the development of the other (Hoff et al., 2012; Hoff & Core, 2015; Paradis et al., 2021). The quantity and quality of language input in each of the languages a child hears will also impact language development (Unsworth, 216).

Early cognitive, play, pragmatic and gesture milestones are also shaped by a child’s family system and culture. Although deictic gestures (e.g., pointing, showing, giving) are relatively consistent across cultures, conventional gestures (e.g., waving goodbye, putting a finger to the mouth to indicate quiet) are specific to the culture in which they are used (Guiberson, 2016). Use of symbolic and socio-dramatic play may vary between cultures and can be context-dependent within any specific culture (Hwa-Froelich, 2005). Cultural orientations also influence expectations for child talk and behavior within any given culture (Ball, 2007;
Peredo et al., 2020; Johnston & Wong, 2002). These interaction styles will shape children's pragmatic behaviors within the family and culture.

To adequately account for these cultural and linguistic influences on development, high quality assessment practices include gathering information from a variety of categories and considering the way in which the information in each category aligns to form a complete picture of a child’s developing skills (Castilla-Earls et al., 2020). These “converging-evidence” best practice guidelines necessitate the inclusion of interview, informal assessment, formal assessment, and dynamic assessment as a part of all assessments for DLLs.

All high-quality assessments include interviews to gain information regarding the child’s developmental, medical, and family history (ASHA, n.d.). Because of the way in which the quality and quantity of language input shapes a child’s emerging language skills, interviews with parents of children who are DLL should also include a detailed account of the child’s language history (Castilla-Earls et al., 2020). A deep understanding of a child’s language history will allow SLPs to account for the quality and quantity of language the child has heard and to consider the child’s language development within the context of that language history. Further, eliciting and valuing the level of parent concern, especially in comparison to siblings, can serve as a key aspect of interviews designed to distinguish between a difference and a delay in DLLs (Castilla-Earls et al., 2020; Crowley, 2014). Finally, ethnographic or routines-based interviewing should be used to understand a family’s beliefs, values, traditions, and routines (ASHA, n.d.; Peredo, 2016).

Informal assessments for DLLs within early intervention rely on the use of bilingual communication, speech, and language samples (Guiberson, 2016). Gathering a bilingual language sample and completing observations in both of a child’s languages allows EI SLPs to
account for the fact that vocabulary will be distributed across both languages and is part of a best practice converging evidence approach (Castilla-Earls et al., 2020). Guiberson (2016) found that analysis of expressive communication samples provided clinically relevant information to aid in decision making around differential diagnosis in Spanish-speaking toddlers. Further, observing a child in the context of daily activities with their family provides invaluable information related to the child’s interactions situated within the family’s culture (Peredo, 2016).

Criterion-based or norm-referenced standardized assessments should be completed in both languages and should be appropriate for dual-language learners (Castilla-Earls et al., 2020; Hoff & Core, 2015). Assessment in both of a DLL’s languages is required to avoid underestimating a child’s language skills, even if the child primarily speaks one language (Castilla-Earls et al., 2020; Hoff & Core, 2015). Unfortunately, SLPs have reported lack of access to appropriate criterion-based or norm-referenced standardized tools as a primary barrier to the provision of culturally and linguistically appropriate assessments (Santhanam & Parveen, 2018). Further, experts within the field are increasingly calling attention to the fact that even those assessment tools which are developed with the express purpose of being administered in multiple languages may contain culturally and linguistically biased items (Crowley, 2016; Kester & Lebel, 2013).

Further, dynamic assessment has long been established as an effective means of separating difference in skills based on experience from deficits in skill development due to delays or disorders (Peña et al., 2001; Peña et al., 2014). Use of dynamic assessment is beneficial when attempting to mitigate the linguistic and cultural biases found within norm-referenced standardized tests, and dynamic assessment yields important information about a child’s modifiability in relation to specific skills (Crowley, 2016; Peña et al., 2001; Peña et al., 2014).
Therefore, an assessment of a child’s learning potential is a valuable component of a converging evidence approach to assessing DLLs (Castilla Earls et al., 2020; International Expert Panel on Multilingual Children's Speech, 2012) and can be beneficial within early intervention as part of developing an integrated clinical opinion on a DLL toddler (Crowley, 2016).

**SLP Self-Efficacy**

Despite the compelling need for culturally and linguistically responsive assessment to ensure equitable and competent service delivery, SLPs consistently report feeling under-prepared to assess DLLs. Kritikos (2003) found that although 95% of the SLPs that they surveyed had at least one child who spoke a language other than English on their caseload, very few SLPs reported high personal efficacy for assessing DLLs. Santhanam & Parveen (2018) completed a literature review of thirteen studies related to the self-efficacy of SLPs serving culturally and linguistically diverse clients. The results of their review indicated consistently low self-efficacy for assessing DLLs, across a variety of ages and settings. These authors observed several positive changes in select aspects of SLP self-efficacy; however, they noted that overall SLP self-efficacy had not changed substantially over the two decades of studies in their review.

SLPs who work in early intervention also report low self-efficacy in relation to the provision of culturally and linguistically responsive services. Research has demonstrated that the majority of EI SLPs do not feel their graduate school programs adequately prepared them to work with children from a variety of culturally and linguistically diverse backgrounds (Caesar, 2013). More recent research has illustrated Midwestern EI SLPs’ feelings of low-self efficacy around their knowledge base related to culturally and linguistically responsive care (Caesar, 2020). Specifically, only 31% of Midwestern EI SLPs strongly agreed/agreed that they had sufficient knowledge of communication development in infants and toddlers learning more than
one language and only 46% of these EI SLPs strongly agreed/agreed that they had sufficient knowledge of the role of cultural beliefs, values, and priorities for the child, family, and service providers.

**SLP Beliefs and Practices**

Despite the compelling need to assess a DLL in both of their languages, many SLPs have reported using English-only standardized assessments with children who speak a language other than English (Caesar & Kohler, 2007; Marinova-Todd et al., 2016; McLeod & Baker, 2014; Skahan, 2007; Williams & McLeod, 2012). Caesar and Kohler (2007) found that only 53% of school-based SLPs consistently assessed school-based children in their home language. Williams and McLeod (2012) revealed that 41.4% of Australian SLPs “always” used English-only standardized tests when assessing children with suspected speech-sound disorders, while 83.8% “never” used standardized tests in a child’s first language. More recently, McLeod and Baker (2014) found that 45.6% of SLPs in Australia reported that they “always” used English-only standardized assessment when assessing pediatric children with suspected speech-sound disorders. Researchers have also found additional gaps between SLP practices and known best practices for assessing DLLs. Caesar and Kohler (2007) compared the actual practices of school-based SLPs in the Midwest to best practices, finding that SLPs used both standardized assessment and informal assessment procedures, but mainly used English-only procedures. These SLPs did not report using dynamic assessment.

Researchers have also demonstrated a gap between SLPs’ beliefs regarding best practices for assessing DLLs and actual practices within real world constraints. Marinova-Todd et al. (2016) surveyed school-based professionals’ beliefs and practices related to serving culturally and linguistically diverse children in schools across six different socio-culturally diverse
locations in four different countries, including the United States. The participants in the Marinova-Todd (2016) study included a variety of professionals, although the majority of the participants were SLPs and teachers. Respondents to this survey indicated that they were either neutral or disagreed with the practice of assessing DLLs in English only. Despite these beliefs, the same professionals reported that DLLs were often or almost always assessed only in English in four of the six locations.

The vast majority of the studies used to investigate beliefs and practices related to SLP assessment of DLLs have been completed with older preschool and school-age children receiving services at clinics or within school systems. A number of these studies, including the one study which included SLPs working with 2-4-year-old children as part of the sample, have been completed outside the United States. To date, no studies have solely investigated the beliefs and practices around assessing DLLs referred to early intervention programs within the United States. It is not currently known to what degree EI SLPs believe in or implement best practices for assessing DLLs referred to early intervention programs.

Current Study

The purpose of this research study is to better understand the current beliefs and practices of EI SLPs in relation to the use of culturally and linguistically responsive assessment practices within the context of EI programs. The specific research question is: How do EI SLPs’ beliefs related to culturally and linguistically responsive evaluations and assessment practices for DLLs compare to EI SLPs’ self-reported methods for obtaining culturally and linguistically responsive assessments for DLLs within real-world practice settings?

Given what is known about the nature of service delivery within early intervention and the state of SLP self-efficacy for evaluating and assessing DLLs, the following findings are
expected. Because assessment practices within early intervention are designed to be family-centered, it is expected that early interventionists will rely more on informal assessment and less on standardized assessment than has been reported by SLPs who work with older preschool and school-age DLLs. Additionally, because EI assessments are completed in natural environments, it is anticipated that EI SLPs will be more likely to implement assessment in both of a DLL’s languages. Therefore, EI evaluation and assessment practices may be more aligned with best practices than has been found in other settings. However, given recent research documenting EI SLP perceptions around the lack of preparedness for working with DLLs (Caesar, 2013; Caesar, 2020), EI SLPs may report utilizing common EI assessment tools that are not culturally and linguistically responsive to DLLs.

Methods

Survey

Survey methodology was utilized to gain an understanding of early intervention SLPs’ beliefs and practices related to the assessment of dual-language learners referred to early intervention programs. The survey was piloted with six early intervention SLPs who provided feedback on the time required to complete the survey and the survey wording and content. Three faculty with expertise in speech-language pathology and cultural and linguistic diversity also reviewed the survey and provided feedback regarding the survey context. The survey was revised based on feedback from early intervention SLPs and faculty. The final version of the survey can be found in Appendix A.

The survey was designed and administered electronically using Qualtrics. The complete survey consisted of 6 parts. Data from parts 1, 3, and 5 of the survey were used to answer the research questions posed in this current study. Part 1 of the survey was designed to understand
SLP assessment practices. SLPs were provided with a case scenario of a Spanish/English dual-language learner who was referred to an early intervention program with concerns in the areas of expressive language, receptive language, and social interactions. The scenario included information about the DLL toddler being exposed to both English and Spanish to make the need to assess in both languages clear. Participants were asked to complete a table detailing the specific procedures they would use if the DLL toddler was referred to their specific early intervention program, including the specific tools they would use and the language(s) in which the procedures would be completed. Participants were encouraged to be as honest as possible about the actual procedures they would use, considering the resources they had available within their actual current practice setting. They were asked to consider the entire process from the referral to the IFSP and include all procedures/tasks that they would use to gather the information to determine eligibility, establish baseline, work with their EI and the family to establish IFSP goals, and prepare to begin intervention sessions if the child qualified. After completing their open-ended narrative response, they were asked if they included a parent interview in their open-ended answer describing the procedures they would implement. If participants indicated “yes,” they were asked to list the types of questions that they would ask within the parent interview.

Part 3 of the survey was designed to gather information regarding EI SLPs’ beliefs around best practices for assessing DLLs referred to EI programs. SLPs were asked to rank their level of agreement in relation to using specific evaluation and assessment procedures when assessing DLLs. They indicated their level of agreement for each procedure using a 5-point Likert agreement scale, with 5 indicating “strongly agree” and 1 indicating “strongly disagree.”
Part 5 of the survey was utilized to gather participant demographic information and detailed information regarding SLPs backgrounds, experiences, and current practice settings. (e.g., approximate age, gender, race and ethnicity). Early intervention SLPs provided additional information such as: the highest degree they had received, the state where they received their master’s degree, the date they received their master’s degree, the amount of continuing education they had completed related to working with DLLs, their amount of experience working with DLLs, the county and state where they currently provided EI services, and the current percentage of their EI caseload composed of DLLs.

Participants

Procedures for completing this research study were approved by the Northern Illinois University’s Institutional Review Board. Participants were initially recruited by e-mailing a survey invitation to state-level speech-language pathology associations. Participants were invited via e-mail which they received through these organizations and via invitations posted to social media sites run by state-level SLP associations. These initial participants were provided with a $10.00 incentive for being one of the first 100 SLPs to complete the survey. This Qualtrics survey link was closed prior to reaching 100 participants due to fraudulent responses which appeared to be an attempt to obtain the incentive. The original IRB was amended, and a new Qualtrics survey link was created, and participants were recruited only through state-level early intervention programs. Participants were invited via e-mail which they received through their early intervention organizations or via an email sent by the primary author who had been provided with e-mail addresses for the state EI SLPs. In this second round of recruitment, participants who completed the survey were provided with the opportunity to win one of three early intervention resource books.
Prior to initiating the survey, participants were asked to verify that they were a licensed SLP and that they currently provided early intervention services. Incomplete and fraudulent responses were eliminated from data analysis. Responses were considered incomplete if the participant only answered the first two questions of the survey, which were designed to make sure the participant met the criteria for the study. Responses were considered fraudulent if the answer to the first open-ended survey question was nonsensical (e.g., “what is life” or “what is your name”) or the answer to the first open-ended survey question contained portions of the survey which appeared to have been copied into the answer (“Luis is a 28-month-old child who lives in a Spanish-English bilingual home”).

Due to the nature of the recruitment process, the number of SLPs who received the invitation to complete the survey is not known. In the initial round of recruitment, 55 valid responses were completed. 2,253 responses were either not completed past the first two eligibility questions or contained answers deemed to be fraudulent. In the second round of recruitment, where there were no fraudulent responses, 293 participants opened the survey and completed the first two eligibility questions while 94 participants (32%) continued on to complete the survey past those two initial eligibility questions. A total of 149 valid responses were received across both rounds of recruitment. Of these 149 valid responses, 15 were eliminated because the SLP indicated within the first open-ended question answer that they did not compete assessments within early intervention and thus could not answer the questions. Therefore, a total of 134 surveys were initially included in data analysis. Two of those 134 participants did not fully complete the portions of the survey required for this current study or provided unclear answers that could not be analyzed and these responses were excluded. This resulted in a final number of 132 survey responses were
further analyzed to answer the questions posed in this research study. Demographic information is summarized in Table 2.

Data Analysis

Language of Direct Assessment Procedures

To understand EI SLPs’ practices for assessing a DLL referred to an EI program, data from Part 1 were first analyzed for the languages in which SLPs reported that they would complete direct assessment tasks. SLP responses related to the direct assessment tasks they would use to analyze the DLL toddler in the case scenario were coded for English-only, Spanish-only, parent preferred/dominant language only, or both languages across three different categories: all direct assessment procedures (including both formal and informal assessment tasks), criterion-based/norm-referenced standardized assessment tasks, and informal language sampling/observation tasks. Eight participant responses were not coded due to lack of completion or clarity regarding the language in which direct assessment procedures would be completed. During this portion of coding, the quality or appropriateness of the assessment task was not considered. Instead, the focus was on coding specifically for the language with which the assessment task would be completed.

All coding was completed by the first author. A reliability check for language of direct assessment procedures was completed by a trained research assistant. The research assistant coded thirteen (10%) randomly selected participant responses. The percentage agreement between the research assistant and the primary researcher’s assigned codes was calculated and resulted in 100% reliability. Descriptive statistics were used to document the frequency with which SLPs indicated they would use English-only, Spanish-only, or both languages during the assessment procedures.
Table 2
EI SLP Participant Demographics and Backgrounds

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>130</td>
<td>98%</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Non-binary</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>White</td>
<td>118</td>
<td>89%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>8</td>
<td>6%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>7</td>
<td>5%</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>123</td>
<td>93%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Highest Degree Earned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>128</td>
<td>97%</td>
</tr>
<tr>
<td>Clinical Doctorate</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>PhD</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Years since Master’s Degree</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 10 years</td>
<td>72</td>
<td>55%</td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>56</td>
<td>42%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td><strong>% Caseload DLL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 10%</td>
<td>41</td>
<td>31%</td>
</tr>
<tr>
<td>11-20%</td>
<td>26</td>
<td>20%</td>
</tr>
<tr>
<td>21-30</td>
<td>24</td>
<td>18%</td>
</tr>
<tr>
<td>&gt; 30%</td>
<td>33</td>
<td>25%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Region of Country</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>34</td>
<td>26%</td>
</tr>
<tr>
<td>Northeast</td>
<td>15</td>
<td>12%</td>
</tr>
<tr>
<td>South</td>
<td>47</td>
<td>35%</td>
</tr>
<tr>
<td>West</td>
<td>34</td>
<td>26%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
DLL Assessment Best Practices

Data from Part 1 of the survey were further analyzed by coding the SLPs’ responses according to a priori codes representing best practice categories specific to the assessment of DLLs referred to EI programs, as based on documented best practices from the research literature (ASHA, n.d.; Castilla-Earls et al., 2020; Hoff & Core, 2015; Peredo, 2016). All 132 participant answers were included in this analysis; if the language of direct assessment was not clear, it was not coded as a best practice. These seven a priori categories included: child’s developmental, medical, and family history; child’s detailed language history; parent concern; ethnographic or routines-based interviewing; bilingual communication, speech, and language samples; norm-referenced standardized or criterion-based assessment appropriate for dual-language learners; and assessment of learning potential. Answers to the question regarding the content of the parent interview were used in conjunction with answers to Part 1 to capture the depth of SLP practices.

Components of SLP answers which referenced gathering information about a child’s background history were coded as “developmental, medical, and family history.” The code “detailed language history” was used to code portions of SLP answers in which they explained they would ask questions regarding the amount of Spanish and English the child was exposed to in their daily environment. The code “concern” was used when SLPs indicated they would inquire about the parents’ concerns regarding their child’s language use or when SLPs indicated they would ask questions about parental concerns. “Ethnographic or routines-based interviewing” was used when SLPs explicitly indicated they would complete a routines-based interview or when they explained they would gather information about the family or child’s
routines, preferences, or belief systems. The code “bilingual communication, speech, and language sample” was utilized when SLPs indicated they would gather a language sample or complete an observation in both Spanish and English. “Assessment of learning potential” was used when SLPs reported they would use dynamic assessment as part of their evaluation procedures.

The code “Criterion-based/norm-referenced standardized assessment appropriate for dual-language learners” was utilized if SLPs indicated use of a criterion-based or norm-referenced standardized assessment developed for DLLs or if they indicated that they would administer an appropriate criterion-based or norm-referenced standardized assessment in both Spanish and English. Criterion-based and norm-referenced standardized assessments administered in Spanish were considered appropriate only if: 1. The Spanish administration was not a translation of a tool developed for monolingual English-speaking children, 2. There were no known concerns about the cultural and linguistic bias within the test. Table 9, found in the results section of this article, summarizes the criterion-based and norm-referenced standardized tools which were listed most frequently by participants, the decisions for each of those tools, and the rationale for those decisions.

The code “criterion-based or norm-referenced standardized assessment appropriate for dual-language learners” was also used when the SLP reported that they would use an informal checklist to document the child’s vocabulary in both Spanish and English and when an SLP explained that they would ask a parent how many vocabulary words a child used in both Spanish and English. The code “criterion-based or norm-referenced standardized assessment appropriate for dual-language learners” was used in these instances as it was assumed the SLP would
compare the child’s total vocabulary in both Spanish and English to a specific criterion: age expectations for vocabulary the child’s age. A brief summary of the codes is included in Table 3.

### Table 3

#### Best Practice Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s developmental, medical, and family history</td>
<td>SLP indicated they would gather information in any of these categories</td>
</tr>
<tr>
<td>Child’s detailed language history</td>
<td>SLP indicated they would ask specific questions about the input the child received in each language</td>
</tr>
<tr>
<td>Parent concern</td>
<td>SLP indicated they would ask parents about their concerns/level of concern about the child</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>SLP explicitly listed RBI by name or indicated they would ask multiple questions about routines and/or family beliefs, values, priorities</td>
</tr>
<tr>
<td>Bilingual communication, speech and language sample</td>
<td>SLP indicated they would observe or gather a communication, speech, and/or language sample in both Spanish and English</td>
</tr>
<tr>
<td>Criterion-based or norm-referenced standardized assessment appropriate for DLLs</td>
<td>SLP indicated they would use standardized or criterion-based assessment in both languages. The listed tool(s) were both culturally and linguistically appropriate. Gathering a list of vocabulary in both languages was also included in this code.</td>
</tr>
<tr>
<td>Assessment of learning potential</td>
<td>SLP indicated they would use dynamic assessment</td>
</tr>
</tbody>
</table>

All coding was completed by the first author. A reliability check for best practices coding was completed by a trained research assistant. The research assistant coded thirteen (10%) randomly selected participant responses. The percentage agreement between the research assistant and the primary researcher’s assigned codes was calculated and resulted in 97%
reliability across the 73 codes used within those 13 responses. After each SLP answer to Part 1 was coded, descriptive statistics were used to summarize the percentage of SLPs who included each component in their response. The percentage of SLPs who included the component in their answer to Part 2 was calculated for each best practice component by dividing the number of SLPs who had included the component in their answer by the total number of SLPs who were included in the analysis. These percentages were assigned a descriptive label using the scale displayed in Table 4. This descriptive label was used to discuss how often the component was included by the SLPs in this sample in their description of their practices for assessing a DLL.

Table 4
Scale Used to Interpret the Percentage of SLPs Who Included Each Best Practice Component

<table>
<thead>
<tr>
<th>Very Infrequently</th>
<th>Infrequently</th>
<th>Occasionally</th>
<th>Sometimes</th>
<th>Often</th>
<th>Frequently</th>
<th>Very Frequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9%</td>
<td>10-24%</td>
<td>25-39%</td>
<td>40-59%</td>
<td>60-74%</td>
<td>75-89%</td>
<td>90-100%</td>
</tr>
</tbody>
</table>

To understand EI SLP beliefs related to assessing DLLs, data from Part 3 (beliefs) were analyzed by assigning a numeric value to each level of agreement (i.e., 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1 = Strongly Disagree). A mean level of agreement was calculated for each listed assessment procedure. This allowed for comparisons between EI SLPs’ beliefs regarding assessment practices for DLLs and their actual practices for assessing DLLs by comparing the percentage of SLPs who included each of the best practice components in their description of how they would assess a DLL to the SLPs’ mean level of agreement that the
component should be included. Mean levels of agreement were assigned a word label using the scale displayed in Table 5.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0-1.4</td>
<td>1.5-2.4</td>
<td>2.5-3.4</td>
<td>3.5-4.4</td>
<td>4.5-5.0</td>
</tr>
</tbody>
</table>

Table 5

Scale Used to Interpret the Mean Level of Agreement

Results

Language of Direct Assessment Tasks

Practices

Participant responses to the Part 1 case scenario of the Spanish/English DLL were analyzed to determine the language(s) in which EI SLPs reported they would complete direct assessment tasks. Decisions were not made regarding the appropriateness of the tasks; the only focus of analysis was the language(s) in which the task would be administered. The percentage of participants who reported they would complete all direct assessments, including both formal and informal assessments in each language was summarized using descriptive statistics. Results are presented in Table 6.
Table 6
Language of Direct Assessment Procedures

<table>
<thead>
<tr>
<th></th>
<th>SLPs who included component</th>
<th>English only</th>
<th>Spanish only</th>
<th>Parent preference or dominant lang.</th>
<th>Attempt to account for both languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Assessment</td>
<td>N/A</td>
<td>15/124 (12%)</td>
<td>13/124 (10%)</td>
<td>13/124 (10%)</td>
<td>83/124 (67%)</td>
</tr>
<tr>
<td>Criterion-Based or Norm-referenced</td>
<td>114/124 (92%)</td>
<td>22/114 (19%)</td>
<td>17/114 (15%)</td>
<td>9/114 (8%)</td>
<td>66/114 (58%)</td>
</tr>
<tr>
<td>Language Sample or Observation</td>
<td>72/124 (58%)</td>
<td>5/72 (7%)</td>
<td>5/72 (7%)</td>
<td>5/72 (7%)</td>
<td>57/72 (80%)</td>
</tr>
</tbody>
</table>

Of the 124 participant responses coded for language of direct assessment procedures, 41/124 (32%) of SLPs indicated they would complete all direct assessment procedures in one language only. Fifteen of 124 participants (12%) listed English as the only language in which they would complete direct assessment procedures, 13/124 (10%) listed Spanish as the only direct assessment language, and 13/124 (10%) of participants explained that they would determine the dominant language and/or use parent preference to choose the language in which they would complete their direct assessment tasks. The remaining 83/124 (67%) participants listed both Spanish and English in at least one of their direct assessment tasks, including either informal tasks or one of the formal tasks they included.

Further analysis was completed by determining the language SLPs listed they would use for criterion-based or norm-referenced standardized assessment. Results of this analysis are summarized in Table 6. Of the 124 responses in which the language of assessment was clearly...
identified, 114 SLPs (92%) participants indicated they would use a criterion-based or norm-referenced standardized assessment tool. Twenty-two of these 114 (19%) participants indicated they would use English-only criterion-based or norm-referenced standardized assessment tools, 17/114 (15%) reported they would use Spanish-only criterion-based or norm-referenced standardized assessment tools, and 9/114 (8%) explained that they would use criterion-based or norm-referenced standardized assessment tools based on the child’s dominant language or the parent-preferred language. In total, 48/114 (42%) of those participants who would use criterion based/ or norm-referenced standardized assessment to assess a DLL reported that they would complete the criterion-based and/or norm-referenced standardized assessment in one of the child’s languages only, while 66/114 (58%) would use criterion-based and/or norm-referenced standardized assessment tools in both Spanish and English.

Additional analysis was completed to determine the language SLPs reported they would use for language samples and/or direct observation. Results are summarized in Table 6. Of the 124 participant responses in which language of assessment was clearly indicated, 72 SLPs (58%) indicated they would use language sampling or child observation as part of their assessment. Five of these 72 (7%) participants indicated they would use English-only language sampling or observation, 5/72 (7%) reported they would use Spanish-only language sampling or observation, and 5/72 (7%) explained that they would complete language sampling/observation based on the child’s dominant language or the parent-preferred language. In total, 15/72 (21%) of the early intervention SLPs reported that they would complete language sampling and/or observation in one of the child’s languages only, while the remaining 55/72 (79%) would use language sampling procedures and/or observation in both Spanish and English.
Beliefs

Mean levels of agreement for completing assessment tasks in English only, Spanish only, and both Spanish and English are summarized in Table 7. On average, participants disagreed (mean level of agreement of 2.12) with the idea that criterion-based and/or norm-referenced standardized assessment should be completed in English-only and with the idea that a language sample should be gathered in English (mean level of agreement of 1.87) or Spanish (mean level of agreement of 2.12) only. They were neutral in their belief that criterion-based/norm-referenced standardized assessment should be completed in Spanish only (mean level of agreement of 2.53). They agreed (mean level of agreement of 4.37) that criterion-based/norm-referenced standardized assessment should be completed in both languages and strongly agreed (mean level of agreement of 4.66) that language sampling should be completed in both languages.

Beliefs vs. Practices

Mean beliefs and number of SLPs related to language of direct assessment procedures are summarized in Table 8. The majority of SLP beliefs and SLP practices were aligned. SLPs both disagreed with use of and infrequently or very infrequently included use of criterion-based or norm-referenced standardized assessment in English only, language samples in English only, and language samples in Spanish only. They were neutral in their belief that criterion-based/norm-referenced standardized assessment should be completed in Spanish only and infrequently reported use of this practice. Further, participants reported strongly agreeing (mean level of agreement of 4.66) with the need to gather a language sample in both languages and, of the SLPs who included language sample analysis in their procedures, they frequently (79%) reported gathering the language sample in both languages. It should be noted however, that only
58% of SLPs included a language sample in any language in their practices. Overall, 57/124 SLPs (46%) included a bilingual language sample analysis. Therefore, a gap emerged between the strong belief that a bilingual language sample should be gathered and the actual reported implementation of this practice. An additional area of discrepancy between beliefs and frequency of reported practices emerged: SLPs agreed with but only sometimes included use of criterion-based/norm-referenced standardized assessments in both languages.

Table 7

Language of Direct Assessment: Beliefs and Practices

<table>
<thead>
<tr>
<th></th>
<th>Beliefs:</th>
<th>Practices:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Level of Agreement</td>
<td>Number of SLPs who included the component</td>
</tr>
<tr>
<td>Norm-referenced/Criterion-</td>
<td>2.12</td>
<td>22/114 (19%)</td>
</tr>
<tr>
<td>Based: English Only</td>
<td>Disagree</td>
<td>Infrequently</td>
</tr>
<tr>
<td>Norm-referenced/Criterion-</td>
<td>2.53</td>
<td>17/114 (15%)</td>
</tr>
<tr>
<td>Based: Spanish Only</td>
<td>Neutral</td>
<td>Infrequently</td>
</tr>
<tr>
<td>Norm-referenced/Criterion-</td>
<td>4.37</td>
<td>66/114 (58%)</td>
</tr>
<tr>
<td>Based: English &amp; Spanish</td>
<td>Agree</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Language Sample:</td>
<td>1.87</td>
<td>4/72 (7%)</td>
</tr>
<tr>
<td>English Only</td>
<td>Disagree</td>
<td>Very infrequently</td>
</tr>
<tr>
<td>Language Sample:</td>
<td>2.12</td>
<td>4/72 (7%)</td>
</tr>
<tr>
<td>Spanish Only</td>
<td>Disagree</td>
<td>Very infrequently</td>
</tr>
<tr>
<td>Language Sample:</td>
<td>4.66</td>
<td>(57/72) 79%</td>
</tr>
<tr>
<td>Spanish &amp; English</td>
<td>Strongly Agree</td>
<td>Frequently</td>
</tr>
</tbody>
</table>
Best Practice Components

Practices

The number of SLPs who included each specific best practice component in their answer to question 1 is summarized in Table 8. Of 132 survey participants, 72 (52%) mentioned asking questions to obtain information about a child’s developmental, medical, and family history, gathering bilingual language samples or observation; 57 (43%) explained that they would gather a bilingual language sample or complete an observation in both Spanish and English; 48 SLPs (36%) listed questions about parent concerns as part of their assessment or interview; 43 participants (33%) indicated that they would complete a routines-based or ethnographic interview; 35 (27%) listed criterion-referenced/norm-referenced standardized assessment appropriate for DLLs, implemented in both Spanish and English; 17 (13%) indicated that they would ask questions designed to understand the child’s language history; and 7 (5%) included dynamic assessment/assessment of learning potential.

Although 53% of SLPS indicated that they would complete criterion-based/norm-referenced standardized assessment in both Spanish and English, the majority of the tools listed by SLPs either required translation into Spanish from an English version of the test and/or have been noted by experts in the field to contain culturally and linguistically biased items. Table 9 lists the most frequently mentioned criterion-referenced/norm-referenced standardized assessment tools, the decision about the appropriateness of these tools for DLLs, and the rationale for this decision.
Table 8
Inclusion of Assessment Best Practice Components: Beliefs and Practices

<table>
<thead>
<tr>
<th>Component</th>
<th>Mean Level of Agreement</th>
<th>Number of SLPs who included component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child developmental, medical and family history</td>
<td>4.96</td>
<td>72/132 (56%)</td>
</tr>
<tr>
<td>Parent concern</td>
<td>4.90</td>
<td>48/132 (36%)</td>
</tr>
<tr>
<td>Detailed language history</td>
<td>4.91</td>
<td>17/132 (13%)</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>4.68</td>
<td>43/132 (33%)</td>
</tr>
<tr>
<td>Bilingual communication, speech, language sample</td>
<td>4.66</td>
<td>57/132 (43%)</td>
</tr>
<tr>
<td>Norm-referenced/criterion-referenced assessment appropriate for DLLs</td>
<td>4.31</td>
<td>35/132 (27%)</td>
</tr>
<tr>
<td>Assessment of learning potential/dynamic assessment</td>
<td>4.64</td>
<td>7/132 (5%)</td>
</tr>
<tr>
<td>Name of Assessment Tool</td>
<td>Frequency</td>
<td>Decision</td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Preschool Language Scale – 5 (PLS-5)</td>
<td>28/132</td>
<td>Not appropriate</td>
</tr>
<tr>
<td>Developmental Assessment of Young Children – 2 (DAYC-2)</td>
<td>22/132</td>
<td>Not appropriate</td>
</tr>
<tr>
<td>Receptive-Expressive Emergent Language Test (REEL-4)</td>
<td>20/132</td>
<td>Not appropriate</td>
</tr>
<tr>
<td>Rossetti Infant Toddler Language Scale</td>
<td>19/132</td>
<td>Not appropriate</td>
</tr>
<tr>
<td>HELP Strands</td>
<td>11/132</td>
<td>Not appropriate</td>
</tr>
<tr>
<td>Battle Developmental Inventory (BDI) - NU 2nd Edition</td>
<td>10/132</td>
<td>Not appropriate</td>
</tr>
</tbody>
</table>

(Continued on next page)
<table>
<thead>
<tr>
<th>Instrument</th>
<th>Score</th>
<th>Applicability</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Learning Accomplishment Profile (E-LAP)</td>
<td>8/132</td>
<td>Not appropriate</td>
<td>Contains culturally and linguistically biased items (Crowley, 2016)</td>
</tr>
<tr>
<td>Assessment, Evaluation, and Programming System for Infants and Children, Third Edition (AEPS)</td>
<td>6/132</td>
<td>Appropriate</td>
<td>Test items can be framed broadly, measured within child’s daily life, and adapted for culture. Spanish version developed collaboratively with many stakeholders including families and professionals who speak Spanish. (Brookes Publishing, 2022)</td>
</tr>
<tr>
<td>Battelle Developmental Inventory, 3rd Edition (BDI-3)</td>
<td>4/132</td>
<td>Appropriate</td>
<td>Revised to remove linguistically biased items, was normed on a large population of Spanish-speaking children living in the United States, and contains caution to interpret with culture based on caution (Riverside Insights, 2019)</td>
</tr>
<tr>
<td>The MacArthur-Bates Communicative Development Inventories (MB-CDI)</td>
<td>2/132</td>
<td>Appropriate</td>
<td>Available in a wide variety of languages and dialects, which are adaptations, not translations. (Hoff &amp; Core, 2015; The MacArthur-Bates CDI, n.d.)</td>
</tr>
</tbody>
</table>
Very few EI SLPs listed a published criterion-referenced or norm-referenced standardized assessment tool which met the “appropriate for DLL” criteria. Of the top four assessment tools mentioned by EI SLPs, two are not available in Spanish, one is available in Spanish but as a direct translation from English, and one is available in Spanish and English but contains items that are culturally and linguistically biased. The three tools that are available in both Spanish and English and are thought to be culturally and linguistically responsive were listed the least frequently by SLPs. Because this category also included instances when the SLP reported that they would use an informal checklist to document the child’s vocabulary in both Spanish and English, a total of 35 participants (27%) of the participants included this component.

Of the 132 participants, 125 (95%) included a parent interview in their description of practices for assessing the DLL. The vast majority of interview questions listed by SLPs revolved around the child’s skills across multiple domains and/or questions about the child’s medical or developmental history. Of 132 participants, 43 (33%) included a routines-based or ethnographic interview in their listed assessment practices/interview plan. The majority of these 43 participants either listed a routines-based interview explicitly or explained that they would ask multiple questions about the child's routines/ask detailed questions about the child’s day. Only 3/132 participants (2%) listed questions related to the family’s culture, family structure, belief systems, or values.

Beliefs

Mean levels of agreement for including best practice components are summarized in Table 8. As a whole, SLPs strongly agreed with inclusion of all best practice components: child developmental, medical, and family history (mean level of agreement 4.96), parent concern (mean level of agreement 4.90), detailed language history (mean level of agreement 4.91),
ethnographic and routines-based interviewing (mean level of agreement 4.68), bilingual language sample (mean level of agreement of 4.66), and assessment of learning potential/dynamic assessment (mean level of agreement 4.64). On average, participants also agreed that criterion-referenced/norm-referenced standardized assessment appropriate for DLLs should be included in an assessment of a DLL (mean level of agreement, 4.31).

Beliefs vs. Practices

Mean beliefs and frequency of practices related to best practice components are summarized in Table 8. SLPs strongly agreed or agreed that each best practice component should be utilized within an assessment for a DLL. In contrast, none of the components were included in more than 56% of SLPs’ description of their assessment practices for the DLL case scenario. Beliefs were most closely aligned with practices for the components: “gathering a child developmental, medical, and family history” and “gathering a bilingual language sample”. SLPs strongly agreed with both of these practices and sometimes included them in their practices. The largest area of misalignment between SLP beliefs and practices occurred with the components of “gathering a detailed language history” and “utilizing an assessment of learning potential/dynamic assessment”. While SLPs strongly agreed that these components should be included, they included them only infrequently or very infrequently in their description of practices.

Discussion

SLP Beliefs and Practices

The purpose of this study was to better understand early intervention SLPs’ beliefs and real-world practices related to assessing dual-language learners. EI SLPs were provided with a real-life DLL case scenario and were asked to describe how they would approach assessment for
this DLL child, who had received linguistic input in both Spanish and English and who was presenting with concerns in expressive language, receptive language, and pragmatics. SLPs were also asked to rank how strongly they agreed with a variety of practices for assessing DLL toddlers.

EI SLP beliefs appeared to be well aligned with best practices for assessing DLLs. SLPs reported strongly agreeing to the practices that DLLs should be assessed in each of the languages they speak across all types of assessments. Further, SLPs expressed strong agreement/agreement for use of each of the following best practice components for assessing DLLs: child’s developmental, medical, and family history; child’s detailed language history; parent concern; ethnographic or routines-based interviewing; bilingual communication, speech, and language samples; criterion-based or norm-referenced standardized assessment appropriate for dual-language learners; and assessment of learning potential. At times, SLP beliefs aligned with their reported practices. However, this research study also documented substantial areas of misalignment between EI SLP beliefs and practices related to assessing DLLs.

**Areas of Alignment**

SLP practices were, at times, aligned with their reported beliefs. EI SLPs reported *strongly agreeing* that it was important to gather a bilingual communication/speech/language sample and, of those who said that they would gather a language sample or complete a child observation when assessing a Spanish-English DLL toddler, they *frequently* reported they would gather that language sample or complete that observation in both Spanish and English. Given that the language skills of dual language learners are likely to be distributed across both languages (Hoff & Core, 2015; Paradis et al., 2021; Unsworth 2016), this is an essential practice when assessing DLLs (Hoff & Core, 2015; Castilla-Earls et al., 2020).
EI SLPs also reported agreeing that criterion-based/norm-referenced standardized assessment should be completed in both Spanish and English and at least sometimes included this practice in their description of their methods for assessing a DLL toddler. Of those who said that they would use criterion-based/norm-referenced standardized assessment, 58% reported they would attempt to administer at least one of the tools in each language. Conversely, 42% of EI SLPs reported that they would utilize criterion-based/ norm-referenced standardized assessment in only one language. It is concerning that this proportion of EI SLPs would complete criterion-based/norm-referenced standardized assessment for a DLL in one language only, as this is likely to under-represent the child’s actual language skills (Hoff & Core, 2015; Castilla-Earls et al., 2020). However, it is encouraging to note the decrease in SLPs’ reports of English-only criterion-based/norm-referenced standardized assessment when assessing DLLs. Whereas previous research has indicated that pediatric SLPs in outpatient and school-based settings implement English-only standardized assessment between 45% and 53% of the time when assessing children who speak a language other than English (Caesar & Kohler, 2007; McLeod & Baker, 2014; Williams & McLeod, 2012), this current study suggests that EI SLPs would use English-only criterion-based/norm-referenced standardized assessment 19% of the time to assess a DLL toddler.

The decrease in English-only administration of criterion-based/norm-referenced standardized assessment reported in this study as compared to other studies could be related to increased SLP knowledge due to an increase emphasis on high quality service provision for culturally and linguistically diverse populations, increased availability of tools designed for Spanish-speakers and/or Spanish-English DLLs, or increased system-level supports for assessment of DLLs. The decrease in English-only administration could also be attributed to the
family-centered nature of early intervention practices, which call for assessment within natural environments. Implementation of assessment procedures within a natural environment may make child/family’s languages more transparent and therefore may more readily prompt EI SLPs to take each of these languages into account.

**Areas of Discrepancy**

Despite the relative alignment between beliefs and practices in select aspects of EI SLPs’ DLL assessments, substantial discrepancies between EI SLP beliefs and reported practices emerged across a number of assessment practices. Early intervention SLPs *strongly agreed* that gathering a bilingual communication/speech/language sample was important and 80% of the SLPs who reported they would gather a language sample/complete an observation indicated that they would gather it in both languages. However, only 58% of SLPs included a language sample/observation in their description of their assessment practices for DLLs, leading to SLPs only *sometimes* (46% of the time) including a bilingual language sample/observation in their reported practices.

The discrepancy between belief in and actual use of bilingual language sampling within early intervention may be related to SLPs general tendency to rely more on standardized and criterion-based assessments than language sample analysis. This phenomenon has been well documented in the past (Heilman, 2010; Klatte et al., 2022; Pavelko et al, 2016) and was observed in this current study, wherein 92% of SLPs included use of criterion-based/norm-referenced standardized assessment while only 58% of SLPs included use of a language sample.

Given the need for flexibility when assessing toddlers and the family-centered nature of EI, it is somewhat surprising to see this same phenomenon occur within early intervention. It is plausible that EI SLPs would instead use parent report to gather information on child skills instead of
completing direct observations or language sampling. Indeed, many SLPs in this current study indicated they would ask parents about the DLL toddler’s expressive language skills. While inclusion of parent-reported information is an essential aspect of early intervention assessment, direct SLP observations/language samples are likely to add depth to an EI SLP’s understanding of the child’s use of language and are therefore an important aspect of EI assessments. In fact, Nayeb, Lagerberg, Sarkadi, Salameh and Eriksson (2021) showed the importance of direct language screening of 2.5-year-old toddlers. Specifically, when clinicians relied on parent report only to screen for concerns in the native language, many toddlers were missed, thus indicating the need to directly assess both languages. Additionally, language sampling is an essential and highly valuable component of a converging -evidence approach for assessing DLLs (Castilla-Earls et al., 2020). It is also possible that participants in this study were cognizant of the fact that their listed criterion based/norm-referenced standardized assessment tools called for observation/language sampling as one component of the assessment procedures and therefore did not list language sampling/observation as a separate procedure. Finally, systems-level barriers, such as lack of access to interpreters (Santhanam & Parveen, 2018) may make it difficult for EI SLPs to gather DLL language samples even if they know this is best practice.

An additional gap between EI SLPs’ beliefs and practices was observed in relation to the use of criterion-based/norm-referenced standardized assessments. Although SLPs strongly agreed with the implementation of criterion-based/norm-referenced standardized assessments appropriate for DLLs, they only occasionally (27% of the time) included it in their description of the tools they would use to assess a DLL toddler in their current practice settings. This study also revealed a substantial discrepancy between the number of SLPs who reported they would use criterion-based norm-referenced standardized assessment tools in both languages (53% of all
participants) and the frequency with which SLPs listed a published tool that was available in both Spanish and English and was considered culturally and linguistically appropriate. The majority of EI SLPs who listed published criterion-based/norm-referenced standardized assessment tools included tools that were either not available in both Spanish and English and/or contained items believed to be culturally and/or linguistically biased.

The discrepancy between the belief in use of formal assessments appropriate for DLLs and the reported use of such tools is likely explained in part by the continued lack of published early intervention assessments that can be administered in both Spanish and English and are culturally and linguistically responsive. Previous research studies have documented the dearth of culturally and linguistically appropriate assessment tools as a barrier to implementation of best practices for assessing DLLs (Santhanam & Parveen, 2018). Correspondingly, of the ten published early intervention assessment tools frequently listed by EI SLPs in this current study, only three were available in Spanish and English and deemed to be culturally and linguistically responsive.

The discrepancy between belief in use of culturally and linguistically appropriate formal assessments and actual implementation of these practices may also be influenced by a lack of knowledge regarding the way in which culture impacts language development. Low self-efficacy around this specific aspect of knowledge has recently been reported by EI SLPs (Caesar, 2020). A limited understanding of these cultural influences on language development may lead an EI SLP to believe that a Spanish translation of an English assessment tool is appropriate. Further, EI SLPs may not know about the linguistic and cultural biases of the tools designed for DLLs and may not know how to analyze the tools for linguistic and cultural bias.
Discrepancies between EI SLPs’ beliefs and reported practices also emerged in relation to parent interview questions. It is encouraging that 95% of participants reported the inclusion of a parent interview in their description of their assessment practices for a DLL toddler. The use of parent interview is best practice for early intervention assessment (ASHA, n.d.) as well as for assessing DLLs (Castilla-Earls et al., 2020). However, areas of misalignment between EI SLP beliefs and practices emerged when looking at the content of the EI SLPs’ interviews.

EI SLPs strongly agreed that SLPs inquire about a parent’s level of concern related to their child’s development. However, EI SLPs included questions about parent concerns in their questions only occasionally (36% of the time) when describing their practices for a DLL toddler. This finding is troubling, as understanding a parent level of concern related to their multilingual child is an essential part of a best practice converging evidence approach to assessment (Castilla-Earls et al., 2020). Consideration of parent level of concern, especially in comparison to typically developing peers and siblings, can be one of the most critical questions in identifying children who have a true language disorder (Crowley, 2014).

EI SLPs strongly agreed that routines-based interviews/ethnographic interviewing should be included in EI assessments for a DLL, but only occasionally (33% of the time) included questions related to this component in their description of their assessment practices or their explanation of what they would include in a parent interview. Given the emphasis on family involvement, natural contexts, and participation-based, family-centered outcomes as best practices within early intervention (ASHA, n.d.), it is surprising that more SLPs did not include routines-based interviewing in their assessment and/or interview plans. Routines-based interviewing (RBI) can operate as an effective means of learning about an individual child and family’s culture, helping EI SLPs to be culturally responsive in both their assessment and
intervention practices (Peña & Fiestas, 2009). In addition to RBIs, EI SLPs should also utilize ethnographic interviewing, including questions about parents’ beliefs, values, and perceptions of the communication difficulty and its effects (Peredo, 2016; Westby, 2009). It is concerning that only 3% of the EI SLPs in this current study included specific questions about a parent’s beliefs, values, culture, or perceptions of disability when describing their interview practices.

EI SLPs strongly agreed that gathering a child’s detailed language history should be part of an assessment of a DLL toddler. However, SLPs infrequently (13% of the time) included questions about the DLL toddler’s exposure to the different languages in his environment. Gathering a detailed language history allows SLPs to situate the results of their assessment findings within the context of that child’s history of language input and is therefore an essential aspect of an assessment for a DLL child (Crowley, 2014; Castilla-Earls et al., 2020). Therefore, it is concerning that SLPs did not more frequently include questions about language history in their assessment/interview plans. It is possible that the lack of gathering a language history is influenced by EI SLPs’ self-reported lack of knowledge related to typical language trajectories for DLLs (Caesar, 2020).

Finally, SLPs strongly agreed that dynamic assessment should be included in an assessment for a DLL toddler, but very infrequently (5% of the time) included dynamic assessment in their description of their assessment practices. Use of dynamic assessment is thought to be a very effective method of identifying true language disorders for children who speak multiple languages (Crowley, 2014; Castilla-Earls et al., 2020, Peña et al., 2014). Dynamic assessment within early intervention may be especially essential when attempting to separate out differences in play and pragmatics from disorders, as these aspects of child development are strongly influenced by culture (Hwa-Froelich, 2004). Therefore, it is concerning to see the
substantial misalignment between EI SLP beliefs and practices around dynamic assessment. However, this finding matches previous research which has documented infrequent use of
dynamic assessment as a component of assessing DLLs (Caesar & Kohler, 2007)

Implications

Early intervention SLPs’ beliefs related to assessing DLL toddlers appear to align with known best practices. However, their implementation of such practices does not appear to align with their beliefs. As a whole, the practices reported by EI SLPs may under-represent a toddler’s language skills and may contribute to the overdiagnosis of language delays and disorders within this population. Further, EI SLPs may not be gathering the information required to remain culturally and linguistically responsive in their goal setting and intervention planning.

From a direct assessment standpoint, it is important that EI SLPs more frequently gather information on all of a DLL’s languages in both their informal and formal assessment procedures. EI SLPs should consider gathering a communication/language sample or completing an observation across all of a child’s languages, as this can be a very effective way to gather information about communication development for DLLs (Guiberson, 2016). Language samples can be gathered during routine activities in which the family interacts with their child and the SLP documents words spoken in both languages, gesture use, social interactions, receptive language, and phonology skills of the toddler. Measurements of gesture use combined with the number of different words and word combinations has emerging support in differential diagnosis for young Spanish-speaking toddlers (Guiberson, 2016). SLPs can expect that a child’s expressive vocabulary should approximate monolingual expectations when all words in both languages are taken into account (Hoff & Core, 2015). Further, SLPs should expect that phonology and receptive language will approximate typical in at least one language (Hoff &
Core, 2015). Pragmatics and play skills are highly context dependent and will need to be considered within the broader context of the child’s family and culture (Hwa-Froelich, 2004; Guiberson, 2016). SLPs who are not intricately familiar with the child’s home culture will need to establish collaborative partnerships with families, interpreters, and the broader community to understand the pragmatic expectations within that family system and culture (Verdon et al., 2015).

EI SLPs may also benefit from increased knowledge related to the ways in which published criterion-based and norm-referenced standardized assessments may be culturally and linguistically biased. Further, EI SLPs may benefit from increased access to tools that are available in each of a child’s languages and are both culturally and linguistically responsive. Examples of these tools are provided in Table 9. Given the reported lack of access to culturally and linguistically responsive EI tools, it may be most prudent and accessible for EI SLPs to gather a list of a child’s vocabulary words in both languages and compare the total number to bilingual norms. Another option is to compare that total vocabulary to expectations for monolingual language learners. The MacArthur Bates Communication Inventory (The MacArthur-Bates Communicative Development Inventories, n.d.) is available in many languages and dialects and may be beneficial towards this end. EI SLPs may also benefit from more instruction and practice around use of dynamic assessment with DLLs. Use of dynamic assessment in relation to a child’s use of word combinations may yield clinically relevant information for DLLs (Crowley, 2016)

From an interview standpoint, SLPs can consider the inclusion of questions related to a child’s language history, their parents’ level of concern, and their parents’ beliefs, values, and expectations. Information gained through the inclusion of these interview questions will not only
assist in distinguishing a difference from a language disorder but will also provide the requisite information for the provision of culturally and linguistically responsive intervention. Specific examples of questions that should be included can be found in Dr. Cate Crowley’s (2014) open-access *Parent/Caregiver Critical Questions and the Teacher Interview*, Dr. Tatiana Nogueira Peredo’s (2016) article, *Supporting Culturally and Linguistically Diverse Families in Early Intervention*, and Dr. Carol Westby’s (2009) article, *Considerations in Working Successfully with Culturally/Linguistically Diverse Families in Assessment and Intervention of Communication Disorders*.

**Limitations and Future Directions**

One of the limitations of this study is the small sample size. This limitation is compounded by the fact that the first question in the survey was an open-ended question about assessing a dual-language learner. Participants who opted to complete this survey after viewing this question may have been more interested in or knowledgeable about this topic. Therefore, this study may not be fully representative of SLPs with less interest or knowledge of this topic and this study may overestimate the quality of SLP beliefs and practices.

Conversely, an additional limitation of the study is the fact that participants were required to type their answers to open-ended questions. The need to type may have limited the depth of participant responses, which may have led to an underestimation of the quality of SLPs’ practices. This is particularly true of the depth of the answers to the question regarding SLP interviews. It is generally considered standard practice to ask questions about a child’s history. However, only 56% of SLPs listed a question related to a child’s developmental, medical or family history. The reduced frequency of questions related to a child’s developmental, medical, or family history suggests that SLPs did not include an exhaustive list of the topics they would
cover in their interviews. Therefore, it is very possible that the study underestimates the frequency with which SLPs actually include some interview components in their real-life practices. However, this limitation should apply equally to all types of interview topics. Thus, it is equally likely that the finding related to the pattern of types of questions (e.g., SLPs are more likely to ask questions about a child’s medical/developmental/family history as compared to questions about their detailed language history) is valid. To address these limitations, future studies designed to investigate SLP beliefs and practices could include more in-depth interviews, focus groups and/or observations of SLP assessments.

An additional limitation to this study relates to the case scenario, which was specific to a Spanish-English DLL toddler. Because Spanish is by far the most frequently spoken language, other than English, in the United States, it is reasonable to assume that SLPs have access to the most knowledge and resources related to the assessment of Spanish-English DLLs. Therefore, the results of this study may not be applicable to SLP assessment practices for DLL toddlers who speak languages other than Spanish. Future research could address EI SLP assessment practices with DLL children who speak languages other than Spanish. In a similar vein, this study only addressed speech-language pathologist beliefs and practices. Given the interdisciplinary and, at times, transdisciplinary teaming used in early intervention programs, it is very likely that professionals from other related disciplines are involved in screening and even assessing the language skills of DLL toddlers. Future research should address the beliefs and practices of entire early intervention teams.

A final limitation relates to the depth of information provided by this study. While it is clear that there is a gap between beliefs and practices, the reason for that gap is not evident. It is not yet clear if or how the variation in frequency of use of best practices is influenced by
variables such as time since graduation or sociocultural context of the EI SLP’s current practice setting. Further, SLP knowledge was not measured in this research study. It is possible that SLPs know that they should implement each of the best practices components, but do not know exactly how to do this. It is also possible the SLPs who are planning and implementing assessments which include practices appropriate for DLL toddlers do not have the knowledge required to interpret the results of those assessments accurately.

This current study also did not explore the systems-level barriers and facilitators related to implementation of best practices for assessing DLLs. Given previous research detailing SLP reported barriers such as lack of access to interpreters and lack of access to quality assessment tools for multilingual children (Santhanam & Parveen, 2018), it is entirely possible that the gap in beliefs and practices found in this study is primarily driven by system-level barriers. Future studies could investigate SLPs’ knowledge about dual-language learners, the relationship between variables such as sociolinguistic context and time since graduation and SLP knowledge, beliefs, and practices, and SLP perceptions of facilitators and barriers to evidence-based EI assessment for DLLs.

**Conclusion**

Previous studies have demonstrated low SLP self-efficacy for assessing children from multilingual backgrounds, a tendency to use English-only assessment tools with children who speak languages other than English, and a discrepancy between SLPs’ beliefs and practices related to assessing multilingual children (Marinova-Todd et al., 2016; McLeod & Baker, 2014; Santhanam & Parveen, 2018; Williams & McLeod, 2012). However, prior research has not investigated SLP beliefs and practices for assessing DLLs specifically within the early intervention population in the United States.
The results of this current study suggest that early intervention speech-language pathologist’s beliefs around assessing dual-language learners match known best practices. However, early intervention SLPs report using practices that are not aligned with their beliefs and are not considered best practices for assessing DLLs. Although the frequency of SLPs who reported using English-only assessment tools to assess DLLs (18%) is substantially lower than found in previous studies, a large proportion of EI SLPs (32%) in this study reported that they would assess a DLL in only one language. Assessing a DLL in only one language, especially if that DLL has received a substantial amount of input in both of those languages, is likely to underestimate their overall language skills and may lead to overdiagnosis of language delays and disorders (Castilla-Earls et al., 2020; Hoff & Core, 2015)

Further, gaps emerged between EI SLPs’ beliefs and practices across all seven best practice components explored in this study. These gaps are suggestive of either a lack of knowledge regarding how to implement these best practices and/or systems-level barriers which interfere with implementation of best practices. The most substantial gaps in SLP beliefs and practices related to the use of gathering a detailed language history, gathering information about a child’s culture, and use of dynamic assessment. These gaps are concerning given the clear value of each of these elements in an assessment designed to differentiate delay from difference and to gather the information needed to establish culturally responsive outcomes and treatment plans. Further research designed to understand the specific causes of and mitigation of the misalignment between EI SLP assessment beliefs and practices for DLLs would be beneficial in the quest to provide high-quality early intervention services to children from all backgrounds.
Chapter 3:

THE RELATIONSHIP BETWEEN EARLY INTERVENTION SLPS’ BELIEFS, KNOWLEDGE, AND PRACTICES AND THEIR BACKGROUNDS, EXPERIENCES, AND CURRENT PRACTICE SETTING

Abstract: Previous research has documented gaps between speech-language pathologists’ (SLPs) beliefs related to assessments for dual language learners (DLLs) and their implementation of best practices for DLLs. The purpose of this current study was to understand the ways in which EI SLPs’ backgrounds, experiences, and practice settings related to their belief in, knowledge about, and use of best practices for assessing DLLs referred to early intervention programs. A total of 134 EI SLPs completed a survey in which they were asked to describe their assessment procedures for a DLL case scenario, to identify the degree to which they agreed with a variety of assessment practices for assessing DLLs, to demonstrate their knowledge related to cultural and linguistic influences on DLLs’ language development, and to document their backgrounds, experiences, and current practices settings. Results revealed a gap between EI SLPs’ beliefs and use of best practices for assessing DLLs as well as gaps in the knowledge related to cultural and linguistic influences on a child’s development language system. EI SLPs’ knowledge was positively related to the sociolinguistic context in which they practiced and the percentage of their caseload composed of DLLs and was negatively related to time since graduation. EI SLPs’ use of best practices was related only to the percentage of caseload composed of DLLs. These results suggest a need for continued knowledge development around the cultural and linguistic influences on DLLs’ language development as well as the need for increased support related to the implementation of best practices across sociolinguistic contexts.

The landscape of the population served by speech-language pathologists (SLPs) is changing rapidly across all populations and settings, including within early intervention (EI). In the United States, 842,413 children birth to 3-years old are currently receiving EI services (U.S. Department of Education, 2019). Children enrolled in EI systems come from a variety of ethnic, racial, and linguistic backgrounds (Annie Casey Foundation, 2022; U.S. Department of Education, 2019). Nearly half (418,030) of these children come from non-White racial or ethnic backgrounds. Specifically, they identify with one of the following racial or ethnic backgrounds:
American Indian or Alaska Native (5,842), Asian (36,966), Black or African American (104,046), Hispanic/Latino (232,969), Native Hawaiian or Pacific Islander (2,557), and two or more races (35,650). Further, nearly 25% of children in the United States speak a language other than English at home and this percentage is expected to continue to increase (Annie Casey Foundation, 2022). Therefore, it is not uncommon for children served by EI SLPs to come from non-White backgrounds and to be exposed to solely a language other than English or another language in addition to English. These children, who are learning more than one language as they develop their language systems, are called dual-language learners (DLLs).

In parallel to the increasing diversity within the populations served by SLPs in the United States, the American Speech-Language Hearing Association (ASHA)’s Council on Academic Accreditation (CAA) has placed an increased emphasis on ensuring that preprofessional programs prepare students to provide culturally and linguistically responsive services. The 2017 Standards for Accreditation called for Communication Sciences and Disorders (CSD) graduate programs to provide evidence that “issues related to diversity are infused throughout the academic and clinical program” (CAA, 2013). More recently, the revised 2023 CAA Standards for Accreditation require graduate schools to ensure that diversity, equity and inclusion are addressed throughout a student’s academic and clinical program in both theory and practice and provide greatly expanded and explicit detail related to the multitude of ways that these concepts must be addressed throughout a student’s preprofessional training program (CAA, 2023).

**Culturally and Linguistically Responsive Assessment**

Correspondingly, EI SLPs are obligated to provide culturally and linguistically responsive services to the children they serve throughout their assessment and intervention practices (ASHA, n.d.). Culturally responsive practices require EI SLPs to take a family’s
beliefs, values, practices, experiences, materials, and routines into account, while linguistically responsive practices require the consideration of all a child’s languages (Larson et al., 2020). Culturally and linguistically responsive service provision is initiated with high quality evaluation and assessment practices. Evaluation and assessment are technically distinct terms, with “evaluation” referring to the procedures used to qualify a child for early intervention services and “assessment” referring to procedures used to describe a child’s strengths and challenges and establish supports (ASHA, n.d., USDOE, 2018). Evaluation and assessment procedures overlap within the context of early intervention and are therefore referred to as assessment throughout the remainder of this article.

Culturally and linguistically responsive assessments are not only required by law (USDOE, 2018) and considered best practice (ASHA, n.d.), but also fulfill a clinician’s responsibility for ethical practices (ASHA, 2023) by ensuring services free of discrimination and reducing over- and under-diagnosis of children from culturally and linguistically diverse backgrounds (ASHA, n.d; Bedore & Peña, 2008). They also set the stage for high quality, culturally and linguistically responsive intervention practices (ASHA, n.d). However, despite the increased emphasis on preparation for and provisions of culturally and linguistically responsive service provision, disparities in service provision remain. Latina and Chinese mothers have reported that EI SLPs may not always honor family wishes, may not support the development of home languages, and may not consider culture (Nunez & Hughes, 2018; Yu, 2013). Further, children of Black and Hispanic backgrounds are more likely to have unmet therapy needs in EI services (Bailey et al., 2004; Magnusson et al., 2016).

Perhaps correspondingly, early intervention SLPs report feeling underprepared to provide assessment and intervention services to children and families from non-White, non-monolingual
backgrounds. Caesar (2013) found that only 26% of EI SLPs felt that their graduate program had prepared them effectively to work with children from a variety of cultural and linguistic backgrounds. Caesar also found a negative correlation between age and perceived cultural/linguistic proficiency, with younger SLPs reporting more confidence. EI SLPs also reported increased confidence resulting from continuing education completed post-graduate school education. Most recently, Caesar (2020) found EI SLPs to report low self-efficacy in their knowledge of the role of cultural beliefs, values, and priorities for the child, family, and service providers, as well as in their knowledge regarding DLL infants and toddlers’ communication development and milestones. Specifically, fewer than half of the EI SLPs agreed that they had acquired adequate knowledge related to the communication development of DLL toddlers and that they had developed a sufficient understanding of the way in which cultural beliefs, values, and priorities impacted service provision.

**Linguistic Influences on Language Development**

The lack of self-efficacy reported by EI SLPs is concerning given that a deep understanding of the multifaceted cultural and linguistic influences on child development is required when evaluating and assessing DLLs in EI. Both the quantity and the quality of linguistic input provided to a DLL will shape their language systems (Unsworth, 2016). A DLL toddler’s vocabulary will be impacted by the distributed characteristic of bilingual language development, in which vocabulary is distributed across the languages a child has heard in rough proportion to the frequency with which they have heard that language (Hoff & Core, 2015; Unsworth, 2016). Therefore, expectations for vocabulary development in any *one* language spoken by a DLL toddler will look slower when compared to monolinguals. However, total vocabulary measures, which include words from *both* of a child’s languages, will match monolingual expectations for
vocabulary development. Two-word phrases will emerge at approximately the same time for DLLs as they do for monolingual toddlers, although code-mixing, the use of both languages within or between phrases, may be observed (Hoff & Cores, 2015; Paradis et al., 2021). A DLL toddler’s morphological and phonological skills may be impacted by crosslinguistic influences and should approximate typical development in at least one, if not both, languages (Hoff & Core, 2015; Paradis et al. 2021).

The quality of language heard by DLLs will also impact language development. Language input from a variety of speakers is supportive of language development, as it may increase the density, richness, and variability of input (Hoff & Core, 2015). A young child’s developing language skills also appear to be best supported by hearing the language spoken by native speakers, whereas nonnative language exposure may not support language acquisition as effectively (Hoff & Core, 2015; Unsworth, 2016). Taken together, all of these studies demonstrate the importance of considering both languages when assessing DLLs.

**Cultural Influences on Language Development**

Cultural variations related to parenting practices may also impact child language development. For example, Peredo (2020) and Guiberson & Ferris’ (2019) findings highlight the way in which cultural values and beliefs may shape interactions within Latino families. The traditional theme of *respecto* (respect for family, especially adults) may be connected to the tendency of Latino families to use directives in their interactions with their children (Cycyk & Iglesias, 2015). At the same time, responsivity may also be a specific and particular strength of Latino caregivers, a finding that may relate directly to Latino cultural beliefs of *cariño* or the belief that children should feel loved and cared for within their family systems (Guiberson & Ferris, 2019; Peredo et al., 2020). While Latino parents may tend to direct their child’s
participation in activities, they may also be highly responsive and warm in response to their child’s communication initiations within those adult-directed activities (Peredo et al., 2020).

Importantly, differences in parenting behaviors do not have the same implications across all cultures. While maternal “controlling” and “directive” behaviors in Western culture have been connected to poor school achievement and may be associated with mothers who are labeled as “dominant” and “insensitive,” these same relationships are not found within Chinese families (Johnston and Wong, 2002). Johnston and Wong (2002) suggest that directiveness in Western culture could reflect parent mistrust and a desire to dominate, whereas what are perceived as “directive” behaviors in Chinese culture may be connected to the notion of *guan*, a complex concept that combines governing and discipline with caring and love (Johnston and Wong, 2002).

Likewise, Pungello et al. (2009) investigated the relationship between race, culture, parenting practices and language growth in children aged 18-36 months. Findings suggested complex relationships between these variables. Both expressive and receptive language growth were linked to maternal sensitivity, matching previous studies suggesting that responsive parenting is beneficial for language development. However, “intrusive” parenting practices, in which a parent imposes his or her agenda on the child by intruding on and controlling child’s behaviors, were linked to lower expressive language development in European American homes but were not correlated with lower expressive language growth in African American families, especially when combined with a warm caregiving style. This finding is consistent with previous research supporting the positive influences of a particular combination of “controlling”, “directive” behaviors and parental warmth within African American families.
A child’s family system and culture also influence the development of and expectations for play, pragmatic, and cognitive milestones. Children from all cultures use similar deictic gestures such as pointing, showing, and giving; however, other gestures are specific to the culture in which they are used (Guiberson, 2016). Different cultures have different expectations for the amount with which a child is expected to talk and the degree to which adults and children interact (Ball, 2007; Johnston & Wong, 2002; Peredo et al., 2020). Symbolic and socio-dramatic play also varies between cultures and thus will need to be considered intentionally within the child’s specific culture and family system (Hwa-Froelich, 2005).

**High-Quality Assessment for Dual Language Learners**

To account for the linguistic and cultural influences on language development in DLLs, high-quality assessment for DLLs involves gathering information from a variety of categories and considering the way in which the information in each category aligns to form a complete picture of a child’s developing skills (Castilla-Earls et al., 2021). Specifically, early intervention evaluations and assessment for DLLs should include:

- Gaining information regarding the child’s developmental, medical, and family history (ASHA, n.d.).
- Documenting a child’s detailed language history, including the quantity and quality of the languages heard by the child (Castilla-Earls et al., 2020).
- Eliciting and valuing the level of parent concern, especially in comparison to siblings (Castilla-Earls et al., 2020).
- Ethnographic or routines-based interviewing to understand a family’s beliefs, values, traditions, and routines (ASHA, n.d.; Peredo, 2016).
• Play-based, bilingual communication, speech, and language samples (Castilla-Earls et al., 2020; Guiberson, 2016).

• Norm-referenced standardized or criterion-based assessment appropriate for dual-language learners (Castilla-Earls et al., 2020; Hoff & Core, 2015).


Multiple forms of direct assessment completed in both of a child’s languages provide the best evidence for differential diagnosis between a language difference (i.e., exposure to more than one language or dialect) and disorder (ASHA, n.d.; Castilla-Earls et al., 2020). Information gathered regarding parent level of concern for their DLL child provides an essential lens on the child’s development in relation to DLL peers or siblings and can therefore be a crucial component of information (Castilla-Earls et al., 2020; Crowley, 2014). Gathering a detailed language history provides the requisite information for analyzing assessment results within the context of the child’s individualized language inputs (Castilla-Earls, et al., 2020; Hoff & Core, 2015). One approach to information gathering that has been shown to be culturally and linguistically responsive is ethnographic interviewing (Peredo, 2016). In ethnographic interviewing, families are asked to share information about their beliefs, values, priorities, and daily routines. Information shared during ethnographic interviewing provides critical information about a family’s culture to aid in interpreting assessment results and provides important information related to the development of family-centered, culturally and linguistically responsive goal-setting and service delivery.

Finally, dynamic assessment is known to be an effective means for distinguishing difference from delay (Castilla-Earls et al. 2020; Peña et al., 2001; Peña et al., 2014) in DLLs. In
contrast to static assessment procedures, dynamic assessment reveals a child’s learning potential. Dynamic assessment is accomplished by scaffolding the child’s learning while observing the amount and degree of effort required for that child to learn the new skill. Children whose skills are judged to be highly modifiable are less likely to have a language disorder (Peña et al., 2001; Peña et al., 2014). Together, these forms of evidence are essential to a best practice assessment for a DLL toddler.

**SLP Beliefs and Practices**

Given the limited self-efficacy for assessing DLLs reported by SLPs as a whole (Santhanam & Parveen, 2018), it is important to understand the actual assessment practices being employed by SLPs who work with DLLs. A limited number of studies have been completed to understand SLP self-reported practices surrounding young DLLs. Skahan et al. (2007) investigated SLPs’ assessment practices for preschool and school-age children with suspected speech sound disorders; a subset of the questions on their survey related to DLLs. Results from this study indicated that school-based SLPs used informal assessment procedures or English-only tools when assessing the speech sounds of preschool and school-age children who did not speak English as their first language. Caesar & Kohler (2007) investigated Michigan school-based SLPs’ assessment practices for bilingual children and compared those practices to best practices as found in the literature. The majority of these SLPs reported using English-only standardized assessments to assess DLLs. The SLPs also reported utilizing observation and informal assessment; however, they typically completed these procedures in English only. SLPs did not report using dynamic assessment as part of their protocol for assessing DLLs.

Williams and McLeod (2012) used survey methodology to examine Australian SLPs’ beliefs, typical professional practices, and actual practices for working with multilingual
children. Their sample included SLPs who worked across a variety of settings, including but not limited to children between the ages of 2-4 years old. When describing their typical practices, these SLPs reported using English-only standardized assessment along with informal assessment when assessing DLLs. Approximately half of their participants reported using dynamic assessment as part of their typical assessment practices. The SLPs also reported that the majority of their most recent assessments of multilingual children were completed in English only.

Researchers have also examined the relationship between SLP practices and their backgrounds, settings, and experiences. Caesar and Kohler (2007) examined the relationship between school-based SLPs’ use of recommended bilingual assessment practices and years of professional experience, finding that increased years of experience was related to one select aspect of best practices: observing the child in multiple contexts. However, these researchers found no correlations between years of experience and use of additional best practices including use of both formal and informal assessment, assessment in both English and the home language, use of interpreters, and use of interviews to gather information across contexts.

Marinova-Todd et al. (2016) completed a study designed to understand the practices of professionals, including SLPs and teachers, working with preschool and school-age multilingual children in pediatric clinics and schools across six different socio-culturally and linguistically diverse locations in the United States, Canada, the United Kingdom, and the Netherlands. These researchers found that DLLs in these practice settings were typically assessed and treated only in English, despite the professionals’ beliefs that DLLs should be assessed and treated in their home languages. The degree to which the school-based professionals supported known best practices for DLLs and the amount of disconnect between beliefs and practices appeared to be related to the cultural-linguistic context in which the SLPs and children lived. SLPs were more supportive
of best practices for DLLs and there was less of a disconnect between beliefs and practices in areas where there was a high percentage of DLLs and where use of multiple languages was more generally supported by the majority culture. Together, these studies indicate a gap between research-based best practices and actual SLP practices, as well as a gap between the beliefs SLPs hold regarding assessment of DLLs and their reported practices with DLLs.

**Current Study**

The vast majority of the studies used to investigate the beliefs and practices related to SLP assessment of DLLs have been completed with older preschool and school-age children receiving services at clinics or within school systems. A number of these studies, including the one study which included SLPs working with 2-4-year-old children as part of the sample, have been completed outside the United States. To date, no studies have solely investigated practices around assessing DLLs referred to early intervention programs within the United States. Further, no research studies have been used to examine SLPs’ knowledge regarding expectations for linguistic development of DLL children from different cultural and linguistic backgrounds. Finally, no research studies have examined the relationship between EI SLPs’ background, experiences, and current practices settings and their beliefs, knowledge and practices related to assessing DLLs. The purpose of this research study is to better understand the relationship between EI SLP’s backgrounds, experiences, and current practice settings and their beliefs, knowledge and practices related to assessment of DLLs. The specific research question posed in this research study is: How do EI SLPs’ backgrounds, experiences, and current practice settings relate to their beliefs, knowledge and use of culturally and linguistically responsive assessment practices?
Given recent research documenting EI SLP perceptions around the lack of preparedness for working with DLLs (Caesar, 2020), it is expected that that SLPs will report using assessment practices that deviate from best practice and that gaps in knowledge related to DLLs and developmental milestones will exist. Based on previous research suggesting a relationship between backgrounds and experiences of SLPs and SLP self-efficacy, beliefs and practices (Caesar & Kohler, 2007; Caesar, 2013; Marinova-Todd et al., 2016), it is expected that differences in knowledge and practices will exist between different groups of EI SLPs and that these differences will be related to the sociolinguistic setting in which the SLP practices, the percentage of DLLs on the SLPs’ caseloads, and the year in which the SLP received their Master’s degree. It is further expected that SLP knowledge and practices will be related to the number of continuing education courses an SLP has completed in relation to working with DLLs.

**Methods**

**Survey**

A survey was designed to gather information about early intervention SLPs’ beliefs, knowledge, and practices related to the assessment of dual-language learners and their backgrounds, experiences, and current practice settings. The survey was reviewed by three Communication Sciences and Disorders faculty with expertise in the assessment of DLLs as well as by six early intervention SLPs, who provided feedback regarding the survey content and duration. Feedback from CSD faculty and EI SLPs was integrated into the final version of the survey, which was designed and administered using Qualtrics. The survey items used to answer the research questions for this current study were part of a larger survey comprised of six parts.
The complete survey can be found in Appendix A. Data from parts 1, 3, 4, and 5 of the survey were used to answer the research questions posed in this current study.

Part 1 of the survey was designed to gather information on current EI SLP practices. SLPs were presented with a brief vignette describing a hypothetical dual-language learner who had been referred to an EI program with concerns about expressive language, receptive language, and social interactions. These specific domains were chosen to suggest the need for a comprehensive evaluation across multiple domains. The scenario included information about the DLL toddler being exposed to both English and Spanish to suggest the need to assess in both languages. EI SLPs were asked to describe the procedures they would use to evaluate and assess the child in their current setting, including the specific tools they would use and the language(s) in which the procedures would be completed. Participants were asked to consider all aspects of assessment in their response. If they included an interview in this initial response, they were asked a follow-up question in which they were asked to describe the questions or topics they would include in the interview.

Part 3 of the survey was designed to gather information regarding EI SLPs’ beliefs around best practices for assessing DLLs referred to EI programs. SLPs were asked to rank their level of agreement in relation to using specific evaluation and assessment procedures when assessing DLLs. They indicated their level of agreement for each procedure using a 5-point Likert agreement scale, with 5 indicating “strongly agree” and 1 indicating “strongly disagree.”

Part 4 of the survey was utilized to gather data regarding the accuracy of EI SLP knowledge around factors related to the evaluation and assessment of DLLs. The knowledge questions included in Part 4 were related to cultural and linguistic influences on the development of DLL language and developmental expectations for DLLs. These questions were chosen to
reflect the knowledge required by EI SLPs to accurately interpret the results of EI assessments for DLLs.

Part 5 of the survey was designed to gather participant demographic information as well as to gather detailed information regarding participant backgrounds, experiences, and current practice settings. Participants were asked to provide demographic information (e.g., approximate age, gender, race, and ethnicity) and to provide information related to the highest degree they had received, the state where they received their master’s degree, the date they received their master’s degree, the amount of continuing education they had completed related to working with DLLs, their amount of experience working with DLLs, the city and county where they provided EI services, and the current percentage of their EI caseload comprised of DLLs.

Participants

The procedures for this survey were approved by the Northern Illinois University’s Institutional Review (IRB) board. Two rounds of recruitment were completed. In the initial round, the primary researcher sent e-mails to state-level SLP organizations with the request for the survey to be distributed to SLPs via e-mail and social media. During this round of recruitment, EI SLPs were provided with a $10.00 incentive to complete the survey. This round of recruitment was closed prior to completion of the study due to fraudulent responses which appeared to be an attempt to obtain the incentive. The original IRB was amended, a new Qualtrics link with the same survey was created, and a new round of recruitment was completed. In this second round of recruitment, the primary researcher contacted state-level early intervention programs only. EI SLPs were recruited through an e-mail sent by either the early intervention program or by the primary researcher who had been given EI SLP e-mail addresses by the early intervention program. Participants who completed the survey during this second
round of recruitment were provided with an opportunity to win one of three early intervention resource books.

At the outset of the survey, participants were required to indicate that they currently worked in early intervention and were licensed SLPs. Fraudulent and incomplete responses were eliminated from data analysis. Responses were considered incomplete if the participant only answered the first two questions of the survey, which were designed to make sure the participant met the criteria for the study. Responses were considered fraudulent if the answer to the first open-ended question was nonsensical (e.g., “what is life” or “what is your name”) or were portions of the survey which appeared to have been copied into the answer (“Luis is a 28-month-old child who lives in a Spanish-English bilingual home”).

Due to the nature of the recruitment process, the number of SLPs who received the invitation to complete the survey is not known. In the initial round of recruitment, 55 valid responses were completed. A total of 2,253 responses were either not completed past the first two eligibility questions or contained answers deemed to be fraudulent. In the second round of recruitment, where there were no fraudulent responses, 293 participants opened the survey and completed the first two eligibility questions while 94 participants (32%) continued on to complete the survey past those two initial eligibility questions. A total of 149 valid responses were received across the two recruitment phases. Of these 149 valid responses, another 15 were eliminated because the SLP indicated within the first open-ended question answer that they did not complete assessments within early intervention and thus could not answer the questions. Therefore, a total of 134 responses were included in data analysis. Not all participants answered all of the questions required to complete specific analyses; those participants were excluded from the analyses that required this data. Participant demographics are summarized in Table 10.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>130</td>
<td>98%</td>
</tr>
<tr>
<td>Male</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Non-binary</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>White</td>
<td>118</td>
<td>89%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>8</td>
<td>6%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>7</td>
<td>5%</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>123</td>
<td>93%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Highest Degree Earned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>128</td>
<td>97%</td>
</tr>
<tr>
<td>Clinical Doctorate</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>PhD</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Years since Master’s Degree</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 10 years</td>
<td>72</td>
<td>55%</td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>56</td>
<td>42%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td><strong>% Caseload DLL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 10%</td>
<td>41</td>
<td>31%</td>
</tr>
<tr>
<td>11-20%</td>
<td>26</td>
<td>20%</td>
</tr>
<tr>
<td>21-30</td>
<td>24</td>
<td>18%</td>
</tr>
<tr>
<td>&gt; 30%</td>
<td>33</td>
<td>25%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Region of Country</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>34</td>
<td>26%</td>
</tr>
<tr>
<td>Northeast</td>
<td>15</td>
<td>12%</td>
</tr>
<tr>
<td>South</td>
<td>47</td>
<td>35%</td>
</tr>
<tr>
<td>West</td>
<td>34</td>
<td>26%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
Note. Two participants did not answer any demographic questions and therefore are not included in these data.

Data Analysis

To understand EI SLP beliefs related to assessing DLLs, data from Part 3 (beliefs) were analyzed by assigning a numeric value to each level of agreement (5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1 = Strongly Disagree). A mean level of agreement was calculated for each listed assessment procedure. Mean levels of agreement were assigned a word label using the scale displayed in Table 11:

Table 11
Scale Used to Interpret Mean Levels of Agreement

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0-1.4</td>
<td>1.5-2.4</td>
<td>2.5-3.4</td>
<td>3.5-4.4</td>
<td>4.5-5.0</td>
</tr>
</tbody>
</table>

To understand EI practices, a “best practices” score was determined for each participant. The “best practices” score was based on the number of evidence-based best practices included in the SLP’s description of their method for assessing the DLL toddler in the case scenario, presuming the toddler had been referred to the early intervention program where the participant currently worked. To determine this best practices score, data from Part 1 of the survey (current practices) were analyzed by coding the SLPs’ responses according to a priori codes matched to best practice categories specific to the assessment of DLLs referred to EI programs, as based on documented best practices from the research literature. These categories included: child’s developmental, medical, and family history; child’s detailed language history; parent concern;
ethnographic or routines-based interviewing; bilingual communication, speech, and language samples; norm-referenced standardized or criterion-based assessment appropriate for dual-language learners; and assessment of learning potential (ASHA, n.d., Castilla-Earls et al., 2020; Crowley, 2014; Guiberson, 2016; Hoff & Core, 2015; Peredo, 2016). The criteria for each of the codes is included in Table 12. The number of best practice categories included in each SLP’s response (a minimum of zero, a maximum of seven) for each question was calculated.

Table 12
Codes Used to Determine Best Practice Score

<table>
<thead>
<tr>
<th>Code</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s developmental, medical, and family history</td>
<td>SLP indicated they would gather information in any of these categories</td>
</tr>
<tr>
<td>Child’s detailed language history</td>
<td>SLP indicated they would ask specific questions about the input the child received in each language</td>
</tr>
<tr>
<td>Parent concern</td>
<td>SLP indicated they would ask parents about their concerns/level of concern about the child</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>SLP explicitly listed RBI by name or indicated they would ask multiple questions about routines and/or family beliefs, values, priorities</td>
</tr>
<tr>
<td>Bilingual communication, speech and language sample</td>
<td>SLP indicated they would observe or gather a communication, speech, and/or language sample in both Spanish and English</td>
</tr>
<tr>
<td>Criterion-based/norm-referenced standardized assessment appropriate for DLLs</td>
<td>SLP indicated they would use standardized or criterion-based assessment in both languages. The listed tool(s) were both culturally and linguistically appropriate. See Appendix B for list of tools and decisions about listed tools. Gathering a list of vocabulary in both languages was also included in this code.</td>
</tr>
<tr>
<td>Assessment of learning potential</td>
<td>SLP indicated they would use dynamic assessment</td>
</tr>
</tbody>
</table>
All coding was completed by the first author. A reliability check was completed by a trained research assistant. The research assistant coded thirteen (10%) randomly selected participant responses. The percentage agreement between the research assistant and the primary researcher’s assigned codes was calculated and resulted in 97% reliability across the 73 codes used within those 13 responses.

To understand EI SLPs’ knowledge, a “knowledge score” was calculated for each participant. The “knowledge” score was calculated by scoring the accuracy of the SLP’s response to the knowledge questions presented in Part 4. Each question was scored as accurate or inaccurate and was worth one point. A total number of accurate answers was calculated for each question, as well as an accuracy score for each SLP (Minimum of 0; Maximum of 11). Correct answers for each of the questions are bolded in the survey in Appendix A.

Data were further analyzed using both descriptive and inferential statistics. Descriptive statistics were utilized to present information related to EI SLP’s current beliefs, practices and knowledge. Following Marinova-Todd et al., (2017) descriptive statistics were used to determine patterns of SLPs’ beliefs, knowledge, and practices in relation to varied sociolinguistic contexts. The sociolinguistic context was determined by determining the percentage of individuals who spoke languages other than English in the county/counties where the SLP reported practicing, based on data obtained from the MLA Language Map Data Center (MLA Data Map Center, 2010). Specifically, the beliefs, knowledge, and practices of EI SLPs who lived in areas with 12% or more speakers of language other than English was compared to the beliefs, knowledge and practices of EI SLPs who lived in areas with 11% or less speakers of language other than English. Expanding on Marinova-Todd et al. (2017), inferential statistics were utilized to further
specify the presence and direction of select aspects of SLPs’ backgrounds and experiences and their knowledge and practices related to assessing DLLs.

**Results**

**EI SLP Beliefs**

A total of 132 participants completed Part 3 of the survey, which was designed to understand EI SLPs’ beliefs about assessing DLLs. EI SLPs’ mean belief scores indicated strong agreement or agreement that each best practice component should be included in an assessment for a DLL. Mean levels of agreement ranged from 4.31 (SD = .766) for the use of standardized/criterion-based assessment appropriate for DLLs to 4.96 (SD = .193) for the use of interview to gather child developmental, medical, and family history. Mean levels of agreement are summarized in Table 13.

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Descriptive Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child developmental, medical and family history</td>
<td>4.96 (.193)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Detailed language history</td>
<td>4.92 (.306)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Parent concern</td>
<td>4.91 (.291)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>4.68 (.546)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Standardized/criterion-referenced assessment appropriate for DLLs</td>
<td>4.31 (.766)</td>
<td>Agree</td>
</tr>
<tr>
<td>Bilingual communication, speech, language sample</td>
<td>4.66 (.523)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Assessment of learning potential/dynamic assessment</td>
<td>4.64 (.610)</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>
EI SLP Practices

A total of 132 SLPs fully completed Part 1 of the survey, which was designed to gather information about EI SLPs’ use of practices for assessing DLLs. This part of the survey was administered first to ensure that participants would not be influenced in their responses after seeing some of the statements in other parts of the survey. A best practices score was developed by determining the number of best practices included in each SLP’s answer to Part 1, with a maximum of seven best practices which could be included. The SLP best practice scores ranged from 0 to 5 (Mean = 2.10; SD = 1.25). Table 14 summarizes the frequency with which SLPs included each best practice component within their description of the methods they would use to assess the DLL toddler in their practice settings, organized from most frequently to least frequently included.

Table 14
Early Intervention SLPs’ Assessment Practices

<table>
<thead>
<tr>
<th>Best Practice Component</th>
<th>Number of SLPs who included the component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child developmental, medical and family history</td>
<td>72/132 (56%)</td>
</tr>
<tr>
<td>Bilingual communication, speech, language sample</td>
<td>57/132 (43%)</td>
</tr>
<tr>
<td>Parent concern</td>
<td>48/132 (36%)</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>43/132 (33%)</td>
</tr>
<tr>
<td>Criterion-based/norm-referenced assessment appropriate for DLLs</td>
<td>35/132 (27%)</td>
</tr>
<tr>
<td>Detailed language history</td>
<td>17/132 (13%)</td>
</tr>
<tr>
<td>Assessment of learning potential/dynamic assessment</td>
<td>7/132 (5%)</td>
</tr>
</tbody>
</table>
EI SLP Knowledge

A total of 134 SLPs completed Part 4 of the survey, which was designed to understand EI SLPs’ knowledge related to the cultural and linguistic influences on DLL language development. A knowledge score was developed by calculating the number of knowledge items answered correctly in Part 4, with a maximum score of 11. The knowledge scores ranged from 3-11 (Mean = 8.57; SD = 1.82). The frequency with which each question was answered accurately is summarized in Table 15, organized from most frequently to least frequently correctly answered question.

Table 15
Early Intervention SLPs’ Knowledge Related to Assessment

<table>
<thead>
<tr>
<th>Topic</th>
<th>Answered correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>True or False: Providing intervention in two languages is likely to exacerbate the language delay</td>
<td>131/134 (98%)</td>
</tr>
<tr>
<td>Age expectation: Routine direction following in at least 1 language</td>
<td>131/134 (98%)</td>
</tr>
<tr>
<td>How likely would you be to qualify a DLL for EI service compared to a monolingual child?</td>
<td>117/134 (87%)</td>
</tr>
<tr>
<td>Age expectations: Age of first word</td>
<td>116/134 (87%)</td>
</tr>
<tr>
<td>Age expectation: Generally appropriate phonology</td>
<td>115/134 (86%)</td>
</tr>
<tr>
<td>Age expectation: Two-word phrases</td>
<td>113/134 (84%)</td>
</tr>
<tr>
<td>Number of total vocabulary at 18 months</td>
<td>105/134 (78%)</td>
</tr>
<tr>
<td>Age expectation: Number of English words at 18 months</td>
<td>103/134 (77%)</td>
</tr>
<tr>
<td>Age expectation: Number of Spanish words at 18 months</td>
<td>98/134 (73%)</td>
</tr>
<tr>
<td>True or False: Directive interactions inhibit growth in a child’s vocabulary regardless of culture</td>
<td>72/134 (54%)</td>
</tr>
</tbody>
</table>
| True or False: Input from nonnative speakers is less supportive of language development than input provided by native speakers | 48/134 (36%)
Sociolinguistic Context and Beliefs, Practices, and Knowledge

Sociolinguistic Context and SLP Beliefs

A total of 132 participants completed Part 3 of the survey, which was designed to understand EI SLP beliefs about assessing DLLs, and Part 5 of the survey, in which participants provided the name of the county where they provided EI services. Descriptive statistics were used to review the data for patterns related to sociolinguistic contexts and EI SLP beliefs. EI SLPs were divided into two groups using a median split based on the percentage of the population who spoke a language other than English in the county where the SLP worked. Two groups were established: a “high sociolinguistic (SL) context” group which included SLPs who worked in counties where 12% or more of the population spoke a language other than English (n = 66) and a “low sociolinguistic (SL) context” group which included SLPs who worked in counties where 11% or less of the population spoke a language other than English (n=64). Results are shown in Table 16.

Because visual analysis of descriptive data related to beliefs and sociolinguistic context suggested limited variation in SLP beliefs, inferential statistics were not utilized to further explore relationships between SLP beliefs and SLP backgrounds and experiences.

Sociolinguistic Context and EI SLP Practices

Data from Part 1 (SLP Practices) and Part 5 (SLP Backgrounds) were used to analyze the relationships between the sociolinguistic contexts in which SLPs worked and the number of best practices used by SLPs. Two SLPs did not fully answer Part 1 and two SLPs did not provide information related to the specific county in which they provided services; therefore, 130 participant responses were analyzed.
To analyze the potential difference in SLP practices related to sociolinguistic knowledge, a median split based on the percentage of the population who spoke a language other than English was used to divide SLPs into two groups: a “high sociolinguistic (SL) context” group which included SLPs who worked in counties in where 12% or more of the population spoke a language other than English ($n = 65$) and a “low sociolinguist (SL) context” group which included SLPs who worked in counties where 11% or less of the population spoke a language other than English ($n=65$). The mean number of best practices used by SLPs who lived in counties with high sociolinguistic diversity ($Mean = 2.18$, $SD = 1.2$) was slightly higher than

Table 16

<table>
<thead>
<tr>
<th>Sociolinguistic Context and EI SLP Beliefs</th>
<th>Mean Level of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low SL Context</td>
</tr>
<tr>
<td>Child developmental, medical and family history</td>
<td>4.93</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Detailed language history</td>
<td>4.85</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Parent concern</td>
<td>4.90</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>4.68</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Standardized/criterion-referenced assessment appropriate for DLLs</td>
<td>4.23</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Bilingual communication, speech, language sample</td>
<td>4.67</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Assessment of learning potential/dynamic assessment</td>
<td>4.69</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>
mean number of best practices of SLPs who lived in counties with low sociolinguistic diversity 
\((Mean = 1.98, SD = 1.3)\).

An independent-samples t-test was completed to determine whether there was a significant difference in the mean best practices scores between these two groups. Skewness and Kurtosis values for both data sets were within ± 1.0, indicating no major issues with normality of the data. The assumption of homogeneity of variances was not violated, as assessed by Levene's test for equality of variances \((p = .848)\). There was no statistically significant difference in the mean total use of best practices between the groups, \(t(128) = .899 (p = .371)\).

Following Marinova-Todd et al. (2016), descriptive statistics were used to further review the data for patterns related to sociolinguistic contexts and use of best practices across individual best practice components. Expanding on inferential Marinova-Todd et al. (2016), t-tests were utilized to determine the statistical significance of differences between the groups. Percentage use of each best practice was calculated for SLPs in each SL context group. The results are presented in Table 17.

Independent t-tests for each individual best practice component were completed to determine whether there was a statistically significant difference in use of specific best practice components between SLPs from counties with high sociolinguistic diversity and SLPs from counties from low sociolinguistic diversity. No statistically significant differences in use of individual best practices components were revealed.
Table 17
Sociolinguistic Context and EI SLP Practices

<table>
<thead>
<tr>
<th></th>
<th>Number of SLPs</th>
<th></th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low SL Context</td>
<td>High SL Context</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child developmental, medical, and family history</td>
<td>36/65 (55%)</td>
<td>34/65 (52%)</td>
<td>t(128) = .339</td>
<td>.735</td>
</tr>
<tr>
<td>Detailed language history</td>
<td>8/65 (12%)</td>
<td>9/65 (14%)</td>
<td>t(128) = .258</td>
<td>.797</td>
</tr>
<tr>
<td>Parent concern</td>
<td>18/65 (28%)</td>
<td>29/65 (45%)</td>
<td>t(128) = 2.02</td>
<td>.045</td>
</tr>
<tr>
<td>Ethnographic or routines-based interviewing</td>
<td>17/65 (26%)</td>
<td>25/65 (38%)</td>
<td>t(128) = 1.50</td>
<td>.136</td>
</tr>
<tr>
<td>Standardized/criterion-referenced assessment appropriate for DLLs</td>
<td>23/65 (35%)</td>
<td>10/65 (15%)</td>
<td>t(128) = -2.67</td>
<td>.009</td>
</tr>
<tr>
<td>Bilingual communication, speech, language sample</td>
<td>27/65 (42%)</td>
<td>29/65 (45%)</td>
<td>t(128) = .352</td>
<td>.726</td>
</tr>
<tr>
<td>Assessment of learning potential</td>
<td>1/65 (2%)</td>
<td>5/65 (8%)</td>
<td>t(128) = 1.67</td>
<td>.096</td>
</tr>
</tbody>
</table>

Note. To account for multiple comparisons, p-value was divided by number of comparisons, yielding a criterion for significance of p < .007.

Sociolinguistic Context and EI SLP Knowledge

Data from Part 4 (SLP knowledge) and Part 5 (SLP Backgrounds) were used to analyze the relationships between the sociolinguistic contexts in which SLPs worked and their knowledge related to assessing DLL. Two SLPs did not provide information related to the specific county in which they provided services; therefore, 132 participant responses were analyzed to answer this question.
To examine the difference in SLP knowledge related to sociolinguistic knowledge, a median split based on the percentage of the population who spoke a language other than English was used to divide SLPs into two groups: a “high SL context” group which included SLPs who worked in counties in which 12% or more of the population spoke a language other than English (n=66) and a “low SL context” group which included SLPs who worked in counties where 11% or less of the population spoke a language other than English (n=66). The mean knowledge score (Mean = 8.92, SD = 1.7) of SLPs who lived in counties with high sociolinguistic diversity was higher than mean accuracy score (Mean = 8.21, SD = 1.9) of SLPs who lived in counties with low sociolinguistic diversity.

An independent-samples t-test was completed to determine whether there was a significant difference in the overall mean knowledge score between these two groups. Skewness and Kurtosis values for both data sets were within ±1.0, indicating no major issues with normality of the data. The assumption of homogeneity of variances was not violated, as assessed by Levene's test for equality of variances (p = .385). There was a statistically significant difference in the mean total knowledge score between the groups, t(130) = 2.255(p = .026).

EI SLP Knowledge Across Individual Questions

Following Marinova-Todd et al., (2016), descriptive statistics were used to review the data for patterns related to sociolinguistic contexts and EI SLP knowledge within specific questions. Expanding on Marinova-Todd et al., (2016), inferential statistics were utilized to determine the significance of any observed differences. Percentage accuracy for each question was calculated for SLPs in each SL context group. Results are shown in Table 18.
Table 18
Sociolinguistic Context and EI SLP Knowledge

<table>
<thead>
<tr>
<th>Percentage Accuracy</th>
<th>Low SL Context</th>
<th>High SL Context</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age expectations: age of first word</td>
<td>55/66 (83%)</td>
<td>59/66 (89%)</td>
<td>( t (130) = 1.01 )</td>
<td>.314</td>
</tr>
<tr>
<td>2. Age expectation: Number of English words</td>
<td>49/66 (74%)</td>
<td>52/66 (79%)</td>
<td>( t (130) = .612 )</td>
<td>.541</td>
</tr>
<tr>
<td>3. Age expectation: Number of Spanish words</td>
<td>44/66 (66%)</td>
<td>52/66 (79%)</td>
<td>( t (130) = 1.56 )</td>
<td>.120</td>
</tr>
<tr>
<td>4. Total vocabulary at 18 months</td>
<td>48/66 (72%)</td>
<td>55/66 (83%)</td>
<td>( t (130) = 1.47 )</td>
<td>.143</td>
</tr>
<tr>
<td>5. Age expectation: two-word phrases</td>
<td>53/66 (80%)</td>
<td>58/66 (88%)</td>
<td>( t (130) = 1.18 )</td>
<td>.237</td>
</tr>
<tr>
<td>6. Age expectation: routine direction following in at least 1 language</td>
<td>64/66 (97%)</td>
<td>65/66 (98%)</td>
<td>( t (130) = .580 )</td>
<td>.563</td>
</tr>
<tr>
<td>7. Age expectation: generally appropriate phonology</td>
<td>55/66 (83%)</td>
<td>58/66 (88%)</td>
<td>( t (130) = .740 )</td>
<td>.461</td>
</tr>
<tr>
<td>8. How likely are you to qualify a DLL for EI service compared to a monolingual child?</td>
<td>58/66 (88%)</td>
<td>58/66 (88%)</td>
<td>( t (130) = 0.00 )</td>
<td>1.00</td>
</tr>
<tr>
<td>9. True or False: Directive interactions inhibit growth in a language</td>
<td>30/66 (45%)</td>
<td>41/66 (62%)</td>
<td>( t (130) = 1.93 )</td>
<td>.055</td>
</tr>
<tr>
<td>10. True or False: Input from nonnative speakers is less supportive</td>
<td>21/66 (32%)</td>
<td>27/66 (41%)</td>
<td>( t (130) = 1.08 )</td>
<td>.281</td>
</tr>
<tr>
<td>11. True or False: Providing intervention in two languages is likely to exacerbate the language delay</td>
<td>65/66 (98%)</td>
<td>64/66 (97%)</td>
<td>( t (130) = -.580 )</td>
<td>.563</td>
</tr>
</tbody>
</table>

*Note.* To account for multiple comparisons, \( p \)-value was divided by number of comparisons, yielding a criterion for significance of \( p < .004 \).
Independent \( t \)-tests for each individual question were completed to determine whether there was a statistically significant difference in accuracy between SLPs from counties with high sociolinguistic diversity and SLPs from counties from low sociolinguistic diversity. No statistically significant differences in accuracy for individual questions were found.

**Years Since Graduation and Practices and Knowledge**

**Years Since Graduation and EI SLP Practices**

The relationship between use of best practices and years since graduation was analyzed through the use of correlation inferential statistics using the practices score from Part 1 and the background information gathered in Part 5. Two SLPs did not fully complete Part 1 and four SLPs did not provide the year they received their Master’s Degree, leading to a total number of 128 responses analyzed for this question. Normality of data was analyzed by reviewing skewness and kurtosis values generated within SPSS. The skewness and kurtosis values indicated no substantial issues with normality with either variable with the exception of the skewness statistic related to years from degree data, which was skewed to the right. Therefore, a Spearman’s rank-order correlation was completed to assess the relationship between an SLP’s use of best practices and the SLP’s years since graduation. There was no statistically significant relationship between these variables, \( r_s (126) = -0.074, p = 0.405 \).

**Years Since Graduation and SLP EI Knowledge**

The relationship between SLP knowledge and years since graduation was analyzed through the use of correlation inferential statistics using the knowledge score on Part 4 and background information gathered in Part 5. Four SLPs did not provide the year they received their Master’s Degree, leading to a total number of 130 participant responses analyzed for this question. Normality of data was analyzed by reviewing skewness and kurtosis values generated
within SPSS. The skewness and kurtosis values indicated no substantial issues with normality with either variable, except for the skewness statistic related to data representing years since graduation which were skewed to the right. Therefore, a Spearman’s rank-order correlation was completed to assess the relationship between an SLP’s accuracy score and the SLP’s years since graduation. There was statistically significant, weak negative correlation between knowledge accuracy and years since graduation \( r_s(128) = -.220, p < .05. \)

**Continuing Education, Practices and Knowledge**

**Continuing Education and EI SLP Practices**

Data from Part 1 (SLP practices) and Part 5 (SLP background information) were analyzed to determine if there was a significant difference in the mean number of best practices used by those SLPs who had completed more continuing education courses. Two SLPs did not fully answer Part 1 and five SLPs did not complete the question related to the number of CE courses they had completed post-graduation. Therefore, a total of 127 responses were analyzed to answer this question. To look for the potential difference in SLP practices related to continuing education (CE) courses, two groups were established: SLPs who had taken “none” or a “couple CE courses” \((n=75)\) and SLPs who had taken “a few CE courses” or “more CE courses than they could count” \((n=52)\). The mean number of practices included by SLPs who had taken “no CE courses” or a “couple CE courses” was 1.97 \((SD = 1.1)\) while the mean number of practices included by SLPs who had taken “a few CE courses” or “more CE courses than they could count” was 2.33 \((SD = 1.4)\); this was not significantly different.

An independent-samples T-test was completed to determine whether there was a significant difference in the mean scores between these two groups. There were no outliers in the data, as assessed by inspection of a boxplot. Skewness and Kurtosis values for practice scores
were within ± 1.0, indicating no major issues with normality of the data. The assumption of homogeneity of variances was violated, as assessed by Levene's test for equality of variances ($p < .05$). There was no statistically significant difference in the mean scores between the groups, $t(91.99) = -1.515, p = .067$.

**Continuing Education and EI SLP Knowledge**

Data from Part 4 (SLP knowledge score) and Part 5 (SLP background information) were analyzed to determine if there was a significant difference in the mean knowledge accuracy score of those SLPs who had completed more continuing education courses. Five SLPs did not complete the question related to the number of CE courses they had completed post-graduation. Therefore, a total of 129 responses were analyzed to answer this question. To look for the potential difference in EI SLP knowledge related to continuing education (CE), courses two groups were established: SLPs who had taken “none” or a “couple CE courses” ($n=77$) and SLPs who had taken “a few CE courses” or “more CE courses than they could count” ($n=52$). The mean accuracy score for SLPs who had taken no CE courses or a couple CE courses was 8.60 ($SD = 1.77$) while the mean accuracy score of SLPs who had taken a few CE courses or more CE courses was 8.42 ($SD = 1.95$), this was not significantly different.

An independent-samples T-test was completed to determine whether there was a significant difference in the mean scores between these two groups. There were no outliers in the data, as assessed by inspection of a boxplot. Skewness and Kurtosis values for the knowledge score data were within ± 1.0, indicating no major issues with normality of the data. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .585$). There was no statistically significant difference in the mean scores between the groups, $t(127) = .526, p = .600$)
Percentage of Caseload Composed of DLL Children, Practices and Knowledge

Percentage of DLL on Caseload and EI SLP Practices

The relationship between use of best practices and the percentage of caseload composed of DLLs was analyzed through the use of correlation inferential statistics using the practices score from Part 1 and the background information gathered in Part 5. Two SLPs did not fully answer Part 1 and ten SLPs did not complete the question related to percent of their caseload composed of DLL children. Therefore, a total of 122 responses were analyzed to answer this question. Normality of data was assessed by reviewing skewness and kurtosis values generated within SPSS. The skewness and kurtosis values indicated no substantial issues with normality with either variable, except for the skewness statistic related to percentage of caseload composed of DLLs, which was skewed to the right. Therefore, a Spearman’s rank-order correlation was completed to assess the relationship between an SLPs’ use of best practices and the percentage of caseload composed of DLLs. Two outliers were removed from the data prior to the analysis. There was statistically significant, weak positive correlation between use of best practices and percentage of caseload DLL \( r_s(118) = .244, p < .05. \)

Percentage of DLL on Caseload and EI SLP Knowledge

The relationship between SLP knowledge and percentage of DLLs on SLPs’ caseloads was analyzed through the use of correlation inferential statistics using the knowledge score on Part 4 and the background information gathered in Part 5. Ten SLPs did not complete the question related to the percentage of caseload composed of DLLs, leading to a total of 124 participant responses analyzed for this question. Normality of data was assessed by reviewing skewness and kurtosis values generated within SPSS. The skewness and kurtosis values indicated no substantial issues with normality with either variable, except for the skewness
statistic related to data representing the percentage of SLPs’ caseload composed of DLLs, which were skewed to the right. Therefore, a Spearman’s rank-order correlation was completed to assess the relationship between an SLPs’ knowledge accuracy score and the percentage of dual-language learners on an SLP’s caseload. Two outliers were removed from the data prior to completing the Spearman’s rank-order correlation. There was statistically significant, weak positive correlation between knowledge and percentage of caseload being DLL $r_s(120) = .247$, $p < .01$.

A summary of the significant relationships is included in Table 19.

Table 19

Relationships Between EI SLPs’ Knowledge and Practices and Backgrounds, Experiences, and Practices Settings

<table>
<thead>
<tr>
<th>EI SLP Practices</th>
<th>Sociolinguistic Context</th>
<th>Time Since Graduation</th>
<th>Continuing Education</th>
<th>Percent of caseload DLL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI SLP Knowledge</td>
<td>Statistically significant difference in knowledge</td>
<td>Weak negative correlation</td>
<td>N/A</td>
<td>Weak positive correlation</td>
</tr>
</tbody>
</table>

Discussion

EI SLPs’ Beliefs and Practices

The purpose of this study was to better understand the relationship between early intervention SLPs’ beliefs, knowledge and practices related to assessing DLLs and their
backgrounds, experiences, and practice settings. EI SLPs were provided with a case scenario of a DLL toddler who received input in both Spanish and English, presenting with concerns in expressive language, receptive language and pragmatics. Participants were asked to describe how they would approach assessment for this DLL toddler if the toddler had been referred to the participant’s early intervention program. Participants were subsequently asked to identify the strength of their beliefs related to use of best practices for assessing a DLL toddler and to answer knowledge questions related to the linguistic and cultural influences on language development. EI SLPs also provided detailed information related to their backgrounds, experiences, and current practice settings.

Results revealed that EI SLPs’ beliefs related to assessment practices for DLLs referred to EI programs align with best practices. However, EI SLPs’ reported use of assessment practices did not correspond with their beliefs. Although EI SLPs report using interview as a part of their assessments, they are most likely (56%) to ask about a child’s developmental, medical and/or family history, less likely to ask about parent concern (36%) and/or ask about a family’s routines, beliefs, and values (33%), and least likely to inquire into a child’s detailed language history (13%). This finding is concerning. Inquiring into a parent’s level of concern related to their DLL child’s development is part of a converging evidence approach to assessing DLLs (Castilla-Earls et al., 2020) and is considered by experts to be one of the most essential questions when assessing DLL toddlers (Crowley, 2014). Further, use of routines-based interview (RBI) and ethnographic interviewing are integral aspects of an assessment designed to establish the foundation for culturally and linguistically responsive intervention (Peredo, 2016). RBI and ethnographic interviewing also provide the critical information required for EI SLPs to interpret variations in development through a cultural lens (Hwa-Froelich, 2005; Peredo et al., 2020).
Likewise, gathering detailed information about the quantity and quality of a child’s language input in both languages is crucial to accurate interpretation of communication/language/speech samples (Castilla-Earls et al., 2020; Hoff & Core, 2015; Unsworth, 2016).

Further, although EI SLPs strongly agree with use of multiple strategies for direct assessment in both of a child’s languages, less than half of the EI SLPs (43%) included use of a bilingual communication/language/speech sample, only a quarter of EI SLPs included use of criterion-based/norm-referenced standardized assessment appropriate for DLLs (27%), and very few SLPs included use of dynamic assessment (5%). The reduced frequency with which these direct assessments were included in EI SLPs’ descriptions of their DLL assessment practices is concerning given that a converging evidence approach, which includes multiple forms of assessment, is widely considered best practice (ASHA, n.d.; Castilla-Earls et al., 2020) and that assessment in only one of a child’s languages is likely to under-represent that child’s language skills (Castilla-Earls et al., 2020; Hoff and Core, 2015). Additionally, use of dynamic assessment is not only part of a best practice converging evidence approach (Castilla-Earls et al., 2020), but has long been considered best practice for distinguishing between children who present with a language difference as compared to a true language delay or disorder (Castilla-Earls et al., 2020; Peña et al., 2001; Peña et al., 2014). Limited use of best practices is likely to contribute to both under- and over-representation of DLL toddlers within EI programs.

**EI SLP Knowledge**

EI SLPs demonstrated strong knowledge related to key aspects of assessing DLL toddlers. Specifically, they show a robust understanding that service provision in two languages is *not* likely to exacerbate a child’s language delay or disorder. A clear understanding of this concept is essential to the provision of culturally and linguistically responsive intervention in
which EI SLPs support multilingual language development (Hoff & Core, 2015; Larson et al., 2020). This knowledge will prove beneficial as EI SLPs work to combat the pervasive myths surrounding the impact of bilingual language input on language delays and disorders and provide linguistically responsive intervention within the mixed and competing messages families may receive about the value of supporting their child’s home language (Hoff & Core, 2015; Yu, 2013).

By indicating that they would expect a DLL toddler to be able to follow directions in at least one language at the same time as monolingual peers, EI SLPs also demonstrate a clear understanding that hearing two languages does not slow down receptive language growth. As a whole, however, EI SLPs’ knowledge related to expressive language development appears to be less robust, with only 73%-87% of SLPs answering questions related to expressive language development accurately. It is especially noteworthy that only 73-78% of EI SLPs accurately answered questions related to the expectations for semantic development of DLL toddlers. This finding matches previous research which documented EI SLPs’ perceptions that they may lack sufficient knowledge of communication development in infants and toddlers learning more than one language (Caesar, 2020).

Lack of fully understanding developmental expectations for expressive language development in DLL toddlers is concerning given the likelihood that EI teams will need to rely heavily on counts of total vocabulary as a major focus of an EI evaluation for a DLL toddler (Hoff & Core, 2015). This lack of knowledge related to the expressive language development of a DLL toddler may be related to the limited use of bilingual language samples evidenced in this current study: if EI SLPs do not understand the distributed property of vocabulary development in DLL toddlers, they may be less likely to gather a bilingual communication/speech/language
sample. Although they may indicate strong agreement that a bilingual sample is important, they may not realize how essential this component is to an accurate diagnosis. Further, even if EI SLPs gather a bilingual communication, speech, and/or language sample, their interpretation of the assessment results will be flawed if they do not fully understand expectations for the expressive language development of DLL toddlers.

Erroneous expectations for the expressive language development of a DLL toddler may also relate to the expectations that a DLL toddler will qualify for EI services. Although a DLL toddler should be no more or less likely to qualify for EI services, 13% of EI SLPs in this current study indicated that they would be more or less likely to qualify a DLL toddler for EI, as compared to a monolingual peer. This is an improvement over a previous study which indicated that up to 52% of SLPs assessing bilingual individuals across settings in the United States would be more or less likely to qualify a bilingual individual for services, as compared to a monolingual individual (Kritikos, 2003). However, given that DLLs should be no more or less likely to have a language delay or disorder than monolinguals, EI SLPs expectations regarding DLLs qualifying for EI services may lead to under- and/or over-enrollment in EI services.

EI SLP knowledge related to the impact of parenting styles and the quality of input on child language development was the least accurate. Only 54% of EI SLPs understood that the impact of “directive” parent-child interactions on child language development may vary across cultures (Johnston & Wong, 2002; Pungello, et al., 2009). This finding again matches EI SLPs’ perceptions that they may not have sufficient knowledge related to cultural and linguistic influences on language development (Caesar, 2020). Limited understanding of the multitude of ways in which culture may influence language development may be related to the use of assessments that are not culturally and linguistically responsive. EI SLPs may lack the requisite
knowledge for assessing the degree to which any given tool contains cultural biases. Indeed, only 27% of SLPs in this current study listed use of assessment tools that are considered by experts in the field to be free from linguistic and cultural bias. Furthermore, a limited understanding of cultural influences on language development may introduce bias into the analysis of informal language sample results (Moses, et al., 2020), leading to inaccurate assessment results.

The lack of understanding related to cultural influences on language development may also partially explain the infrequency of ethnographic interviewing reported by EIs in this study. Although SLPs may believe this assessment task is important, they may not understand how to complete ethnographic interviewing to gather information about a family’s culture, especially given EI SLPs self-reported lack of confidence related to their understanding of the way in which cultural beliefs, values and priorities impact the child and family system (Caesar, 2020). The infrequent use of ethnographic interviewing may, in turn, exacerbate EI SLPs lack of understanding related to cultural influences and may have a negative impact on accurate interpretation of assessment results and the provision of culturally responsive EI services.

Only 36% of EI SLPs accurately understood that input from nonnative speakers is less supportive of language development than input by native speakers. It is crucial that EI SLPs understand the impact of non-native input on child language development, as it points to the need to gather a detailed language history in which assessment results will be situated. Further, SLPs are in the position to strongly encourage parental use of a child’s home language, which is likely to be supportive from both a linguistic and a social-emotional standpoint (Hoff & Core, 2015; Chung et al., 2019; Yu, 2013). Parents may be concerned with ensuring their child speaks the societal language that will be needed for schooling and functioning in broader society (Hoff & Core, 2015; Yu, 2013). However, parent input provided in their native language may be more
supportive of a child’s language development due to the quality of input that a parent may be able to provide in their home language (Hoff & Core, 2015). Additionally, use of a home language may promote parent-child relationships and cultural connections that support overall development (Hoff & Core, 2015; Chung et al., 2019; Yu, 2013). A deep understanding of these concepts places EI SLPs in a position to provide parental counseling regarding this complex topic as they encourage and support use of a child’s home language within EI service provision.

**Relationships Between Sociolinguistic Context and Knowledge and Practices**

EI SLPs’ beliefs did not appear to vary substantially based on the sociolinguistic context in which the SLP worked. However, EI SLPs’ knowledge was related to the sociolinguistic context in which the SLPs provided early intervention services, with SLPs working in counties composed of higher percentages of speakers other than English demonstrating statistically significant increased knowledge related to the cultural and linguistic influences on a DLL’s language development. It is plausible that living and working in an area with more cultural and linguistic diversity provides opportunities for EI SLPs to learn more deeply about different cultures and languages and thus gain more knowledge related to this topic. Conversely, it may be that EI SLPs who are interested in and knowledgeable about cultural and linguistic diversity purposefully live in populations that are more diverse.

EI SLPs’ mean use of self-reported practices did not differ significantly depending on the broad sociolinguistic context in which they worked. These findings differ from the Marinova-Todd et al. (2016) results which indicated that SLPs serving multilingual children across a variety of sites more frequently reported use of best practices for assessing DLLs. However, Marinova-Todd et al. (2016) relied on descriptive statistics to present patterns of SLPs practices. This current study matches the Marinova-Todd et al. (2016) study in that descriptive statistics
suggested possible differences in practices based on sociolinguistic contexts; however, these differences were not found to be statistically significant.

**Percentage of Caseload Composed of DLLs, Practices and Knowledge**

The percentage of DLL children on an EI SLPs’ caseload was positively correlated with both EI knowledge and practices. There are multiple potential explanations for this finding, which contrasts somewhat with the finding that there was no significant relationship between the diversity of the overall sociolinguistic context and EI SLPs’ use of best practices. One explanation may be that EI SLPs who work in early intervention programs with more DLLs may face fewer barriers to accessing support for the provision of culturally and linguistically responsive assessments. They may have more easy access to interpreters and may work in programs with more robust program-level support. Program-level support may vary even within locations with sociolinguistic diversity. It is also possible that EI SLPs who use more high-quality assessment practices may have more DLLs on their caseload due to the quality of their assessment practices.

Further, experience working with DLLs may lead to a higher level of knowledge regarding the cultural and linguistic influences on the language development of the child. Alternatively, having a higher level of knowledge related to cultural and linguistic influences on DLL language development may lead to more accurate assessment practices with higher caseloads of DLLs, leading to the relationship between knowledge and percent of caseload DLL. Most likely, these are bidirectional influences in which both the knowledge and the practices are influenced by the composition of an EI SLPs’ caseload and vice versa.
Relationships Between Time Since Degree and Knowledge and Practices

EI SLPs who received their master’s degree more recently demonstrated more accurate knowledge related to the assessment of DLL toddlers. The finding that knowledge was significantly related to time since graduation aligns with Caesar (2013)’s research suggesting that EI SLP confidence around cultural/linguistic proficiency was related to age, with younger SLPs, who presumably graduated more recently, reporting more confidence. These findings suggest that CSD preprofessional training programs may be providing higher quality education related to culturally and linguistically responsive assessment than they have in years past. This aligns with research documenting increased infusion of cultural and linguistic content into graduate school curriculum (Huerta, 2021). It also aligns with initiatives designed to better prepare students to be culturally and linguistically responsive in their practices, including the 2017 and 2023 Council for Academic Accreditation in Audiology and Speech-Language Pathology standards which require preprofessional programs to ensure graduate student cultural and linguistic competence (CAA, 2017; CAA 2023).

EI SLPs’ assessment practices were not correlated with time since graduation. This may, in part, be explained by systems level barriers. Select EI SLPs may strongly agree with best practices for assessment and may have the knowledge required to implement and interpret these best practices, but may encounter barriers such as lack of time, lack of access to interpreters and lack of access to appropriate assessment tools which prevent them from putting their beliefs and knowledge into practice (Santhanam & Parveen, 2018).

Relationships Between Continuing Education and Knowledge and Practices

No significant differences in knowledge and practices were found between EI SLPs who had taken a substantial number of continuing education (CE) courses related to assessing or
treated children who hear and/or speak multiple languages and EISLPs who had taken no or only a couple CE courses related to this topic. This was an unexpected finding and stands in contrast to Caesar (2013)’s finding that completion of continuing education courses was positively related to increased EISLP confidence around cultural and linguistic competence. It is possible that the content of the CE courses completed by EISLPs was not well-matched to assessment best practices or was not matched to the EISLPs’ gap areas in knowledge related to assessment of DLL toddlers. It is also possible that the independent t-test used to look for a potential relationship between CE courses and knowledge and practices was less sensitive to the potential relationship than were the correlational analyses used to examine other relationships in this study.

**Implications**

EISLPs’ belief systems related to assessing DLLs align with best practices. Further, they demonstrate robust knowledge related to select aspects of assessing DLLs. These findings suggest that undergraduate and graduate level preprofessional training programs are providing quality education related to broad aspects of best practices for assessing DLLs within EI. However, this study also revealed gaps in key aspects of knowledge related to cultural and linguistically responsive assessment practices. Accuracy of knowledge was negatively correlated with time since graduation, with EISLPs who had graduated more recently demonstrating more accurate content knowledge. Further, accuracy of knowledge related to linguistic influences on developmental expectations was higher than accuracy of knowledge related to cultural influences on language development. Finally, although knowledge of developmental expectations for DLLs was strong overall, nearly a quarter of EISLPs did not demonstrate accurate knowledge of semantic development.
Together, these findings suggest that CSD preprofessional training programs have increased the provision of quality education related to broad developmental expectations for young DLLs from a linguistic standpoint, but may need to consider continued improvement in the quality of education related to the cultural influences on language development. Programs may also need to continue their efforts to increase student knowledge related to developmental expectations for DLL toddlers. This aligns with current research that documents the gap areas which continue to exist within CSD graduate program curriculums (Huerta, 2021). Increasing the depth of content related to cultural and linguistic influences on language development would carry the additional benefit of aligning with CAA’s elaborated standards related to diversity, equity and inclusion (CAA, 2023).

This study also revealed substantial gaps in implementation of best practices for assessing DLLs. Implementation of best practices for assessing DLLs was related to the percentage of DLLs on an EI SLP’s caseload. This finding suggests that SLPs working in early intervention programs with higher caseloads of DLLs may face fewer system-level barriers in implementation of best practices. Therefore, it is essential that the entire SLP profession as a whole advocates for reduction in systems-level barriers across all practice settings. Barrier reduction is critical across all contexts but may be especially essential for EI SLPs who are practicing in locations with fewer DLLs. Specifically, EI SLPs may require access to robust and easily accessible information regarding linguistic and cultural influences across the spectrum of languages and cultures within the EI population, access to interpreters, and access to culturally and linguistically responsive EI assessment tools. CSD preprofessional training programs may also consider increasing the degree to which they adequately prepare students to implement best
practices within real-world setting constraints given the complexity of working with an increasingly diverse population within a variety of sociocultural contexts.

Finally, given that EI SLP knowledge was also related to sociolinguistic context of practices and percentage of DLLs on their caseload, it is theorized that repeated, authentic experience interacting with individuals from diverse backgrounds and implementing assessments with DLLs is a driving force in both accurate knowledge and implementation of best practices. Toward this end, CSD preprofessional training programs are urged to consider increasing student opportunities for gaining in-depth experiences assessing DLLs in either simulated or authentic practice settings.

**Limitations**

The primary limitations of this study are the small sample size and use of survey design. Although the participant demographics were representative of the profession as a whole and participants were from across the nation, the number of participants limits the potential for generalization. This survey research also relied on self-report, which may be unreliable if participants provided socially desirable, rather than authentic, responses. Further, participants were required to answer a relatively complex, open-ended question at the outset of the study. Open-ended questions require more time and the initial question presented in this study could have been particularly challenging for those who had less robust knowledge related to the assessment of linguistically diverse children. Therefore, the EI SLPs who chose to complete this survey after viewing this question may have been more interested in or knowledgeable about this topic. This may have led to a biased sample with overrepresentation of EI SLPs with more knowledge or interest in the topic. This may have over-represented EI SLP actual practices and knowledge.
Conversely, the open-ended nature of the first question may have limited the depth of information provided by EI SLPs. Because participants were required to type their answer, their answers may have been limited by the extent to which they were willing to invest time in typing and completing the survey. This likely limited the information they provided and may have under-represented their actual practices.

An additional limitation relates to the knowledge questions presented in this study. The amount of information gathered by these questions may not reflect the full depth of EI SLP knowledge due to both the limited number of questions and the fact the questions were closed-ended. This limitation is especially true of the questions related to cultural influences on language development. Culture is nuanced and complex and the influences of culture on language development cannot be adequately captured in a limited number of close-ended questions. Future research utilizing in-depth interviews and focus groups as well as observation of actual assessment practices would yield more accurate information related to SLP beliefs, knowledge, and practices.

Further limitations relate to the nature of the statistical analyses completed to analyze relationships between SLP backgrounds and experiences and their knowledge and practices. Although these analyses revealed significant relationships, the cause of these relationships cannot be determined based on the correlational nature of the analyses. It is possible that extraneous confounding variables, which were not accounted for within the analyses, influence the relationships. The nature of these analyses limits the degree to which causal inferences can be made. For example, it is possible that the relationship between time since graduation and EI knowledge is not related to higher quality preprofessional training program preparation but is instead related to the increased diversity within the EI population which provides more
opportunities for EI SLPs to assess DLL toddlers, which then increases their knowledge of best practices. Further, the analyses did not account for the potential interaction between the variables. Future research could include designs with more powerful statistical analyses which account for and control for these confounding variables.

In a similar vein, this study does not provide information related to the complexity of providing EI services within authentic settings. It is very likely that systems-level barriers influence implementation of best practices. However, this study did not include exploration of these barriers. Further research including in-depth interviews and/or focus groups with EI teams would add more nuanced information to better understand this complex problem. Additionally, the content of this survey was related directly to Spanish-English DLLs and the survey was completed by EI SLPs only. In actual practices, EI assessments include entire teams of professionals from a variety of disciplines and these assessments are completed with children from a wide variety of cultural and linguistic backgrounds. Future research could explore the nature of assessment knowledge and practices across disciplines and with children from a variety of diverse backgrounds.

Finally, this study documents the current status of EI SLPs’ beliefs, knowledge, and practices and provides tentative information informing potential solutions designed to mitigate the problem. However, these potential interventions are purely hypothetical at this point. Future research utilizing built on the principles of implementation science and using experimental design could document the results of interventions designed to increase EI SLPs knowledge and practices within real-world constraints.

Despite these limitations, the present study is first to explore the factors that may contribute to EI SLP beliefs, knowledge, and practices related to assessing DLLs. It provides a
crucial foundation for future research designed to better understand and ultimately influence the factors that drive increased EI SLP knowledge and improved use of best practices within EI systems.

**Conclusion**

Previous research has demonstrated gaps between SLP beliefs in use of best practices for assessing dual-language learners and their actual practices within real world constraints (Marinova-Todd, et al., 2016). Researchers have also found SLPs to report low self-efficacy for assessing DLLs (Santhanam & Parveen, 2018). Prior research has demonstrated relationships between SLP self-efficacy and age, with older SLPs demonstrating less confidence around cultural/linguistic proficiency (Caesar, 2013). Other researchers have demonstrated that SLPs with more experience use select aspects of best practices more frequently than SLPs with less experience (Caesar and Kohler, 2007) and that SLPs who work in sociolinguistic contexts where bilingualism is more prevalent and supported demonstrate more frequency use of best practices (Marinova-Todd et al., 2016). To date, no research studies have examined the relationship between EI SLPs’ beliefs, knowledge, and practices and their background, experiences, and current practice settings.

This current study demonstrates a clear gap between EI SLPs’ beliefs related to best practices for assessing DLLs and their actual use of these practices within early intervention programs. Results of this study also suggest gaps in the knowledge critical to executing and interpreting culturally and linguistically responsive assessments for DLLs referred to EI programs. EI SLPs practicing in counties with higher percentages of bilingual speakers and SLPs who reported higher percentages of DLLs on their EI caseloads appear to have more robust knowledge related to assessing DLLs. SLPS who have more DLLs on their caseload also appear
to more frequently use best practices when assessing DLLs referred to their early intervention programs. These relationships suggest that EI SLPs working in programs supportive of DLLs may face fewer barriers in use of best practices and/or that experience working with and interacting with DLLs may lead to more accurate knowledge and more frequent use of best practices. Further, EI SLPs who have graduated more recently appear to have more accurate knowledge related to assessing DLLs within EI programs, suggesting that they are receiving more robust coverage of this content in their preprofessional training programs. However, time since graduation was not related to use of best practices, again suggesting systems-level barriers to implementation of best practices within early intervention.

Given the findings of this study, CSD training programs can consider analyzing their curriculum related to the provision of culturally and linguistically appropriate EI assessments and can consider deepening coverage of content related to developmental expectations for DLLs, cultural and linguistic influences on language development for children under the age of three, and cultural variations within family systems. CSD training programs may also wish to consider increasing the frequency with which graduate students are involved in simulated or authentic experiences in assessing DLLs within EI. CSD students would also likely benefit from explicit discussion and practice related to implementation of best practices within real-world practice constraints across varied sociolinguistic contexts. Finally, the SLP profession is called to advocate for increased knowledge related to assessing DLLs as well as removal of systems-level barriers to implementation of best practices, particularly for EI SLPs practicing in settings with less diversity in culture and language and/or EI programs that are less supportive of DLLs. Future research may include studies designed to look at the interrelationships between variables, may deeply explore the complexity of EI services provision within real-world contexts through
the use of interviews, focus groups, and observations, and may investigate the beliefs, knowledge, and practices of other professionals within EI teams with children and with children from a variety of cultural and linguistic backgrounds.
Chapter 4:

EARLY INTERVENTION SPEECH-LANGUAGE PATHOLOGISTS’ PERCEPTIONS OF FACILITATORS AND BARRIERS TO CULTURALLY AND LINGUISTICALLY RESPONSIVE ASSESSMENT PRACTICES

Abstract: Early intervention (EI) speech-language pathologists (SLPs) must ensure that the services they provide are both culturally and linguistically responsive. Previous research has documented both individual level and systems level barriers to the provision of culturally and linguistically responsive assessments across a variety of settings. This current study sought to document EI SLPs’ perceptions of the factors that facilitate and hinder their ability to engage in high quality, culturally and linguistically responsive assessment practices for children referred to their EI programs. A total of 134 EI SLPs completed a survey in which they were asked to describe barriers and facilitators of culturally and linguistically responsive assessment practices within their early intervention program. Results revealed the interconnected nature of facilitators and barriers such as access to and quality of interpretation, access to materials and assessments, location of service delivery, policies governing assessment practices, composition of the EI team, and SLP characteristics.

As the United States population grows more diverse, so does the population served by speech-language pathologists (SLPs). Within the early intervention (EI) setting specifically, children come from a wide variety of cultural and linguistic backgrounds, with nearly 50% of children served by EI SLPs identifying as American Indian/Alaska Native, Asian, Black/African American, Hispanic/Latino, or Native Hawaiian/Pacific Islander (U.S. Department of Education, 2019) and at least 25% of children speaking a language other than English at home (Annie Casey Foundation, 2022). Conversely, the field of speech-language pathology is overwhelmingly comprised of White, monolingual English-speaking professionals (ASHA, 2020).

Especially given the startling gap in diversity between the early intervention population and the SLPs who serve these children, it is critical that EI SLPs provide culturally and
linguistically responsive services to all children regardless of backgrounds. High quality early intervention practices begin with culturally and linguistically responsive assessment and evaluation practices. EI SLPs must ensure that their assessments are both culturally responsive, in that they consider a child and family’s background, and linguistically responsive, in that they include assessment of a child’s home language and all languages a child is exposed to (ASHA, n.d.; Larson et al., 2020; U.S. Department of Education [USDOE] 2018). Evaluation and assessment are technically distinct terms, with evaluation procedures being used to ensure a child meets eligibility and assessment procedures being implemented to identify a child’s needs and strengths and to identify needed supports. Within early intervention, however, evaluation and assessment are often intertwined processes. Therefore, the word “assessment” will be used to capture all evaluation and assessment procedures used with early intervention.

**Culturally and Linguistically Responsive Assessments**

High quality assessment practices for children learning more than one language as they develop their language system, also called dual language learners (DLLs), must be designed to account for the cultural and linguistic influences on a child’s language system. Language development in DLLs is influenced by the quantity of input in each language they hear as well as the quality of that language input (Hoff & Core, 2015; Unsworth, 2016). Further, language, play, pragmatic, and gesture development are all influenced by the particular culture within which a child is immersed (Ball, 2007; Guiberson, 2016; Hwa-Froelich, 2005; Johnston & Wong, 2002). To accurately assess DLL children referred to early intervention programs and avoid both under- and over-diagnoses, EI SLPs must use multi-faceted assessment procedures which allow them to account for these linguistic and cultural variations on a DLL’s developing language system (ASHA, n.d.; Castilla-Earls, et al., 2020).
Specifically, EI SLPs should seek to understand a child’s developmental, medical, family, and language history (ASHA, n.d.; Castilla-Earls et al., 2020), should inquire into a parent’s level of concern about their child (Castilla-Earls et al., 2020; Crowley, 2014), should utilize ethnographic interviewing to understand the child’s family and culture (Peredo, 2016), should gather and analyze a bilingual communication and language sample (Castilla Earls et al., 2020; Guiberson, 2016), should uses criterion-based or norm-referenced assessments appropriate for DLLs (Castilla-Earls et al., 2020; Hoff & Core, 2015), and should employ dynamic assessment procedures designed to further identify actual language disorders (Castilla-Earls et al., 2020; Crowley, 2016).

Research-to-Practice Gap

Despite the compelling need for culturally and linguistically responsive EI assessments, gaps in actual implementation of such practices remain. Children from non-White and non-English speaking backgrounds are less likely to receive EI services (Magnussen et al., 2016; McManus et al., 2020; Morgan et al., 2016) and families from traditionally marginalized backgrounds have reported that EI SLPs do not always support their family’s home language and may not take their family’s culture into consideration (Nunez & Hughes, 2018; Yu, 2013).

Further, previous research has documented a gap in known best practices for assessing DLLs and actual implementation of such practices. SLPs across a wide range of settings report using English-only standardized assessments with DLLs (Caesar & Kohler, 2007; Marinova-Todd et al., 2016; McLeod & Baker, 2014; Skahan, 2007; Williams & McLeod, 2012). Researchers have also found that SLPs rarely report using dynamic assessment when assessing DLLs (Caesar & Kohler, 2007).
The cause of the persistent gap between best practices and actual implementation may be caused by a multitude of factors. SLPs may lack the knowledge and skills required to implement best practices for assessing DLLs. Indeed, SLPs as a whole report low self-efficacy for serving culturally and linguistically diverse populations, across a variety of ages and settings (Santhanam & Parveen, 2018). EI SLPs, specifically, report that their graduate schools did not prepare them well to work with culturally and linguistically diverse populations (Caesar, 2013) and indicate they especially lack knowledge related to communication development in infants and toddlers learning more than one language and knowledge related to cultural influences on children and family systems (Caesar, 2020).

**Systems-Level Barriers**

Additional factors beyond an EI SLP’s knowledge and skills may further impact implementation of culturally and linguistically responsive assessment. Interestingly, recent research has demonstrated a gap between EI SLPs beliefs about best practices for assessing DLLs and their actual practices for assessing DLLs within real-world practice settings. Marinova-Todd et al., (2016) found that school-based professionals indicated that they believed a DLL child should be assessed in their home language but tended to actually assess children in English only. This documented gap between SLP beliefs and their actual practices suggests the presence of systems-level barriers.

Indeed, although federal policies require EI assessments to be completed in a child’s home language (USDOE, 2018), interdisciplinary EI assessment practices may limit the time SLPs are allotted to complete all aspects of a high-quality assessment for DLLs. Additionally, funding for EI services may be based on the clinician-driven, norm-referenced assessments guided by the biomedical model, which may limit the use of other forms of assessment known to
be conducive to high quality assessment practices. EI SLPs may also find that families of DLLs may have the desire for their child to learn English, may demonstrate ambivalence toward or concern regarding their use of their home language (Yu, 2013; Soto-Boykin, 2021) and may request that assessments be completed in English only (Williams & McLeod, 2012).

Additionally, SLPs may lack access to the tools and resources they need to complete culturally and linguistically responsive assessments. A limited number of studies have examined the specific barriers to the provision of culturally and linguistically responsive services as reported by SLPs. Kritikos (2003) surveyed SLPs across a variety of settings. The purpose of the survey was to understand SLPs’ beliefs about language assessments for bicultural/bilingual clients, as well as to document SLP self-efficacy for assessing bicultural/bilingual clients. As part of the survey used within this study, participants were asked to select from a list of predetermined barriers for assessing bicultural/bilingual individuals. The barriers which were most frequently selected by these SLPs included: lack of norms and standardized assessment tools for bilingual/bilingual clients, lack of bilingual SLPs who speak the child’s language, and lack of availability of interpreters.

Guiberson & Atkins (2012) completed a survey of SLPs working in Colorado. All the SLPs who completed the survey worked with children; the majority worked with children in schools, while a minority of participants worked in other settings including university clinics, early intervention programs, and private practice. Guiberson & Atkin’s survey was designed to understand the perspective of SLPs related to assessing DLLs. As part of the survey, participants were asked to select barriers from a list developed by the researchers. The most frequently selected barriers included: The SLP doesn’t speak the child’s language, lack of knowledge
related to assessing DLLs, lack of assessment tools for DLLs, lack of research and materials for working with DLLs, and lack of professionals who speak the child’s home language.

Santhanam and Parveen (2018) reviewed and summarized 13 articles which had been published over the past 25 years and examined SLP self-efficacy for the provision of culturally and linguistically responsive service delivery. As part of their summary, Santhanam and Parveen summarized the barriers listed by SLPs attempting to implement culturally and linguistically responsive services. The most frequently identified barriers included: lack of nonbiased assessment tools, lack of access to interpreters, lack of knowledge related to culture, language, and DLL norms, lack of allied professionals who spoke the child’s language, and a lack of bilingual SLPs.

**Purpose of Research Study**

Despite what is known about the potential barriers to the provision of high-quality services for individuals from culturally and linguistically diverse backgrounds, early intervention SLPs’ perspectives on the barriers to and facilitators to culturally and linguistically responsive assessments has not yet been specifically studied. Prior studies investigating barriers to assessing DLLs have been completed in a variety of settings but have not focused specifically on SLPs who work within early intervention settings. Further, previous studies have focused on barriers only, without inquiring into facilitators of assessment for DLLs. Although these are clearly interrelated, analyzing the problem through the lens of facilitating factors may add additional depth and clarity into solutions for the research-to-practice gap. Furthermore, prior research has predominantly been conducted using close-ended survey design, with SLPs choosing from a finite list of close-ended, researcher selected barriers. Open-ended questions may yield responses
unique to the early intervention setting and results from open-ended questions analyzed inductively will provide data that is grounded directly in the perspectives of EI SLPs.

The purpose of this study is to understand EI SLPs’ perspectives related to the barriers to and facilitators of culturally and linguistically responsive assessment practices within early intervention. The specific question that guides this research is: What are EI SLPs’ perceptions of the barriers and facilitators influencing the provision of culturally and linguistically responsive assessment practices for DLL children referred to EI programs?

**Methods**

A survey was utilized to gather information related to early intervention SLPs’ perceptions of the barriers to and facilitators of culturally and linguistically responsive assessment practices. The survey items used to answer the research questions for this current study were part of a larger survey comprised of six parts. The entire survey was reviewed by both six practicing early intervention SLPs and three Communication Sciences and Disorders (CSD) faculty with expertise in the assessment of DLLs. Feedback provided by the practicing EI SLPs and CSD faculty members was integrated into the final survey, which was administered via Qualtrics and can be found in Appendix A.

Data from part 6 of the survey were used to answer the specific research questions posed in this study. To gather the data, SLPs were asked two questions to understand their perceptions of the barriers to and facilitators of culturally and linguistically responsive assessments within their early intervention program. Specifically, they were asked the following two questions:

1. Thinking about your early intervention program, what helps you to provide high-quality culturally and linguistically responsive assessments/evaluations to dual language learners referred to your program?
2. Thinking about your early intervention program, what limits your ability to provide high-quality culturally and linguistically responsive assessments/evaluations to dual language learners referred to your program?

Participants

The procedures for this survey were approved by the Northern Illinois University’s Institutional Review Board (IRB). Participants were recruited in two different rounds. Initially, the primary researcher reached out to state-level organizations and requested that the survey be distributed to SLPs within the state via e-mail and social media. EI SLPs who completed the survey during this initial round of recruitment were provided with a $10.00 incentive. This round of recruitment was ended prior to reaching the targeted participant responses due to fraudulent responses which appeared to be an attempt to obtain the incentive. After consultation with NIU’s IRB, the original IRB approval was amended, the incentive was modified, and a new Qualtrics link with the same survey was created. A second round of recruitment was completed in which the primary researcher contacted state-level early intervention programs only. In this round of recruitment, EI SLPs who completed the survey were given the opportunity to be entered into a drawing for one of three early intervention resource books.

Participants who responded to the recruitment request were required to answer two screening questions to verify that they were licensed SLPs who currently worked in early intervention. Fraudulent and incomplete responses were eliminated from data analysis. Responses were considered incomplete if the participant only answered the first two questions of the survey, which were designed to make sure the participant met the criteria for the study. Responses were considered fraudulent if the answer to the first open-ended question was nonsensical (e.g., “what is life” or “what is your name”) or were portions of the survey which
appeared to have been copied into the answer (“Luis is a 28-month-old child who lives in a
Spanish-English bilingual home”).

Given the nature of the recruitment process, it is not known how many EI SLPs received
the request to complete the survey. In the initial round of recruitment, 55 valid responses were
completed. 2,253 responses were either not completed past the first two eligibility questions or
contained answers deemed to be fraudulent. In the second round of recruitment, where there
were no fraudulent responses, 293 participants opened the survey and completed the first two
eligibility questions while 94 participants (32%) continued on to complete the survey past those
two initial eligibility questions. Of these 149 valid responses, another 15 were eliminated
because the SLP indicated within the first open-ended question answer that they did not compete
assessments within early intervention and thus could not answer the questions. Seven of those
participants did not fully complete the portions of the survey required for this current study and
these responses were excluded. This resulted in a final number of 127 survey responses analyzed
to answer the questions posed in this research study. Participant demographics for these 127 EI
SLPs are summarized in Table 20.

Data Analysis

Data were analyzed using inductive coding procedures as described by Merriam and
Tisdell (2016). In the initial stages of coding, segments of responses were identified as
meaningful. Open coding was used to assign initial codes to each segment. As themes began to
emerge from these initial codes, axial coding was utilized to generate broader categories. Open
coding continued, and comparisons were continually made between the open codes and the
emerging categories. Subcategories were also generated, using the same process. Codes,
## EI SLP Participant Demographics and Backgrounds

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
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<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Female</td>
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<td>0%</td>
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<tr>
<td><strong>Race</strong></td>
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<td></td>
</tr>
<tr>
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<td>0%</td>
</tr>
<tr>
<td>Asian</td>
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<td>2%</td>
</tr>
<tr>
<td>Black or African American</td>
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<td>2%</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
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<td>0%</td>
</tr>
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<td>2%</td>
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<tr>
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<td>2%</td>
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<td><strong>Highest Degree Earned</strong></td>
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<tr>
<td>PhD</td>
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</tr>
<tr>
<td><strong>Years since Master’s Degree</strong></td>
<td></td>
<td></td>
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<td>≤ 10 years</td>
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<td>&gt; 10 years</td>
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<td>43%</td>
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<tr>
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</tr>
<tr>
<td><strong>% Caseload DLL</strong></td>
<td></td>
<td></td>
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<tr>
<td>≤ 10%</td>
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<td>11-20%</td>
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<td>20%</td>
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<tr>
<td>21-30</td>
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<td>13%</td>
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<tr>
<td>&gt; 30%</td>
<td>37</td>
<td>30%</td>
</tr>
<tr>
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<td>6%</td>
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<td><strong>Region of Country</strong></td>
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<tr>
<td>Midwest</td>
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<td>Northeast</td>
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<tr>
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<td>35%</td>
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<tr>
<td>West</td>
<td>32</td>
<td>25%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>2</td>
<td>1%</td>
</tr>
</tbody>
</table>
categories, and subcategories were revised and operationally defined during this process, until a final set of codes, categories, and subcategories was developed. The finalized categories met the criteria described by Merriam & Tisdell (2016): they were exhaustive, mutually exclusive, sensitive to the data, and conceptually congruent. Once the final set of codes, categories, and subcategories was established, each segment was re-coded as needed and sorted into the appropriate category and subcategory. All coding was completed by the first author. A reliability check was completed by a trained research assistant. The research assistant coded thirteen (10%) randomly selected participant responses. The percentage agreement between the research assistant and the primary researcher’s assigned codes was calculated and resulted in 85% agreement across the 34 codes and subcategories used within those 13 responses and 97% agreement in the nine categories used across those 13 responses.

Results

Barriers

The finalized categories and subcategories representing SLPs’ perceptions of barriers to the provision of culturally and linguistically responsive assessment services are presented in Figure 2.

Early intervention SLPs frequently (n=46) described difficulties related to interpreters as a barrier to culturally and linguistically responsive assessment practices. Subcategories were related to interpreter availability, modality of interpretation, and lack of interpreter training. SLPs explained that interpreter availability acted as a barrier in a variety of ways. They
described general difficulty with access to interpreters, listing barriers such as “lack of availability for interpreters” and “limited access to interpreters.” One SLP explained that:

It is really challenging to get interpreter services and if we can, it’s usually only for a few minutes per session or only once in a while. I have to take it upon myself to learn the cultures of families I serve and do my best to provide services in English and the small amount of Spanish I can speak.

A number of SLPs also commented on specific difficulty with scheduling, explaining that they had difficulty finding interpreters who were available at the same time as the family. Some SLPs also noted that they had difficulty finding interpreters for families given the specific language or dialect spoken by the child and family. For example, one SLP noted, “We have access to interpreters and materials for our English and Spanish children but any other languages

Figure 2: Barriers to cultural and linguistically responsive assessment practices.
we do not have access to.” Another SLP explained, “sometimes refugee families come from an area and we do not have interpreters available to speak the exact dialect they use” while another explained that “I think we do okay with Spanish and Hmong families due to having them on a regular basis, but it is difficult for other languages as we do not have the experience with those cultures or an in-person translator.”

EI SLPs also commented on the relative value of the specific modality of interpretation services. One SLP noted that “the translator via computer is not effective” while another participant explained:

A lot of scheduling and parent communication is done through our personal phones and if a parent only speaks the home language and is not fluent in English, translator apps are how we have to interpret text messages, which is not always reliable.

EI SLPs also listed barriers such as “access to the language line only” and explained that “telephone translation services are wonderful, but they are expensive and occasionally there are tech issues.” Some of the participants expressed a clear preference for in person interpreters, with one participant sharing that “the language line can be tricky – more in person interpreters would be very helpful.”

Finally, EI SLPs commented on the quality of interpreters as a barrier. EI SLPs explained that they encountered a “mixed quality of interpreters,” and explained that they faced a “lack of qualified interpreters or speakers of the child’s home language who are able to be neutral during the interactions.” Some SLPs commented specifically on the lack of interpreters who understood EI practices, with one SLP listing a barrier of “relying on translators who are not familiar with early intervention practices” and another describing the following as a barrier:

Having a competent interpreter familiar with early childhood (outside of Spanish). I see a notable difference when I’m working with an interpreter that knows the lingo and knows
how to phrase things to parents and talk to children, versus those that are just competent in the languages with adults.

**Lack of Access to Materials and Information**

A substantial number \((n=44)\) of EI SLPs listed lack of access to materials and information as barriers to the provision of culturally and linguistically responsive assessments for DLLs. Specific subcategories related to lack of access to assessment for DLLs, lack of resources for DLLs, and lack of training and information. Many SLPs listed a *lack of access to assessments for the child’s home language/DLLs* as a barrier. They commented on access assessments for the child’s home language/DLLs in general, explaining that “we currently don’t have access to assessments created for dual language learners” and “we do not have assessments in any language other than English.” Many participants also specifically mentioned their need for standardized, norm-referenced assessments for DLLs, with one participant explaining that there were “no standardized assessments available for the wide variety of languages.” Participants also commented on the lack of assessment tools in relation to the quality of assessment practices:

> Within the general early intervention process, the assessment tools aren’t always conducive to multiple languages. Our current evaluation tool is for English only; however, we make sure to ask those questions for both English and the family’s home language. This may make the results less valid but it seems to be the only way we can assess a child.

EI SLPs also listed the *lack of materials for serving DLLs* in general, noting barriers such as “lack of resources and materials” and “not having enough resources at times for the wide variety of cultures and languages represented here.” Finally, they explained that they did not have *access to training and information* across a diversity of cultures and languages. For example, one participant listed “access to developmental norms for bilingual populations” as a barrier, another SLP listed, “lack of EBP in this topic area,” while another participant explained
that they were “not able to find information regarding the language” and another SLP noted “we
don’t receive much training on different cultures.”

Organizational Barriers

A number (n = 39) of SLPs’ comments fell into the category of organizational-level
barriers, with subcategories of colleagues, organizational limits, and organizational policies.
Within the subcategory of colleagues, many EI SLPs commented that their teams lacked
bilingual team members or bilingual SLPs. For example, one participant listed a barrier as the
“limited number of people on my team who speak languages other than English, another listed
“limited access to bilingual staff or support”, and another participant noted that, “the primary
DLL languages in my area are Spanish and Hmong, and no one on the team is fluent in either of
these languages.” SLPs also noted specific characteristics of their coworkers, explaining that
“some lack cultural humility for certain populations by coworkers” and noting that that “many of
our staff and colleagues do not have training in this area.”

Participants also listed limits specific to their organization as a barrier, explaining that
they don’t have enough “time to get, analyze, and report on results.” One participant explained
they need:

Time. We need at least two hours. We need a lot of time to understand what the child is
doing, analyze the patterns if they are talking. To determine what are the errors and what
types of languages they are using.

Other organizational limits mentioned by EI SLPs included limited budgets for interpretation
services and limits on the time they could spend on any one case due to high caseloads. SLPs
also mentioned rules surrounding when they could use interpreters, with one SLP explaining
that: “For families where one parent speaks English, I've gotten push back from both people in
my agency and the parents themselves about scheduling an interpreter.”
Further, many participants listed organizational-level *policies* as a major barrier to implementation of culturally and linguistically responsive assessment practices, frequently explaining that they were required by their state or their agency to complete assessments in English or use norm-referenced assessments. For example, one participant explained that:

A huge barrier we face are often systems that still require a standardized score to qualify a student when there aren’t sufficient evaluation tools that have been standardized on the population I am serving. These reports are often much more in depth descriptive and draw on a clinician’s clinical judgement and do not fit into a nice neat little score.

Another SLP explained the following as a barrier:

[A barrier is] having to use standardized assessments that are normed off of an English-speaking population/English developmental milestone to qualify a child. We might use the standardized assessments to qualify a child for English language skills when they demonstrate age-appropriate language in their home language.

**Location**

EI SLPs (*n* = 14) commented specifically on their location as it related to barriers to providing culturally and linguistically responsive assessment practices, with subcategories related to resources and exposure to DLLs. Participants discussed how rural locations specifically limited their *resources*, including assessment tools, interpreters, and access to training. One participant noted that “We are in a very rural area and access to interpreters is very limited,” and other noted that “the opportunities for continuing education in my community/state that address DLLs are very slim to none.” EI SLPs also explained how their rural location limited their *exposure to DLLs* and how this impacted their teams’ knowledge, noting that “Our extremely rural location severely limits our exposure to dual language learners and therefore does not promote an environment in which we “keep up” with current evaluations and protocols to address delays in DLLs.” Conversely, EI SLPs also commented on the growing diversity in
their area and listed this as a barrier as well, noting that they had difficulty accessing resources for each of the diverse languages and cultures in their area.

**SLP Characteristics**

SLPs (n = 30) also listed their own characteristics as barriers, commenting on their knowledge, language, and experiences. SLPs frequently mentioned that they didn’t *speak the child’s home language*, such as one SLP who explained, “I don’t speak the language fluently as I would like in Spanish, but I do know words here and there” and another listing “my limited ability to speak another language fluently and/or understand another language spoken” as a primary barrier. SLPs also discussed their *knowledge and values*, with participants noting that have a “lack of knowledge of other languages” as well as a “lack of knowledge regarding all the cultures I come in contact with.” One SLP noted the need to avoid ethnocentrism, stating that “I know I come from a different culture and upbringing than some of the families I work with and I have to leave my judgement at the door when I work with a new family.” SLPs also explained that their own *lack of experience* impacted the quality of their assessments with DLLs. For example, one SLP described the following as a barrier: “My lack of experience. I have completed some assessments with DLLs in high school with the use of an interpreter. But that was many years ago and I would feel the need for further education before doing it again.”

**Assessment Process**

EI SLPs (n =15) spoke to the challenge of the process of assessing DLLs when documenting barriers, with subcategories related to the complexity of the process, the difficulty of communicating through interpreters and the challenge of working with families. EI SLPs described the *complexity of the process* that accompanies assessing DLLs within early intervention. For example, they explained that the process for qualifying a child is interrelated
with other variables. One participant noted that: “We also need to recognize many immigrant communities are marginalized due to racism, thus may be more likely to qualify for services due to reduced access to resources, not to being bilingual.” EI SLPs also discussed the challenge of communicating through an interpreter, with one participant explaining that “the use of interpreters is awkward and often adds stress to the process” and another participant sharing that the “interpreter takes away from the ease of the assessment process.” In a similar vein, participants explained that they sometimes perceive barriers that relate to the family. EI SLPs explained they may have difficulty connecting with the family, especially if they have different cultural beliefs. For example, one SLP noted that barriers arise because “cultural differences affect how a parent interacts with their child”.

**Facilitators**

The finalized categories and subcategories representing SLP’s perceptions of barriers to the provision of culturally and linguistically responsive assessment services are presented in Figure 3.

**Interpreters**

A substantial portion of early intervention SLPs (n = 51) included comments related to interpreters as a facilitator to culturally and linguistically responsive assessment practices. Many SLPs listed easy and consistent access to interpreters as one of the facilitators of culturally and linguistically responsive assessment for DLLs. A subcategory related to interpretation quality emerged, with EI SLPs commenting on the skill level of an interpreter related specifically to early intervention practices. One participant explained, “We do have access to interpreters, who are trained in working with children and their families. This is very helpful in being able to provide assessments and services in the family’s home language,” while another participant
commented that they benefitted from “a translator who knows the primary coach approach model who is willing to interpret all interactions in the manner they are inflected” and another explained that they valued a “good relationship with ongoing interpreters who are familiar with our program and my specific style of parental/child interaction.” EI SLPs also explained the value of interpreters who were “flexible in sessions and evaluations in order to collect the most accurate information” and that the value of interpreters extended beyond language and into aspects of culture: “My interpreters are also able to provide me with cultural information to guide my interview questions and make relevant observations for the assessment.”

A subcategory related to the modality of interpretation emerged, as SLPs discussed the value of in person and Zoom interpretation services, with one participant noting that “In person
is ideal when possible. I’ve also really liked using Zoom for interpreters which is what we’ve been doing since COVID - having them watch over video makes it much easier than when we used to have them join over the phone” and another explaining they valued “Multiple forms of interpreters (on the phone, in person, or on video). This is helpful and insures we are providing high-quality culturally and linguistically responsive assessments and evaluations.”

Access

EI SLPs frequently (n = 30) listed access to resources as a facilitator, with subcategories emerging around access to assessment tools appropriate for DLLs, access to education and information, and access to materials. Participants commented on access to assessment for DLLs with comments such as, “we try to have assessment tools in the home language and English,” and “having access to bilingual and no-English tests on hand is helpful.” EI SLPs also noted that “access to research” and “continuing education opportunities that directly address dual language learners” were facilitators, as was access to materials such as handouts in both of a child’s language. A number of participants also noted that “building relationships within the language community that the child lives in” was a facilitator of access to information about the child’s language and culture.

Organizational Support

The theme of organizational support was represented in a substantial number of EI SLPs comments (n = 45), with subthemes related to the provision of resources and education, early intervention practices, and assessment policies emerging. EI SLPs indicated they valued the resources and continuing education provided by the organizations for which they worked, with one participant explaining that their organization, “collects resources and insights on
populations” and another noting that “we have had many in-services about cultural norms and how to eliminate cultural bias.”

Participants also noted early intervention practices such as coaching, reflective questions, reflective practices, family-centered practices, and routine-based interviews as facilitative to culturally and linguistically responsive assessment practices. Finally, many participants expressed that flexibility in assessment policies operated as a facilitator, specifically noting their ability to use parent interview, informal assessment, and informed clinical opinion to assess and qualify children for services. For example, one SLP wrote that “it’s helpful that early support can use parent report and informed clinical opinion to inform eligibility/service decisions, which helps me avoid having to use standardized and other tools designed for monolingual English speakers.” Another explained, “we also are able to qualify based on clinical judgement and not strictly on standardized scores” and another commented that they valued “the ability to use whatever assessments I feel are appropriate and not being locked into a specific list of assessments.”

Colleagues

EI SLPs commented frequently (n = 31) that their colleagues were facilitators of culturally and linguistically responsive assessment practices. Within this category, the subcategories of bicultural/bilingual colleagues, characteristics of colleagues, and the value of the teaming process emerged. Bilingual and bicultural colleagues were viewed as valuable on a team, with EI SLPs mentioning bilingual and bicultural colleagues who operated in a variety of roles within a team: program leads, program staff, service coordinators, teachers, and SLPs. One SLP described the following as a facilitator: “Family service coordinators who are from the same cultural background as my clients. They often have really valuable insights,” while another wrote
that “having bilingual therapists and providers is WAY helpful. Having those providers is way better than having to use interpreters.” Two other EI SLPs explained:

We have both bilingual Family Resource Coordinators and bilingual SLPs. If ever we don't have the skills necessary to appropriately evaluate a child, we can go to a colleague for assistance. I personally really like being able to ask about specific cultural differences that I may notice.

EI SLPs also noted that specific characteristics of their team members made the teaming process more culturally responsive. For example, one EI SLP wrote that they worked with “a team that highly values equitable, accessible service provision,” while another explained that “the overall team’s input to generally understand a family’s culture without judgment helps to make the family comfortable in sharing information so we can provide appropriate therapy.”

Along these same lines, a participant explained:

Our ECI team consists of fluent bilingual clinicians, EIS specialists and additional bilingual therapists who are conscientious about, sensitive to, and aware of linguistically/culturally different populations and how to evaluate/assess the needs of this population.

Other EI SLPs spoke to the value of the teaming process in general as a facilitator to culturally and linguistically responsive practices, writing comments such as, “We have culturally sensitive discussions to discuss whether a child is having lower scores because of the DLL situation or whether we feel the scores are not related to being a DLL.”

SLP Characteristics

Many SLPs (n = 38) commented on various characteristics related to their own values and personality, knowledge, and experience as facilitators. They explained that they sought out knowledge, with one SLP explaining that they “research as much as they can about not just expressive and receptive language norms but also social/pragmatic. EI SLPs also identified other personality characteristics such as an open mind, being sensitive to a family’s needs, and being
sensitive to different ways of being in the world as valuable attributes that facilitated culturally and linguistically responsive assessments. Participants commented on their knowledge of culture and languages, noting that it was especially facilitative if they themselves knew the home language or at least had working knowledge of the child’s language. EI SLPs also explained that their own experiences operated as facilitators, with one SLP sharing that:

I use parent interview and observations, along with my continuing education and experiences - having previously worked in a culturally and linguistically diverse area with most of my caseload speaking over 30 different languages – to use informed clinical opinion.

**Assessment Process**

Finally, EI SLPs listed various components of the assessment process as facilitators. They listed both SLP-chosen aspects of the assessment process and family-related aspects of the assessment process. SLPs explained that the choices they made during assessment process facilitated culturally and linguistically responsive assessments. For example, one SLP wrote that: “I definitely rely on parent interview, input, and observations especially how they feel their child is developing as compared to children from their same community (perhaps cousins, church friends with the same language background etc.).” Another participant explained that, “the non-standardized informal or formal observations and parent interview are genuinely what give me the most precise information about the child and their language abilities” and another noted that language sampling and parent interview were facilitators.

Participants also expressed that certain family characteristics operated as facilitators. EI SLPs indicated that they valued parent involvement in the assessment process, explaining that it was helpful when parents administered portions of the assessment and that they appreciated it when families took the lead. Several EI SLPs noted they needed access to parents to complete
high quality assessments and found it easier to engage with families who spoke English, noting that “many of our families are originally from different countries and may speak another language at home but are comfortable in English.” Finally, EI SLPs valued “open communication between the family and IFSP team” and listed the idea of “parents as teachers” as a facilitator with one explaining that, “the families that I work with, they have taught me more over the years I have been practicing than any training I have attended.”

**Discussion**

The purpose of this study was to understand EI SLPs’ perspectives related to the barriers to and facilitators of culturally and linguistically responsive assessment practices within early intervention. EI SLPs from across the nation were surveyed and asked to describe the factors that helped them to provide high-quality culturally and linguistically responsive assessments to DLLs referred to their program as well as to explain what limited their ability to provide such services.

Results revealed that EI SLPs encounter a variety of interrelated facilitators and barriers as they attempt to implement culturally and linguistically responsive assessment practices for DLLs within their early intervention programs. Although EI SLPs within this study acknowledged their own characteristics, specific family characteristics, and the overall complexity of the assessment process as barriers and facilitators, they also reported barriers and facilitators which extended beyond these variables. These interrelated barriers and facilitators are captured in Figure 4.

The provision of culturally and linguistically responsive assessment practices in EI are shaped, in part, by the intersection between an SLP’s culture and language and the family’s culture and language (Guiberson & Atkins, 2012; Peredo 2016). EI SLPs in this current study described facilitators and barriers related to their ability to speak the child’s home language, the family’s ability to speak English, the SLP’s knowledge of the family’s language and culture, and the EI
SLP’s willingness and ability to understand and adapt to the family’s culture. These findings align with previous research studies assessing SLPs across a variety of settings who have reported barriers including lack of speaking a client’s language and their own lack of knowledge about various cultures and languages (Guiberson & Atkins, 2012; Kritikos, 2003; Santhanam & Parveen, 2018).

Conversely, the ability to interact successfully with children and families who speak other languages also likely influences an EI SLPs’ knowledge, skills, and values, as documented by EI SLPs’ descriptions of families as teachers and their comments related to the ways in which

Figure 4: Interrelated facilitators to and barriers of culturally and linguistically assessment practices.
their experiences with DLLs, or lack thereof, operated as facilitators and barriers of culturally and linguistically responsive assessment practices for DLLs. The location of service provision influences the DLL composition of an EI SLPs’ caseload and therefore operates as both a barrier and a facilitator.

Access to supports designed to increase an EI SLP’s ability to provide culturally and linguistically responsive assessments further influences successful implementation of assessment for DLLs in EI programs. Access to high quality interpretation, or lack thereof, was frequently described as a facilitator and barrier of culturally and linguistically responsive assessment practices. This is not surprising given that high quality assessment for DLLs requires an EI SLP to gather information from parents and children who speak another language (Castilla Earls et al., 2020). This finding matches previous literature suggesting that lack of access to interpretation services is a consistent and pervasive barrier to high quality assessment practices within the field of CSD (Guiberson & Atkins, 2012; Kritikos, 2003; Santhanam & Parveen, 2018).

It is interesting to note that EI SLPs specifically discussed the skill level of an interpreter as well as the modality of interpretation services as operating as both facilitators and barriers. Previous research has documented SLPs’ perceptions that lack of quality interpretation interferes with the assessment process (Santhanam & Parveen, 2018). This current study aligns with this prior research, extending it to the early intervention population where EI SLPs indicated that interpreter knowledge of family-centered practices and interpreter skill of being able to work with young children and families is facilitative of high quality assessment practices. Because use of interpretation brings additional complexity into an already nuanced process, culturally and linguistically responsive EI assessments are facilitated by access to interpreters who are flexible,
have knowledge of early intervention practices, and have the ability to work well with children. Further, this study adds insight related to multiple modalities of interpretation, with EI SLPs valuing in-person interpretation but acknowledging that new modalities, such as videoconferencing, can be beneficial as well.

EI SLPs also frequently discussed the immense value of teaming with bicultural/bilingual early intervention providers. This finding again matches previous research in which SLPs list the lack of bilingual SLPs and allied professionals who speak the client’s language as a barrier (Guiberson & Atkins, 2012; Santhanam & Parveen, 2018). In this current study, EI SLPs also commented on the ways in which early intervention practices as a whole were facilitative of high-quality assessment for DLLs. It is apparent that the provision of culturally and linguistically responsive assessment practices is strengthened by high-quality teaming practices within a diverse early intervention team. Unfortunately, many SLPs appear to lack access to bilingual/bicultural team members and high-quality interpretation services. Both the location of service provision and policies related to budgets and time appear to operate as facilitators and barriers to the potential for teaming with a diverse early intervention team and the accessibility of high-quality interpretation.

Not surprisingly, EI SLPs also described access to resources, or a lack thereof, as both a barrier and facilitator of culturally and linguistically responsive assessments. A strong theme within this current study was related to the availability of and access to culturally and linguistically responsive assessment tools across a variety of languages. Once again this matches known barriers within other SLP practice settings (Guiberson & Atkins, 2012; Kritikos, 2003; Santhanam & Parveen, 2018). The results of this study also revealed that the need for norm-referenced assessment tools in a child’s home language is influenced by the assessment policies
which govern assessments in an EI SLPs’ organization. Many EI SLPs described barriers related to assessment policies which required them to use specific, norm-referenced, English-only assessment tools. While they recognized the substantial limits of these tools, their organizations or states dictated the use and the SLPs were required to comply. Conversely, EI SLPs listed flexibility in choice of assessment tools as a facilitator, reporting that they valued the ability to use clinical opinion, informal assessment and parent report. The combination of a lack of culturally and linguistically responsive norm-referenced tests combined with organizational policies which require the use of such tests likely serves as a powerful barrier to high-quality assessment practices for DLLs within EI programs.

EI SLPs also reported access to other resources as a facilitator and lack of access to these resources as a barrier. Their comments highlighted the clear need for access to materials in a child’s home language, information about a child’s language, information about evidenced-based practices for assessing DLLs, research in the area of DLLs, and training/education on assessing DLLs. This finding matches previous research documenting that SLPs report a lack of appropriate materials for multiple languages, a lack of relevant research, and a lack of developmental norms for languages other than English as barriers to the provision of culturally and linguistically responsive service provision (Guiberson & Atkins, 2012; Kritikos, 2003; Santhanam & Parveen, 2018).

SLP responses in this current study indicated that access to resources is also influenced by policies and location of service provision. Organizations with supportive policies related to the provision of resources, including access to interpretation, training, and access to assessments and materials appropriate for DLLs, are facilitative of high-quality assessment practices. Further, when discussing how location operated as a barrier, EI SLPs explained that their rural locations
limited access to exposure to DLLs as well as their access to resources. SLPs did not discuss location when describing facilitators; however, they much more frequently and more thoroughly discussed the value of bilingual/bicultural team members. These participants discussed how their diverse teams shared resources, acted as sources of information for others on their team, and developed a culture that promoted culturally and linguistically responsive practices. SLPs who do not live in locations with a high number of bilingual speakers may not have access to these supportive teams, further increasing their need for resources which are, at the same time, less accessible to them.

**Implications**

Culturally and linguistically responsive early intervention assessments are both the responsibility of the EI SLPs and the organizations and the discipline within which the EI SLPs work. EI SLPs are responsible for their values and their knowledge base related to assessing DLLs. However, an EI SLPs’ ability to implement high quality assessment practices for DLLs are shaped by the facilitators and barriers within that SLPs’ specific sociolinguistic location as well as specific organizational-level policies.

Organizations that wish to facilitate culturally and linguistically responsive assessment practices should ensure easy, consistent access to high-quality, trained interpretations services which can be provided either in person or via videoconferencing. Organizational policies which dictate the use of specific assessment tools or require the use of norm-referenced assessments, are likely to act as strong barriers to the provision of culturally and linguistically responsive assessment practices. Conversely, organizations which support the use of informed clinical opinion, parent report, and informal assessment will facilitate the provision of high-quality
assessments. Organizational-level supports also include the time to team with bicultural/bilingual colleagues, time to complete lengthier assessments, access to high quality materials for DLLs, and the provision of training within the organization for all team members.

EI SLPs who work in rural locations may have reduced access to these organizational supports, especially as it relates to teaming with bilingual/bicultural team members and/or to accessing high-quality, trained interpreters who are familiar with working with children and families within the context of early intervention. Lack of access to these professionals may operate as a substantial barrier connected to other barriers, effectively limiting communication and relationship-building with families, limiting evidenced-based assessment practices such as assessment in a child’s home language, and limiting growth in an SLPs’ knowledge base as interpreters and bilingual/bicultural colleagues appear to act as cultural brokers. Solutions at a broader level may be required. For example, the American Speech-Language Hearing Association (ASHA) may act as a resource by organizing a central resource for high-quality, trained interpreters who may be accessed via videoconferencing or may organize central resources with high quality, nuanced information related to specific languages and cultures.

Furthermore, given the policies that appear to act as barriers to the implementation of culturally and linguistically responsive assessments, state-level SLP organizations may consider advocating for changes in policies that limit the implementation of best practices. Specifically, organizations can consider advocating against policies which require English-only assessment or norm-referenced assessments. At the same time, the field of CSD can continue to increase the options for culturally and linguistically appropriate, psychometrically sound, criterion-based or norm-referenced assessments for DLLs.
Additionally, CSD preprofessional programs may wish to consider a broad focus on the multitude of aspects which shape an EI SLPs knowledge base and ability to implement high quality assessment practices for DLLs. While foundational knowledge in the linguistic and cultural influences on a DLL’s developing language system is critical, future SLPs may need additional experiences to adequately prepare them to work with DLL populations in EI. Based on the EI SLPs reports that working with DLL children and their families operates as a facilitator, preprofessional students may benefit from authentic interactions with children and families from varied linguistic and cultural backgrounds. This may help to promote the deep knowledge and values needed to provide culturally and linguistically responsive assessments. Given the EI SLPs strong emphasis on the value of teaming with bicultural/bilingual SLPs, interdisciplinary training and experience, especially with bilingual/bicultural preprofessional from other disciplines, may provide helpful in promoting CSD student skills and knowledge. Further, students may need explicit instruction on options for working within the barriers that may exist, specially related to working within rural or nondiverse locations and related to working within programs and states with policies that run contrary to best practices for assessing DLLs.

Finally, individualized solutions designed to address the research-to-practice gap within early intervention assessment practices should be built within the systems in which these gaps are found. Given the complexity of the problem, the diversity of sociolinguistic contexts within the United States, and the interactions between facilitators and barriers within those specific contexts, it is unlikely that one solitary solution will operate as a universal mitigation system. The field of implementation science offers guidance for increasing implementation of best practices within real-world settings in which an SLPs’ practices are influenced by a complex interplay between the SLP, the organization, policies, and the recipient of the services provided.
by the SLP (Douglas & Burshnic, 2019; Olswang and Prelock, 2015). Early intervention SLPs and other early intervention team members, families, key leaders from early intervention programs, and other relevant stakeholders who shape policy within early intervention programs should each be involved in the development of, implementation of, and assessment of strategies designed to improve the quality of assessments provided to DLLs within early intervention programs.

**Limitations**

The primary limitation of this study is the use of surveys to collect qualitative data. Although the use of a survey allowed for a robust nationwide sample with perspectives from SLPs’ working in differing sociolinguistic contexts and different geographical locations, it limited the amount of in-depth information provided by any one participant. EI SLPs were offered the option of answering the questions using the text-to-speech option on their phone, but many participants may have typed their answers, which likely limited the length of their response. Further, the questions used to elicit SLPs’ perspectives on barriers and facilitators were included at the end of a longer survey, so participants may have been fatigued by the time they reached these questions, further limiting their responses. As an additional limitation related to the use of survey design, researchers were not able to ask follow-up questions to clarify or extend participant responses. Each of these factors limits the depth and nuance of the information provided by participants.

This survey is also grounded only within SLPs’ perspectives. Other stakeholders in the assessment process, including early intervention team members from other disciplines and backgrounds, administrators of early intervention programs, and families, would offer additional perspectives which are critical to understanding the entirety of the problem. Tensions between
family perspectives, team perspectives, administrator perspectives, and SLP perspectives may emerge and provide additional insight into the territory that must be navigated as early intervention teams work to provide culturally and linguistically responsive assessments.

It is also worth noting that participants who completed the survey were asked to answer a relatively complex, open-ended question about assessment methods at the outset of the study. Because this question required critical thinking about assessments for DLLs, it may have been particularly challenging for those who did not have an interest in or knowledge about the assessment of linguistically diverse children. This may have led to a biased sample with SLPs who had strong interest in or knowledge about the topic being more likely to have chosen to complete the survey. SLPs with less knowledge and/or less interest may perceive different barriers and facilitators of high-quality assessments for DLLs. In a similar vein, the content of the initial portion of the study was related specifically to Spanish-English DLLs. Although the questions related to facilitators and barriers were broad in nature and not associated with any specific groups, the earlier questions about Spanish-English DLLs may have shaped EI SLPs’ thinking as they answered the questions about facilitators and barriers.

Future research could include in-depth interviews or focus groups with early intervention SLPs and other early intervention stakeholders to gain detailed insights regarding the ways in which facilitators and barriers play out within specific early intervention programs found in varying sociolinguistic contexts and geographical locations. Detailed case studies of early intervention teams who provide high quality assessments for DLLs in both rural and non-rural settings would also be particularly beneficial, as they would provide specific guidance for working within these varied contexts in the face of specific barriers. Observations of actual assessments with DLLs referred to early intervention programs would provide additional data
and nuanced insights regarding the implementation of assessments with DLLs. These observations combined with document analysis would serve as additional data for triangulating findings, strengthening the findings of the study and adding important layers of depth to the understanding of the problem.

**Conclusion**

Previous research has documented the presence of barriers to the implementation of high-quality assessment and intervention practices of DLLs. Frequently described barriers from prior research include lack of access to interpreters, lack of access to culturally and linguistically responsive standardized assessment for DLLs, lack of professionals who speak a child’s language, lack of research on and norms for DLLs, and lack of SLP knowledge related to varied cultures and languages (Guiberson & Atkins, 2012; Kritikos, 2003; Santhanam & Parveen, 2018).

This current study builds on previous research related to barriers to the provision of culturally responsive assessment practices by extending this research to the early intervention practice settings and by eliciting detailed information on both facilitators and barriers. The results of this study align with prior research by confirming the presence of barriers to culturally and linguistically responsive assessment within the early intervention setting specifically, with EI SLPs frequently describing barriers such as difficulty accessing interpreters, lack of access to normed assessment tools for young DLLs, lack of access to bilingual colleagues, lack of access to materials, information, and resources, and lack of knowledge related to the specific culture and languages of the children and families they are serving.

Further, this study adds depth to the prior research findings. Looking through the lens of both barriers and facilitators adds nuance to our understanding of the interrelated nature of the
influences on culturally and linguistically responsive assessment practices. While many of the barriers and facilitators shared by EI SLPs were flip sides of the same coin, nuanced differences in the way SLPs described barriers and facilitators also emerged. In addition to the barriers they listed, EI SLPs also frequently and thoughtfully described facilitators such as the immense value of teaming with bicultural/bilingual colleagues, the benefits of working with interpreters who understand how to work within early intervention family-centered practices, and the advantages of working within organizations with policies which supported flexibility in assessment methods.

This study also highlights the interrelated nature of facilitators and barriers. For example, facilitators such as working on a high-quality early intervention team with bicultural/bilingual team members potentially reduce barriers by increasing the capacity and knowledge of EI SLPs who work within that team. Additionally, the facilitator of organizational policies which allow for multiple forms of assessment reduces the impact of the barrier related to the dearth of culturally and linguistically responsive norm-referenced assessment tools for DLLs.

Finally, this current study highlighted the importance of both location and policy in shaping the facilitators and barriers to high quality assessment practices for DLLs. Rural locations were frequently mentioned as a barrier to high quality assessment practices as they are less likely to contain the facilitators of such practices. Early intervention policies, including family-centered practices, use of routines-based interviewing, and a strong reliance on teaming practices, can be facilitative of culturally and linguistically responsive assessment practices. Further, policies designed to support flexible assessment allow for EI SLPs to use parent report, informal assessment, and observation and facilitate engagement in high quality assessment practices.
In order to facilitate culturally and linguistically responsive assessments for DLLs, early intervention organizations should work to remove policies which act as barriers to such practices. Organizations should also work to support EI SLPs access to trained interpreters who are familiar with early intervention practices and should support access to culturally and linguistically responsive tools, materials, information, and trainings. Given the likelihood of EI SLPs encountering barriers within rural settings, solutions at a broader level may also be required, through supports provided by ASHA and state-level organizations. Finally, given the complexity and interrelated nature of the facilitators and barriers within any sociolinguistic context, all stakeholders in a specific early intervention program should be included in the development and implementation of strategies designed to improve the quality of early intervention assessments provided to DLLs within that program.
Chapter 5

CONCLUSION

The purpose of these studies was to understand the current knowledge, beliefs, and practices of early intervention (EI) speech-language pathologists (SLPs) in relation to the use of culturally and linguistically responsive assessment practices within the context of early intervention programs. Given the substantial cultural and linguistic diversity within the early intervention population (Annie Casey Foundation, 2022; U.S. Department of Education, 2019), this undertaking has the potential to provide clinically and educationally relevant information designed to ensure the quality of EI services for children from all backgrounds.

Previous research studies have documented low-self efficacy for working with culturally and linguistically diverse groups (Santhanam & Parveen, 2018) as well as a persistent gap between known best practices for assessing dual-language learners (DLLs) and actual practices implemented within school-based and pediatric outpatient settings (Skahan et al., 2007; Caesar & Kohler, 2007; William & McLeod, 2012). Previous research has also revealed a gap in school-based and outpatient-based professionals’ beliefs related to best practices for working with culturally and linguistically diverse populations and their actual practices for serving this population (Marinova-Todd et al., 2016). Further, researchers have documented relationships between use of best practices for working with DLLs and the sociolinguistic context of practice settings (Marinova-Todd et al., 2016) as well as relationships between EI SLPs’ self-efficacy for working with culturally and linguistically diverse populations and their age and their completion of continuing education courses (Caesar, 2013). However, prior to this research study,
researchers had not yet explored EI SLPs knowledge, beliefs, and practices for assessing DLLs specifically within early intervention programs.

**Summary of Current Research Studies**

The purpose of these current research studies was to better understand the current knowledge, beliefs, and practices of EI SLPs in relation to the use of culturally and linguistically responsive assessment practices within the context of EI programs. In Study 1, survey methodology was used to examine the current state of EI SLPs’ beliefs and self-reported practices for assessing DLLs referred to early intervention programs. Participants were 134 EI SLPs who worked in EI across the United States. Participants were provided with a case scenario of a Spanish-English DLL toddler and were asked to describe the assessment procedures they would use in their assessment if the toddler had been referred to their EI program. They were further asked to identify how strongly they agreed with the use of a variety of assessment practices, some of which were evidence-based and some of which were not evidence-based. Data were analyzed descriptively, allowing for a detailed, nuanced description of EI SLPs’ practices.

EI SLPs’ beliefs were well aligned with best practices for assessing DLLs, with EI SLPs agreeing or strongly agreeing with implementation of all best practices for assessing DLLs. However, a substantial gap emerged between their beliefs related to best practices for assessing DLLs and their self-reported practices within their specific EI programs. While 67% of EI SLPs described assessment procedures which would account for both of a child’s languages, 23% of EI SLPs reported that they would complete all assessment procedures in only one of a child’s languages. These EI SLP practices were clearly misaligned with their strong beliefs that a DLL should be assessed in both of their languages. Further, these self-reported actual practices were also misaligned with best practices, as assessment in only one of a child’s languages carries the
strong potential to under-represent that child’s actual language skills (Hoff & Core, 2015; Castilla-Earls et al., 2020). Additional gaps between EI SLP beliefs and actual practices were noted across all seven best practice components measured in the study, with the most substantial gaps in the areas dynamic assessment and gathering a child’s detailed language history. EI SLPs also frequently reported using a variety of norm-referenced assessment tools with potential cultural and linguistic bias and reported relatively infrequent use of language sampling despite strong agreement that use of bilingual communication/language samples should be obtained.

The purpose of Study 2 was to understand the relationship between EI SLPs’ beliefs, knowledge, and practices and their backgrounds, experiences, and practice settings. Survey methodology was used to gather data from the same sample of 134 EI SLPs who worked in EI within the United States. EI SLPs provided information related to their beliefs, their practices, their knowledge, and their backgrounds, experiences, and current practice settings. Data were analyzed using both descriptive and inferential statistics. Results revealed that, in addition to the gap between beliefs and practices documented in Study 1, EI SLPs also demonstrated gaps in their knowledge base related to cultural and linguistic influences on DLLs’ language development. While EI SLPs demonstrated strong knowledge related to select aspects of DLL language development, they also demonstrated less robust knowledge related to the vocabulary development of DLLs and demonstrated a substantial gap in knowledge related to cultural influences on development. EI SLP knowledge was positively related to the sociolinguistic diversity of their practice setting and the percentage of DLLs on their caseload. EI SLP knowledge was also related to years since graduation with a SLP master’s degree, with EI SLPs who graduated more recently demonstrating more accurate knowledge. Additionally, EI SLP use of best practices was found to be related to the percentage of DLLs on an SLP’s caseload.
Study 3 was designed to understand EI SLPs’ perceptions of facilitators and barriers to culturally and linguistically responsive assessment practices within early intervention programs. Survey methodology was used to gather data from the same sample of EI SLPs, although only 127 EI SLPs completed the portion of the survey used for this study. EI SLPs were asked to describe the factors that hindered and facilitated implementation of culturally and linguistically responsive assessments. Data were analyzed inductively, using qualitative coding procedures to develop categories and subcategories based on SLP responses. Results revealed the interconnected nature of facilitators and barriers within early intervention. Categories included access to and quality of interpretation, access to materials and assessments appropriate for DLLs, location of service delivery, policies governing assessment practices, composition of the EI team, and SLP characteristics.

**Implications**

Study 1 documented the presence of a gap between known best practices for assessing DLLs and EI SLPs actual self-reported practices. This gap suggests that DLLs may not consistently be receiving high-quality, culturally and linguistically responsive assessments within early intervention programs. This is likely a contributing factor to the disparities that exist within EI, with children from non-White and non-English speaking backgrounds being less likely to receive EI services (Magnussen et al., 2016; Morgan et al., 2016; McManus et al., 2020).

This study also revealed a gap in EI SLPs’ beliefs related to assessing DLLs and implementation of those practices within real-world contexts. The presence of this gap suggests that EI SLPs may not fully understand and/or utilize methods for achieving best practices, even if they believe in the use of those best practices. The gap between EI SLPs’ beliefs and self-
reported practices also implies the presence of systems-level barriers which interfere with implementation of best practices.

Study 2 and Study 3 provide additional insights into the potential reasons for the implementation gap. The finding that EI SLPs who have graduated more recently demonstrate more accurate knowledge related to cultural and linguistic influences on DLL language development suggests that preprofessional training programs may be increasing the coverage of this content within their curriculum. Indeed, EI SLPs who completed the survey demonstrated robust knowledge in key aspects of developmental expectations for DLLs. However, nearly 25% of EI SLPs demonstrated errors in their knowledge related to the semantic development of DLLs. Because qualification for EI may rely heavily on a child’s vocabulary as an indicator of a delay, this lack of knowledge has the strong potential to lead to both over- and under-identification of language disorders within the DLL population. Additionally, nearly 50% of EI SLPs demonstrated errors in their knowledge related to cultural influences on language development. This finding suggests that preprofessional training programs can continue to increase their content coverage related to the ways in which cultural expectations, parenting practices, and language development are related.

Further, the finding that EI SLP knowledge was related to the sociolinguistic context of the EI SLPs’ practice setting and the percentage of DLLs on an SLPs’ caseload suggests that experience interacting with and working with individuals who speak other languages leads to deepened knowledge. These finding suggests that experience may shape knowledge and, therefore, preprofessional training programs may wish to seek opportunities for students to engage in experiences working with DLLs.
Study 3 adds additional depth to these findings by documenting the interrelated barriers and facilitators of culturally responsive practices which occur at both the SLP-level and the system-level. While EI SLPs described their own knowledge and experiences as operating as both facilitators and barriers to high-quality assessment practices for DLLs referred to EI programs, they also frequently described the presence of multiple, intersecting systems-level barriers and facilitators. Solutions designed to increase EI SLPs’ knowledge around culturally and linguistically responsive assessment are likely to have a diminished impact on actual practices without equal attention to the substantial systems-level barriers and facilitators of those practices.

Taken together, these findings provide compelling evidence of a substantial problem and are indicative of a clear need for strategies designed to reduce the continued research-to-practice gap and ensure equal access to high-quality EI assessment for children from all backgrounds. Preprofessional training programs may need to increase the depth of the content provided within their undergraduate and graduate curriculum to ensure that EI SLPs gain a robust, detailed understanding of specific methods for implementing evidence-based assessments for DLLs using a converging evidence approach. This may include practice accessing high-quality resources which facilitate culturally and linguistically responsive assessments. Additionally, preprofessional programs may need to increase their coverage of the ways in which DLL language development unfolds within the nuance of varied linguistic input and differing cultural expectations.

Further, preprofessional training programs can work to provide their students with experiences working with DLLs to increase their knowledge and, ultimately, their implementation of best practices for assessing DLLs. Additionally, given the likelihood of
encountering systems-level barriers within real world practices, preprofessional training programs can also include frank discussions designed to facilitate students’ critical thinking about the implementation of best practices within a variety of sociolinguistic contexts.

Finally, EI organizations and the field of speech-language pathology as a whole are called to work to reduce systems-level barriers which interfere with the implementation of best practices. Policies which require the use of norm-referenced, standardized assessment for EI assessments must be eliminated, especially given the dearth of high-quality norm-referenced assessment tools for DLLs. Organizations which employ EI SLPs should work to provide access to high quality interpretation services by professional interpreters who are familiar with EI practices, assessment materials for the languages spoken by the children served by the EI program, and time for EI colleagues to engage in high quality teaming practices with bicultural and bilingual colleagues. Recognizing that the provision of these resources may be difficult for rural EI programs who do not serve a large population of DLL children and/or for EI programs which serve a wide diversity of languages and cultures, the American Speech-Language Hearing Association or other national organizations should work to provide central resources for easy access to interpreters, materials, training, assessments and comprehensible, applicable information across a wide variety of cultures and languages.

Limitations

The sample size of the survey used in these studies was relatively small, which limits generalization back to the population. Further, the use of simple statistical analyses limits the degree to which causal inferences can be made. Future studies could include a larger sample size paired with more robust statistical analyses to control for confounding variables and more clearly identify the factors most significantly related to EI SLPs’ knowledge and practices.
This study is further limited by the use of survey design, which may have limited the accuracy of and depth of information provided by the participants. Future research could include more robust qualitative designs utilizing in-depth interviews or focus groups to better understand the nuanced complexities that surround the implementation of culturally and linguistically responsive assessment practices within early intervention programs across varied sociolinguistic contexts. Further, case study design completed within varied early intervention programs who demonstrate high quality culturally and linguistically responsive assessments in the face of real-world constraints could provide a specific, nuanced road map to be used to train preprofessional students and EI SLPs who wish to implement best practices.

Additional limitations relate to the case scenario presented in this study which was specific to Spanish-English DLL toddlers. The results of this study may not be applicable to SLP assessment practices for DLL toddlers who speak languages other than Spanish. Additionally, this study only addressed speech-language pathologists’ beliefs, knowledge and practices. Given the interdisciplinary and, at times, transdisciplinary teaming used in early intervention programs, it is very likely that professionals from other disciplines will be involved in screening and even assessing the language skills of DLL toddlers. Future research should address the beliefs and practices of professionals across the entire early intervention teams and could be extended to address assessment practices with DLL children who speak languages other than Spanish.

Despite these limitations, the present study is the first to explore the factors that may contribute to EI SLPs’ beliefs, knowledge, and practices related to assessing DLLs. It documents the research-to-practice gap that exists within early intervention and provides valuable information related to the potential solutions for mitigating this gap. Further, this study establishes a crucial foundation for future research designed to better understand and ultimately
influence the factors that will drive increased EI SLP knowledge and improved use of best practices within EI systems. Therefore, this study is a first, important step toward establishing equality of access to early intervention for children from all backgrounds.
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MLA Language Map Data Center (2010). [https://apps.mla.org/map_data](https://apps.mla.org/map_data)


APPENDIX A

SURVEY
Survey: Early Intervention SLP’s Beliefs, Knowledge, and Practices Related to Assessing Dual Language Learners

Are you a currently practicing, licensed speech-language pathologist?

☐ Yes
☐ No

➔ If no: “Thank you for your time.” (End of survey)
➔ If yes – survey moves to next question

Do you currently provide early intervention services to children under the age of three in the United States?

☐ Yes
☐ No

➔ If no: “Thank you for your time.” (End of survey)
➔ If yes – survey moves to next question

Part 1: SLP Practices

Please read through the below scenario and then answer the question that follows.

Luis is a 28-month-old child who lives in a Spanish-English bilingual home. His parents were both born in Mexico. They met when they attended college in the United States. After briefly returning home to Mexico after receiving their degrees, they returned to the United States to work and raise their family. Luis was born in the United States. Both of his parents are fluent in both Spanish and English, although their Spanish skills are stronger. They mainly speak Spanish to each other and to Luis at home but speak English with him as well. Luis had a Spanish-speaking nanny until he was 12 months when his parents put him into an English-speaking daycare. Luis and his family currently live in your community and Luis has been referred to your county’s early intervention program because he’s not yet using many words, and only sometimes follows common directions. His daycare teacher has also reported some concerns with his social interactions.

Describe the tasks/procedures you would actually use, in your current setting, to evaluate and assess Luis. Please be as honest as possible in detailing these tasks, considering the resources you have available to you within your current practice setting. Consider the entire process from the referral to the IFSP and include any and all procedures/tasks that you would use to gather the information you need to: determine eligibility, establish baseline, work with your EI team and the family to establish IFSP goals, and prepare to begin intervention sessions if Luis qualifies.
Include the names of any specific tools, as well as the language you would use for each procedure. Use as few or as many rows as you’d like.

<table>
<thead>
<tr>
<th>Task/procedure</th>
<th>If you would use a specific tool, please list it here.</th>
<th>Language</th>
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Would you complete any of the procedures for Luis in Spanish?

IF Yes: How would you complete these procedures?

☐ I would ask Luis’ parent(s) to translate
☐ I would use an interpreter provided by my workplace
☐ I would use a Spanish-speaking colleague (not an interpreter)
☐ I speak Spanish fluently, so I would complete the procedures
☐ I speak some Spanish, so I would complete the procedures
☐ Other: _______________________________________

IF No: Skip logic to next question

Thinking about the assessment procedures you just described: Did you include a parent interview?

IF yes: Please list the types of questions you would ask or the topics you would cover during your interview:
Part 2: Self-Efficacy

“Dual language learners” are defined as *children who speak or are exposed to more than one language*. Keeping this definition in mind, please indicate your level of agreement regarding the following statements below.

When thinking about a *dual-language learner* referred to an early intervention program:

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<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tr>
<td>I am confident in my ability to plan an effective evaluation/assessment for a DLL</td>
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<td>I am confident in my ability to implement an effective evaluation/assessment for a DLL</td>
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<td>I am confident in my ability to effectively interpret the results of an evaluation/assessment for a DLL</td>
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<td>I am confident in my ability to gather the information I need to plan for effective intervention for a DLL</td>
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Part 3: SLP Beliefs

“Dual language learners” are defined as *children who speak or are exposed to more than one language*. Keeping this definition in mind, please indicate your level of agreement regarding the following statements below.

When evaluating and assessing a dual-language learner who is referred to an early intervention program with concerns related to expressive, receptive and pragmatic language, the following procedures *should be* used:
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<thead>
<tr>
<th>Activity</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tr>
<td>Interview: Child’s developmental, medical and family history</td>
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<td>Interview: Parent’s level of concern about the child</td>
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<td>Interview: Child language history (how much the child hears in each language, from whom)</td>
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<td>Ethnographic OR Routines-Based interviewing</td>
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<td>Standardized or criterion-based assessment designed for English language only</td>
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<td>Standardized or criterion-based assessment designed for the home language only</td>
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<td>Standardized or criterion-based assessment for the home language speakers AND standardized or criterion-based assessment for English language speakers</td>
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<tr>
<td>Standardized or criterion-based assessment developed for dual language learners</td>
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<tr>
<td>Expressive communication/speech and language sample in English only</td>
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<tr>
<td>Expressive communication/speech and language sample in the home language only</td>
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<tr>
<td>Expressive communication/speech and language sample in English AND child’s home language</td>
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<tr>
<td>Informal assessment of receptive language in English only</td>
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<tr>
<td>Informal assessment of receptive language in home language only</td>
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</tbody>
</table>
Informal assessment of receptive language in home language AND home language

Informal observation/assessment of play based on Westby’s play scales

Informal observation/assessment of communication in daily activities

Dynamic assessment of speech, language, pragmatic and/or play skills

**Part 4: SLP Knowledge**

**Part 1**

Think about the following scenario: Alejandra is a young Spanish-English dual-language learner. She hears both Spanish and English relatively equally in her home and community. Her parents and siblings are both bilingual. Her grandparents speak mainly Spanish, and her daycare providers speak more English than Spanish.

Please keep this scenario in mind as you answer the following questions.

1. Neurotypical monolingual children use their first words around 12 months. At what age would expect Alejandra to use her first word?
   - Later than monolingual children
   - **At the same age as monolingual children**
   - Earlier than monolingual children

2. Neurotypical monolingual children typically have approximately 50 words in their expressive vocabulary at 18 months. How many **English** words would you expect Alejandra to be using at 18 months?
   - Fewer than 50 **English** words
   - Approximately 50 **English** words
   - More than 50 **English** words

3. Neurotypical monolingual children typically have approximately 50 words in their expressive vocabulary around 18 months. How many **Spanish** words would you expect Alejandra to be using at 18 months?
   - Fewer than 50 **Spanish** words
   - Approximately 50 **Spanish** words
   - More than 50 **Spanish** words
4. Neurotypical monolingual children typically have approximately 50 words in their vocabulary at 18 months. When considering her total vocabulary, including both English and Spanish words, how many words would you expect Alejandra to be using at 18 months?

- Fewer than 50 total words
- **Approximately 50 total words**
- More than 50 total words

5. Neurotypical monolingual children use two-word phrases around 18-24 months. At what age would you expect Alejandra to use two-word phrases?

- Later than monolingual peers
- **At the same age as monolingual peers**
- Earlier than monolingual peer

6. At what age would you expect Alejandra to follow routine directions in at least one language?

- Later than monolingual peers
- **At the same age as monolingual peers**
- Earlier than monolingual peer

7. At what age would you expect Alejandra to demonstrate generally age-appropriate phonology in at least one language?

- Later than monolingual peers
- **At the same age as monolingual peers**
- Earlier than monolingual peer

*Part 2.*

Please select the best answer to each of the following questions:

1. How likely would you be to qualify a DLL for EI services, as compared to a monolingual child?

- More Likely
- **Equally Likely**
- Less Likely

2. T/F Parental interactions that are directive in nature are likely to inhibit growth in a child’s language skills, regardless of the culture a child is growing up in.

3. T/F English language input provided by nonnative speakers is less supportive of language development than input provided by native speakers.
4. T/F Providing intervention in two languages for children with language delays or disorders is likely to exacerbate the language delay.

Part 5: SLP Demographic information, Backgrounds, Experiences, and Current Practice Settings

- Gender:
  - [ ] Male
  - [ ] Female
  - [ ] Nonbinary
  - [ ] Other
  - [ ] Prefer not to answer

- Ethnicity:
  - [ ] Hispanic or Latino
  - [ ] Not Hispanic or Latino
  - [ ] Prefer not to answer

- Race:
  - [ ] American Indian or Alaska Native (only)
  - [ ] Asian (only)
  - [ ] Black or African American (only)
  - [ ] Native Hawaiian or Other Pacific Islander (only)
  - [ ] White (only)
  - [ ] Multiracial
  - [ ] Prefer not to answer

- What is the highest degree you hold in a speech-language program?
  - [ ] Master’s degree
  - [ ] Clinical Doctorate degree
  - [ ] PhD
  - [ ] Other: ______________________

- What year did you receive your master’s degree from a speech-language program? (Drop down box with options)

- In what state was your graduate program located? (Drop down box with options – all states)

- How much information did your graduate school provide you in relation to evaluating and assessing young dual-language learners?
• Approximately how many continuing education courses have you taken with the topic of assessing or treating children who hear and/or speak multiple languages?
  □ One
  □ 1-2
  □ 3-4
  □ 5+

• How many years have you been a practicing SLP?
  □ 0–5
  □ 5–10
  □ 10–15
  □ 15–20
  □ 20+

• How many years have you worked in early intervention?
  □ 0–5
  □ 5–10
  □ 10–15
  □ 15–20
  □ 20+

• In what county(s) and state(s) are you currently providing early intervention services?

• What language(s) do you speak fluently?

• Do you consider yourself to be bilingual?
  □ Yes
  □ No

• Are you currently practicing as a bilingual SLP?
  □ Yes
  □ No

• Keeping in mind that “Dual language learners” are defined as children who speak or are exposed to more than one language, approximately what percent of your current caseload are dual language learners?
• Keeping in mind that “Dual language learners” are defined as children who speak or are exposed to more than one language, approximately how much experience do you have working with dual language learners?
  - None
  - Minimal
  - Some
  - Moderate
  - Substantial

**Part 6: Open-ended barriers and facilitators questions**

Thinking about your early intervention program, what helps you to provide high-quality culturally and linguistically responsive assessments/evaluations to dual language learners referred to your program?

Thinking about your early intervention program, what limits your ability to provide high-quality culturally and linguistically responsive assessments/evaluations to dual language learners referred to your program?

**END MESSAGE**

Thank you for taking our survey! As a thank you for your time, the first 150 SLPs who complete the survey will receive an Amazon gift card worth $10.00. We would also like to invite you to participate in future research related to this topic.

If you choose to share your contact information in order to receive this incentive or to volunteer for future research, your contact information cannot be connected with your survey responses in any way. If you would like to share your name and e-mail address to obtain your incentive and/or volunteer for future research related to this, please do so here: (LINK TO FOLLOW-UP SURVEY).

**FOLLOW-UP SURVEY:**

Thank you for taking our survey!

Question 1: Would you like to participate in future research topics related to this topic?

  **SKIP LOGIC**

  Yes: Please enter your name and e-mail address here. Then press “next” to share your name and contact information for the incentive. Moves to Question 2.
No: Skip to Question 2.

Question 2: Would you like to receive the $15.00 incentive for completing this survey?

Yes: Please enter your name and your email address. If you are one of the first 150 SLPs who completed the survey, a $10.00 gift card will be e-mailed to you.

Name:

E-mail address:

No: Skip to End of survey.

End of survey: Thank you for your time!
APPENDIX B

EARLY INTERVENTION SLP PRACTICES: ASSESSMENT TOOLS FOR DLLs
# Early Intervention SLP Practices: Assessment Tools for DLLs

<table>
<thead>
<tr>
<th>Name of Assessment Tool</th>
<th>Frequency</th>
<th>Decision</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool Language Scale – 5 (PLS-5)</td>
<td>28/132</td>
<td>Not appropriate</td>
<td>Contains culturally and linguistically biased items (Leaders Project, 2013b)</td>
</tr>
<tr>
<td>Developmental Assessment of Young Children – 2 (DAYC-2)</td>
<td>22/132</td>
<td>Not appropriate</td>
<td>Not available in Spanish; Contains culturally and linguistically biased items (Crowley, 2016).</td>
</tr>
<tr>
<td>Receptive-Expressive Emergent Language Test (REEL-4)</td>
<td>20/132</td>
<td>Not appropriate</td>
<td>Not available in Spanish; Contains culturally and linguistically biased items (Crowley, 2016).</td>
</tr>
<tr>
<td>Rossetti Infant Toddler Language Scale</td>
<td>19/132</td>
<td>Not appropriate</td>
<td>Spanish version is a direct translation of the English test; Contains culturally and linguistically biased items (Crowley, 2016).</td>
</tr>
<tr>
<td>HELP Strands</td>
<td>11/132</td>
<td>Not appropriate</td>
<td>Not available in Spanish; Curriculum-based; not intended to be used for diagnostic purposes (Crowley, 2016); Contains culturally and linguistically biased items (Crowley, 2016).</td>
</tr>
<tr>
<td>Battle Developmental Inventory (BDI) - NU 2nd Edition</td>
<td>10/132</td>
<td>Not appropriate</td>
<td>Contains culturally and linguistically biased items (Kester &amp; Lebel, 2013)</td>
</tr>
<tr>
<td>Early Learning Accomplishment Profile (E-LAP)</td>
<td>8/132</td>
<td>Not appropriate</td>
<td>Contains culturally and linguistically biased items (Crowley, 2016)</td>
</tr>
<tr>
<td>Instrument</td>
<td>Items</td>
<td>Appropriate</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>Battelle Developmental Inventory, 3rd Edition (BDI-3)</td>
<td>4/132 (3%)</td>
<td>Appropriate</td>
<td>Revised to remove linguistically biased items, was normed on a large population of Spanish-speaking children living in the United States, and contains caution to interpret with culture based on caution (Riverside Insights, 2019)</td>
</tr>
<tr>
<td>The MacArthur-Bates Communicative Development Inventories (MB-CDI)</td>
<td>2/132 (2%)</td>
<td>Appropriate</td>
<td>Available in a wide variety of languages and dialects, which are adaptations, not translations. (Hoff &amp; Core, 2015; The MacArthur-Bates CDI, n.d.)</td>
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</tbody>
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