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Language of Intervention in Bilingual Children with Autism Spectrum Disorder

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LANGUAGE OF INTERVENTION IN BILINGUAL CHILDREN WITH
AUTISM SPECTRUM DISORDER

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Dedication

For brothers Francisco and Fernando.

LANGUAGE OF INTERVENTION IN BILINGUAL CHILDREN WITH
AUTISM SPECTRUM DISORDERS

by

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THESIS

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Abstract

Over the last few decades the United States has seen a heavy increase in the incidences of Autism Spectrum Disorder. Also increasing in the United States is the increase in multicultural and multilingual groups. Although both of these populations are increasing there is very limited information regarding the language abilities of bilingual individuals with Autism Spectrum Disorder, the language used for intervention, and those servicing them. A survey was developed to gather information regarding the current practice trends used by Speech-Language clinicians with bilingual children with ASD. The study was conducted in El Paso, Texas a city located on the U.S. Mexico border, where the population is predominantly bilingual (English/Spanish). The study found that the majority of the bilingual children with Autism Spectrum Disorder were currently receiving bilingual (English/ Spanish) intervention.

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Chapter 1: Literature Review

1.1 – Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder defined by impairments in various social and communication development and contexts, accompanied by stereotyped patterns of behavior and interests (American Psychiatric Association, 2000; Landa, 2007; Schechtman, 2007; Szatmari, 2003). Typically the onset of ASD occurs during infancy, between 2 and 3 years of age (Autism Speaks, 2013; Szatmari, 2003) and may be recognized as early as 18 months of age (Zwaigenbaum et al. 2005). ASD is a lifelong disorder with severity levels that may range anywhere from mild/high to severe/low functioning (Schechtman, 2007). As of May 2013 in accordance to the new proposed DSM-5 diagnostic manual, all of the previous Autism subtypes (autistic disorder, Rett syndrome, childhood disintegrative disorder, pervasive developmental disorder-not otherwise specified, and Asperger syndrome) are combined into one overall diagnosis of ASD (Autism Speaks, 2013). Diagnosis of ASD is based on comprehensive behavioral evaluations because standardized testing may not always be appropriate and/or obtainable, thus making diagnostic assessments intense and highly complicated (Blumberg, Bramlett, Kogan, Schieve, Jones & Lu, 2013). Although extensive research regarding the cause of ASD has been conducted over the years, the underlying cause is still unknown. Studies have considered and investigated early environmental insults along with genetic, neurologic, and immunologic factors (Schechtman, 2007; Szatmari, 2003).

Autism Speaks, the nation's largest Autism science and advocacy organization along with the Center for Disease Control project that ASD currently affects 1 in 88 children. ASD is estimated to be three to five times more common in males than females with an incidence rate of 1 in 54 boys (Carter et. al., 2007). A more recent study presents prevalence data of school aged children

diagnosed with ASD as reported by parents as 1 in 50 (Blumberg, Bramlett, Kogan, Schieve, Jones & Lu, 2013). Autism Speaks and the Center for Disease Control also project that these prevalence figures will continue to increase.

ASD may impact all aspects of an individual's social abilities, personal interactions, communal structure, family functioning, overall communication, emotions, peer interaction, and an overall relationship with others (Johnson & Myers, 2007; Landa, 2007; National Research Council, 2001; Schechtman, 2007; Szatmari, 2003). Individuals with ASD generally have difficulties with communication, language, and speech. Individuals within this population suffer from language delays in receptive vocabulary, phrase understanding, expressive vocabulary, and are affected by language impairments (Charman, Drew, Baird & Baird, 2003; Kjelgaard & Tager-Flusberg, 2001). Overall language skills are variable among individuals with Autism and may present from complete mutism, very limited, functional, and very well developed (Wilkinson, 1998). Impairments in language are so common among individuals with Autism that language deficits have previously been necessary for diagnosis. It has been suggested that the language ability of individuals with ASD may be a solid predictor of what the individual's functional outcomes may be (Nordin & Gillberg, 1998).

Breakdowns may present in some or all of the domains of language: semantics, phonology, syntax, morphology, and pragmatics (Wilkinson, 1998). Children on the Autism spectrum have been known to exhibit difficulties with word-related behaviors, high frequency of semantic oddities, unusual word use patterns, delayed word learning, and inappropriate use of nonsense words or idiosyncrasies (Lord & Paul, 1997; Lord et al., 1994; Wilkinson, 1998). Phonological features may also be impaired among individuals with ASD, including delayed articulation development, and unique or atypical prosody (Bartak, Rutter & Cox, 1975; Rutter et

al., 1992; Wilkinson, 1998). Of all the language domains, research had revealed syntax (sentence structures) to be the least impaired in comparison to the other domains (Tager-Flusberg et al., 1990). Pragmatic skills (appropriate use of social language) are steadily reported and easily identifiable as impaired universally among all severity levels of ASD (Landa, 2000; Tager-Flusberg, Paul, & Lord, 2005; Wilkinson, 1998; Young, Diehl, Morris, Hyman, & Bennetto, 2005). Although there are various studies regarding the effects of ASD on language and communication, there is very little information regarding the effects of Autism on the language and communication abilities among bilingual individuals.

1.2 – Increase of bilingualism in the United States

Within the past few decades, schools in the United States have become increasingly multicultural (Utley & Obiakir, 2001). Thus, they have increasingly become multilingual. There has also been an increase in the number of homes whose home language is not English (U.S. Department of Education, 2000). An estimated 20.3% of the United States' population reported speaking a language other than English in their home (U.S. Census, 2010). These circumstances are important and significant to speech-language pathologists since it may translate into an increase of bilingual /multilingual children on their caseload (Jordaan, 2008). These bilingual/multilingual increases in speech-language pathology caseloads may create a number of challenges (Jordaan, 2008). These clinical implications will be discussed later in more detail.

1.3 - Bilingualism

Bilingualism is a term that has become almost impossible to operationally define. Defining bilingualism has become exceptionally troublesome since there are a plethora of variables that must be considered. These variables include the exposure, acquisition, proficiency, functionality, and use of two languages. Essentially bilingualism is viewed as the

use or knowledge of two languages. While this sort of definition may be simplistic and concise it is troublesome because it leaves room for a lot of variability in its interpretation. Others may consider bilingualism as a term that is utilized as a label for an individual who is frequently exposed to two languages in different contexts (De Houwer, 1995). The American Speech-Language Hearing Association (2004) defines bilingualism as:

Bilingualism is commonly defined as the use of at least two languages by an individual. It is a fluctuating system in children and adults whereby use of and proficiency in two languages may change depending on the opportunities to use the languages and exposure to other users of the languages. It is a dynamic and fluid process across a number of domains, including experience, tasks, topics, and time.

As the ASHA definition states, part of the problem with creating a definition for bilingualism is the fluctuation among the individuals themselves. Much of this fluctuation may be attributed to manner in which the languages are acquired.

Traditionally, the terms simultaneous and sequential language acquisition have been used to refer to the manner in which bilingualism develops (Hammer & Rodriguez, 2012). Simultaneous language acquisition involves exposure to both languages at the same time beginning at birth or early infancy with equal frequency (Morales & Aldana, 2010). Meanwhile, sequential language acquisition involves exposure to only one language (during infancy), followed by an introduction to the second language at a later time (Morales & Aldana, 2010). It may become increasingly troublesome to differentiate between simultaneous and sequential language acquisition since a definitive cut point has yet to be agreed upon (McLaughlin, 1984; Meisel, 1994). These acquisition sequences are important to recognize and consider once children become of school age and begin academic instruction.

1.4 – Bilingual Instruction

As previously stated the last few decades has experienced a sharp increase of homes where English is not the primary language. It has been suggested that approximately one in five children in the United States are from immigrant families and consequently speak a language that is not English in the home (Capps et al., 2005). In addition, it is further suggested that half of these students (approximately 10%) are not English proficient (Batalova, 2006). This creates a series of complications for educators and speech-language pathologists alike. The target of most bilingual education programs is to serve language minority students, however there is a significant variance in the manner in which this is accomplished (Morales & Aldana, 2010). The variance includes variability in language targets/ use, program duration, instructional methods, and the areas of target or goals (Morales & Aldana, 2010).

Currently, the most commonly utilized bilingual instructional programs in the United States are Transitional Bilingual Education (Early Exit), Developmental Bilingual Education (Late Exit), and Two Way Bilingual Education (Two-Way Dual Language, Two Way Immersion, Dual Immersion, Dual Language). Transitional Bilingual Education consists of initially using the native language for 50% - 90%, while eventually increasing the percentage of English to 90%. Transitional educational programs are typically limited to no more than three years (Garcia 2009; Morales & Aldana, 2010) and are the most common. Therefore making the transition from L1 (native language) to L2 (usually English). This instructional method is based on the idea that typically developing bilingual children are instructed in their native language (L1) in hopes of a quick and easy transition into the new language (L2) (Cummings 1979, 1981). Drawbacks of this instructional method include no further language development of L1 (biliteracy may not be achieved) and there is no evidence to support any cognitive advantages

(Crawford, 2004; Garcia, 2009; Morales & Aldana, 2010).

Developmental Bilingual Education also aims to transition the student from L1 into L2. However, unlike the transitional instructional method, the developmental method aims to develop skills in both languages and thus resulting in students who are proficient readers of both languages (Morales & Aldana, 2010). Like the transitional approach the native language is initially utilized 50% to 90% of the time for instruction a gradual decrease of the native language to only 50% and eventually an equal 50/50 method is employed. The duration for this program is typically 5 years (Morales & Aldana, 2010). However the research has reported that in some instances the student begins to make the transition into English early on, and making the complete transition to English by fifth grade (Morales & Aldana, 2010). Positive outcomes of this instructional method include presenting the student with a situation where more time is available in order to help develop their skills in two languages, thus resulting in biliteracy and the ability to learn in both languages (Morales & Aldana, 2010). Due to a lack of bilingual support after the elementary school level, the students eventually begin to lose some skills in L1. English language learners (ELLs) are the target population for transitional and developmental approaches.

However, both ELLs and English dominant students may be enrolled in a dual language program. Ideally, such a program would include an environment where 50% of the students are English dominant and the remaining 50% would be dominant in the minority language (not English). The program duration for this instructional method is also 5 to 6 years. The structure for dual language begins with the introduction of a 90:10 model, 90% of the home language and 10% of the other language (English) in its earliest stages. The ending goal for dual language includes a 50/50 model where both languages are used equally. This instructional method aims to

eventually produce a group of students who are not only bilingual but also biliterate. Dual language programs are the latest of the instructional methods and thus they are increasing in popularity. It should be noted that there is significant literature, which suggests that when bilingualism is adequately developed it, benefits the child academically, socially, and cognitively (Cummins, 1996).

1.5 – Clinical Implications

Understanding bilingual language acquisition and language instruction models are important for speech-language pathologists as they continue to see an increase in bilingual children on their caseloads. These skills are critical for the clinicians working with bilingual children since they need to be considered during the assessment and treatment process. Specific clinical decisions include determining language proficiency and eventually which language(s) to be utilized during intervention. Additionally it is important to consider and understand the effects that bilingualism may or may not have on both typically developing children and those with delays or disorders. Further ASHA (2004, 2005, 2011) not only urges practitioners to show respect of the cultural and linguistic preferences of their patients, but also ethically binds them to be culturally competent and considerate of cultural and language differences in their practice.

1.6 – Language of Intervention

Although there are countless studies, which analyze language acquisition for typically developing bilingual children, the literature for bilingual special populations is scarce. Therefore, the research conducted on typically developing bilingual children is merely applied to the bilingual individuals with special needs. When determining what language will be utilized for intervention among bilinguals, the general recommendation is that the stronger language be utilized as the language of intervention (ASHA, 1985, 2004, 2005, 2011; Kohnert, 2008, 2010;

Kohnert & Derr, 2012; Ortiz, 1984; Paul & Cascella, 2007; Von Vocano, 1994). When a breakdown in communication is identified with bilingual children the language professional must decide which language or languages will be targeted and/or used during intervention. While most informed individuals recognize that exposure to more than one language by no means causes language impairments, some do believe that it may cause a problem for those whom have communication difficulties (Kohnert & Derr, 2012). Intervention that incorporates and targets L1 are most successful since they extend the child's linguistic abilities instead of limiting them, particularly as the child continues to acquire L2 (Gutierrez-Clellen, 1999). Specifically, it is recommended that the development of a child's primary home language(s) be supported in the initial stages of intervention and as they continue to learn English (Gutierrez-Clellen, 1999). This notion holds true for both typical and impaired language learners (Kohnert & Durr, 2012; Kohnert & Medina, 2009; and Rolstad, Mohoney, & Glass, 2005).

Although determining language dominance and choosing a primary language for intervention is important and valued, it does not mean that the other language(s) should be forgotten or ignored. Intervention in only one language is unfavorable since it does not account for the relationship between L1 and L2, the functionality, and the context use for each language (Kohnert & Derr, 2012). It is argued that Speech-Language Pathologists and other language professionals should systematically support and develop the primary language spoken in the home of the patient (Kohnert et al., 2005). Therefore, dual language approaches to intervention are becoming more and more favorable and recommended. These methods include a bilingual approach to intervention that may focus on the cognitive commonalities of L1 and L2 directly focuses on the shared domains of L1 and L2, and highlighting interaction between L1 and L2. A cross-linguistic approach to intervention may also be utilized which is directed towards the

linguistic features and communicative functions for each of the languages. (Kohnert & Derr, 2012).

1.7 - Language of Intervention for Special Populations

As the literature among typically developing bilingual individuals continues to increase, a slight increase in research among bilingual individuals with language impairments and other disorders has emerged as well. Although there is no significant evidence to suggest that bilingualism further impairs the language abilities of those children with disorders, there are individuals who believe that bilingualism causes additional delays. The developmental interdependence hypothesis suggests that the current level of L2 competence is directly related to the competence of L1 (Cummins, 1979). Further, the developmental interdependence hypothesis proposed that:

Children whose LI skills are less well developed in certain respects, intensive exposure to L2 in the initial grades is likely to impede the continued development of LI. This will, in turn, exert a limiting effect on the development of L2.

Subsequently, this has created the idea that since there are impairments in L1 and therefore in L2 (and vice versa) language exposure/input should therefore be limited to only one language to limit further confusion and/or difficulties. Further, it is assumed that bilingualism will cause additional delays or impairments in speech and language. Resulting in highly reported situations where language professionals advising parents to “stick to one language” with their bilingual children with language difficulties.

Thordardottir (2002) reported that in her interviews with parents, the majority of bilingual parents of children with Down syndrome were advised by professions to restrict the language input to one language for their children. Despite the advice they received, these parents

for the most part continued to raise their children in a bilingual environment. This is consistent with the advice that bilingual families are given for their children with specific language impairment (SLI) (Paradis, 2007; Kohnert, Yim, Nett, Kan, & Duran, 2005). As discussed previously, bilingual instruction in the United States typically involves a transition from L1 (native language, not English) to L2 (English). Therefore, it should come as no surprise that the language input and exposure be limited to English only as it is the language of academics. This is especially troublesome since there is currently no evidence to suggest that bilingualism further causes any additional delays/disorders among bilingual individuals with SLI (Gutierrez-Clellen et al. 2008; Paradis et al. 2003) or Down Syndrome (Feltmate & Kay-Raining Bird, 2008; Kay-Raining Bird et al., 2005). Additionally it is argued that such advice is not only inappropriate (Genesee, Paradis & Crago, 2004) but also unethical (ASHA, 2004, 2005, 2011).

Kay-Raining Bird, et al. (2005) and Feltmate and Kay-Raining Bird (2008) conducted a series of studies that reviewed the language abilities of bilingual and monolingual children with Down syndrome. Their findings indicated that the language abilities of both groups did not differ on standardized tests nor did they differ on language sample measures. When a similar comparison was made among monolingual and bilingual children with SLI it was concluded that bilingualism did not affect or further limit their language productions (Kohnert, et al, 2005)

1.8 – Language of Intervention for Bilingual Children with Autism Spectrum Disorder

As the literature for language of intervention in special populations continues to become more available, there is still very little known about the implications bilingualism may present individuals with ASD with, or what current practice trends are. Consistent with the inappropriate advice that parents of bilingual children with other language difficulties, parents of bilingual children with ASD are also being advised to only use one language (predictably English) due to

fears that bilingual exposure can cause the child more confusion and further impairments (Jegatheesan, 2011; Kremer-Sadlik, 2004; Wharton et al., 2000; Yu, 2013).

More recent research has begun to emerge in hopes for a more in depth understanding of the effects of bilingualism on the language abilities of individuals with ASD. Hambly and Fombonne (2012) compared the social and language abilities of three groups (monolingual, simultaneous bilingual, and sequential bilingual) of 75 young children with ASD. They specifically looked at social responsiveness, pointing initiation, pointing response, voice attention, total conceptual voice, conceptual vocabulary, words in dominant language, and words in second language, age of first words, and age of first phrases. They were unable to conclude that bilingual exposure cause children with ASD any additional delays in any of the previously listed areas when compare with their monolingual peers. There were also no significant differences between the sequential and simultaneous bilingual groups. The vocabulary and overall language of 14 monolingual (English) and 14 age matched bilingual (English/ Chinese) children with ASD was compared in a study designed by Petersen, Marinova-Todd, and Mirenda (2012). They discovered that bilingual children had larger total production vocabularies, and equivalent overall scores. Therefore they too concluded that children with ASD have the abilities to be bilingual and do not experience additional delays.

Ohasi et al (2012) compared the severity of ASD, communication impairments, receptive language scores, age of first words, age of first phrases, receptive language, and functional communication of bilingually exposed children and monolingual children. Once again the study revealed no differences' between the groups in any of the measures. Thus supporting that bilingual children with ASD do not experience any additional complications or delays when compared to their monolingual peers.

1.9 – Effects of Bilingualism on Autism Spectrum Disorder

Regardless of the new emerging data which suggests that bilingualism does not cause further speech, language, social, or communication delays (Hambly & Fimbonne, 2012; Ohasi et al. 2012; Petersen, Marinova-Todd, and Mirenda, 2012) in bilingual children with ASD, language professionals continue to advise parents to limit language exposure to only one language (frequently English). This is continually troublesome because these recommendations that are being made go against what the new research is suggesting. Asking parents to limit their language input to only one language can limit the quality of language exposure the child encounters. When asking the parents of a bilingual child to choose English over their native language is assuming that the parents of that child have English proficiency. If the child's parents are not proficient in English they may become inadequate language models for their children.

Further, as stated previously the number of homes whose primary language is not English continues to increase. This creates more problems for the child whose primary home language is not English and whose parents are being advised to only use English. Thus creating a situation where the child's social encounters are restricted and exchanges between the parents and child limited (Wharton et al. 2000). Further these interaction limitations create a situation where the opportunities for maximum social and emotional growth are inhibited due to the limited exchanges between the caregiver and child (Wharton et al., 2000). Wharton (2000) gathered information, which suggests positive outcomes when native language use is facilitated. Specifically communication, social interaction and emotional involvement of the parents and child were enhanced when the native language was used during interactions (Wharton et al., 2000).

1.10 – Effects of English Only Exposure

Recognizing the social aspects of language is important. Recognizing them with individuals with ASD is crucial. It has been argued that by limiting a child with ASD to language exposure to one only language, specifically one that is not their native language or home language can further impair the already impaired social nature of the child. During language acquisition the child not only learns the social meaning of linguistic structure but also is dependent upon them in order to be a competent member of his or her community. (Scheiffelin & Ochs, 1986). Preliminary intervention research revealed that language intervention in the child's native language for a bilingual child with Autism did not hinder the child's language development (Seung et al., 2006). Further data obtained from this case study revealed a positive increase in the child's vocabulary. Additionally, the participant's parents revealed feeling less emotionally distressed when using their native language with their child (Seung et al., 2006).

1.11 – Parental Perspectives

Even though it continues to be reported that parents of bilingual children with ASD are being advised to limit the language exposure of their children to English only. Parental reports also reveal that they are disregarding that advice by continuing to expose their children to their native language (Yu, 2013). Yu (2013) conducted a survey, which revealed that because of their limited English proficiency, the parents of Chinese/ English bilingual children with ASD felt more comfortable communicating with their children in their native language (Chinese). They explained in further detail that the length of the interactions with their children was longer since it felt more natural and its flow was not interrupted since the parents did not have to pause to translate their thoughts into English (Yu, 2013). This same set of parents also explained they a higher degree of formality when they used English to communicate with their children, as English was the language of the workforce (Yu, 2013). A different set of parents supported these

claims and revealed that using their native language not only increased the length of interaction with their child but also increased emotional attachment (Wharton et al., 2000)

1.12 – Study Location

Another common theme found in the parental reports of the bilingual children with ASD, was a feeling of a significant lack of professional resources for them. Specifically, they felt as if tough culturally and linguistically competent clinicians were not available to work with their children (Seung et al., 2006). Therefore, the current study has been proposed. Since there is a general lack of bilingual participants and populations in research, this study was conducted in the El Paso Metropolitan Area. El Paso, Texas is located along the U.S. - Mexico border. This location results in a prominent bicultural and bilingual population.

The population in El Paso is predominately Hispanic, 82.2% of the residents of El Paso identified themselves as Hispanic or Latino (U.S Census, 2010). Consequently and not surprisingly, the home language in El Paso is often not English. Approximately 74.9% of El Paso's population reported that there was a language other than English used in their homes (U.S Census, 2010). It is currently unknown what the incidence of ASD is in El Paso. However due to the highly bilingual population, El Paso is an ideal location to conduct research of bilingual populations.

1.13 - Aims

The study aimed to determine which language (English or Spanish) was most commonly utilized by SLPs during intervention with bilingual individuals with Autism Spectrum Disorder in El Paso, Texas and its surrounding areas (Anthony, San Elizario, Socorro, Horizon, Las Cruces). The study utilized a survey instrument developed specifically for the study. The survey

also aimed to address areas such as current position, employment setting, caseload, and intervention methods. The survey was specifically designed to answer the following questions:

1. What language(s) do Speech-Language Pathologists most commonly use for intervention when treating bilingual children with ASD in the El Paso Region?
2. How often are bilingual Speech-Language Pathologists using Spanish during intervention with their bilingual clients with ASD? With what frequency is bilingual intervention being implemented with bilingual children with ASD?
3. How often is English only intervention being utilized? What is the rationale behind language of intervention decisions?

Chapter 2: Methodology

2.1 - Research Design

The research design for this study was non-experimental. Rather, a cross-sectional survey method was employed to access qualitative, quantitative, and descriptive data. The study utilized survey instruments developed specifically for the study via Survey Monkey. Speech-Language Pathologists in El Paso were sent an email asking for their participation in the online survey. The questions in the survey addressed areas such as positions, employment locations, caseloads, as well as information of intervention methods (language(s) of intervention). In addition a series of open-ended questions were also asked. The data from the survey was entered into a password secure electronic database to analyze the themes behind individual responses.

2.2 - Participants

Requirements for participation included current employment as Speech-Language Pathologists (SLP) or Speech-Language pathology Assistants (SLPA). An estimated 387 individuals were asked to participate in the online survey. 48 individuals completed the survey. This sample included 47 speech language pathologists and 1 speech language pathology assistant, resulting in a 12% response rate.

2.3 - Measure

The questionnaire (*Appendix B*) was developed specifically for the study by the researcher. Once the questionnaire was developed and completed it was imported on Survey Monkey. The survey was also designed to ensure that no personal or identifiable information was revealed about the individuals currently receiving treatment from the participating Speech-Language Pathologist or Speech-Language Pathology Assistants. The participants were not asked to provide a name or demographic information. The data provided was confidential and stored on a password protected secure server. The survey did not link names to the data

collected. The survey did not ask personal questions. The data collected was also password protected on a secure server. The electronic survey utilized page logic, which ensured that the participants were only asked to answer questions with relevance to them.

The questionnaire addressed the following areas:

1. employment setting, current position, and language(s) spoken
2. caseload inclusion of individuals with Autism Spectrum Disorder
3. caseload inclusion of individuals with Autism Spectrum Disorder who are also bilingual
4. language(s) of intervention for the bilingual individuals with Autism Spectrum Disorder and its frequency
5. intervention practices for nonverbal bilingual children with Autism Spectrum Disorder and its frequency
6. rationale behind determining a language of intervention

Three distinct formats were utilized to administer the online questionnaire. This included yes or no questions, multiple-choice questions, open ended questions, and “matrix” questions.

Questions 6a, 7a, and 8a were all yes or no questions allowing the participants to only select yes or no. Multiple-choice questions provided the participants to select one or more answers for questions 1,2, 3, 4, 5, and 6c. The remaining questions (5, 6c, and 8c) were asked in a “matrix format”. The “matrix” questions were designed in attempt to allow the clinicians to give a more detail account regarding their language(s) use in general and during intervention. This question format allowed for the SLPs to provide information not only on the language(s) they use but also the frequency (never, 25%, 50%, 75%, 100%) in which they were used in the different contexts (general intervention, intervention with bilingual clients, and intervention with bilingual clients with ASD).

2.4 - Procedure

The list of Speech-Language Pathologists was compiled through a series of online searches. Specifically, searches on the Texas Speech-Language Hearing Association's web directory, the directory listed emails for the members specific to those residing in El Paso. The American Speech-Language Hearing Association's (ASHA) website "Community" feature was also utilized to help with the search for Speech-Language Pathologists in the El Paso area. The search was narrowed by location (El Paso and its surrounding areas). The "Community" feature of the ASHA website allowed the investigators to send the Speech-Language Pathologists a message that was directly linked to their personal email address. Once the email was received, a brief explanation of the proposed study was included (*Appendix A*) along with a link to the survey (<https://www.surveymonkey.com/s/5QFRVFK>). The cover email requested voluntary participation since an active written consent was not obtained and included a phone number and email address in case any questions regarding the survey arose. Approximately two weeks after the initial emails were sent, a follow up reminder email was sent.

2.5 - Data Analysis

The data was collected and analyzed separately for each question. Analysis was descriptive and is found in the results section of this paper.

Chapter 3: Results

The results are presented in a series of tables and figures in the form of raw data. The data is portrayed in various tables and figures that depict the responses made by the participants in the form of percentages and number of responses. The results are presented in the same sequence they were asked and are listed in *Appendix B*. All participants were asked to answer the survey's first question (Question 1) "What is your employment setting?" Table 1 shows the employment setting figures for the survey's initial question. This question generated a total of 51 responses (n=51), indicating that two of the participants selected more than one response. Of the 51 participants, 43% (n=22) indicated that they were currently employed by one of the areas surrounding school districts. Private clinics generated 25% (n=13) of the responses, 10% (n=5) of the surveyed participants selected Early Childhood Intervention (ECI), 4% (n= 2) identified themselves as employed in a hospital setting, and 18% (n=9) selected the "other" option. The nine participants that selected "other" were then asked to further specify their employment setting. Among those responses, home health, pediatric speech therapy clinic, university, and state supportive living center. Therefore indicating that overall most of the surveyed participants were currently employed by a local school district.

Table 1: *Number of participants per employment setting*

Employment Setting	Number of Participants
ECI	5
Clinic	13
Hospital	2
School	22
Other	9

For the 22 participants who identified themselves as working for a local school district a follow up question was solicited (Question 2). The school based Speech-Language Pathologists were asked to identify which school district they were currently employed by “If you are employed by a school district, which one?” The data in Table 2 shows these responses. Overall, 48% (n= 11) of the participants identified themselves as currently employed with the El Paso Independent School District, 22% (n=5) were employed by the Ysleta independent School District, 9% (n=2) were employed by the Socorro Independent School District, 4% (n=1) were employed by both the Canutillo Independent School District and the Clint Independent School District, and 13% (n=3) identified themselves as employees of a school district that was not listed in the initial survey. These unlisted school districts included: San Elizario Independent School District (n=2), and Killeen Independent School District (n=1).

Table 2: *Number of school based Speech-Language Pathologists and their corresponding school district*

School District	Number of Participants
Canutillo	1
Clint	1
El Paso	11
Fabens	0
Gadsden	0
Las Cruces	0
Socorro	2
Ysleta	5
Other	3

All participants (n=48) were asked to report their current position (Question 3), “What is your current position? (Check all that apply)”. The participants were given the following options: “Speech-Language Pathologist”, “Speech-Language Pathology Assistant”, and “Other”. Table 3 displays the numbers of participants per their corresponding position. An overwhelming majority (96%, n=46) of the participants identified themselves as Speech-Language Pathologists. Only 2% (n=1) of the surveyed participants currently held the position of Speech-Language Pathology Assistant. Meanwhile, 4% (n=2) selected the “other” option. Those 3 individuals were asked to specify their “other” selection. Their specifications included; “retired SLP” and “supervisor”. The individual who identified himself or herself as “supervisor” also selected “SLP”.

Table 3: *Number participants per position*

Position	Number of Participants
SLP	46
SLPA	1
Other	2

Question 4 asked all the participating clinicians to identify their own language use. Specifically all participants were asked the following question “Which language(s) do you speak? (Check all that apply)”. Participants were given three options; “English”, “Spanish”, and “Other”. If the “Other” option was selected the participants was then asked to specify the language. Table 4 displays the raw data for the self-reported language use of the participants, while Figure 1 displays the same data in percentages. All of the participants (100%, n=48) reported speaking English, 77% (n=37) selected Spanish, and 8.3% (n=4) selected “other”. When asked to specify their “other” selection all of the participants (n=4) specified that they also spoke

German. It should be noted that these same participants (n=4) also selected both English and Spanish for this question. The data collected from this question indicates that 77% (n=37) of the surveyed participants identified or considered themselves bilingual (English and Spanish). Meanwhile, 8.3% (n=4) of the participants reported knowing three languages (English, Spanish, and German). Also this data indicates that only 22.9% (n=11) of the surveyed participants considered themselves monolingual (English Only) speakers.

Table 4: *Language(s) spoken per participant*

Language(s) Spoken	Number of Participants
English	48
Spanish	37
English and Spanish	37
Other	4

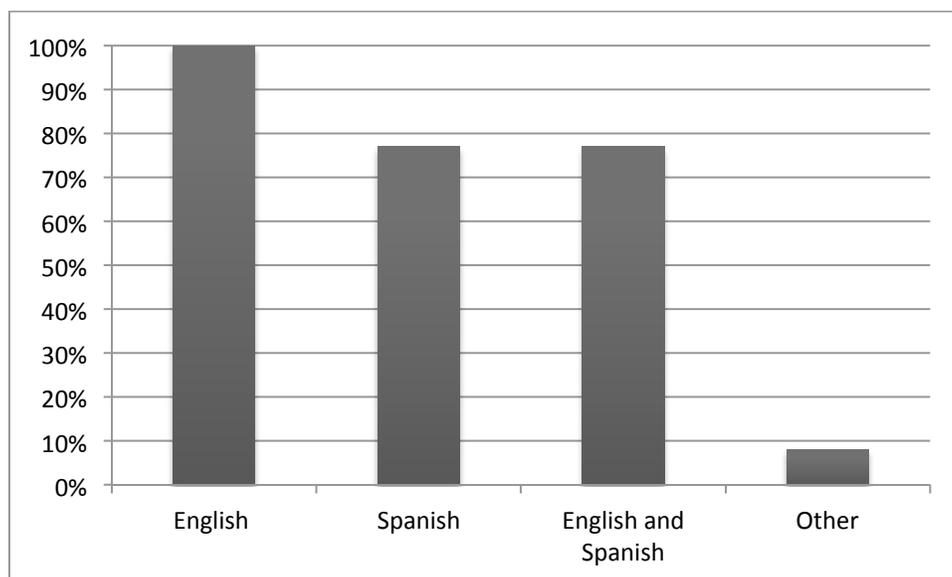


Figure 1: *Language(s) Spoken by Participants*

Question 5 asked about the language(s) used during intervention and its frequency. All surveyed participants were asked to answer this question. This question was asked in a “matrix”

format (and participants were asked to check all that applied. The question read as follows: “Which language(s) do you use during therapy? With what frequency?” These responses are displayed on Table 5 and Figure 2 displays the number of responses. The most notable data collected from this question shows that 37.5% (n=18) of our participants reported to using both English and Spanish at least 25% of the time, while 27% (n=13) reported using English only intervention 100% of their time. Also notable, no other languages were used for intervention.

Table 5: Language(s) and frequency of use during therapy per participant
Number of Participants

Language	Frequency of Language Use				
	Never	25%	50%	75%	100%
Both	1	18	8	6	6
English	0	10	5	8	13
Spanish	3	7	6	7	2
Other	0	0	0	0	0

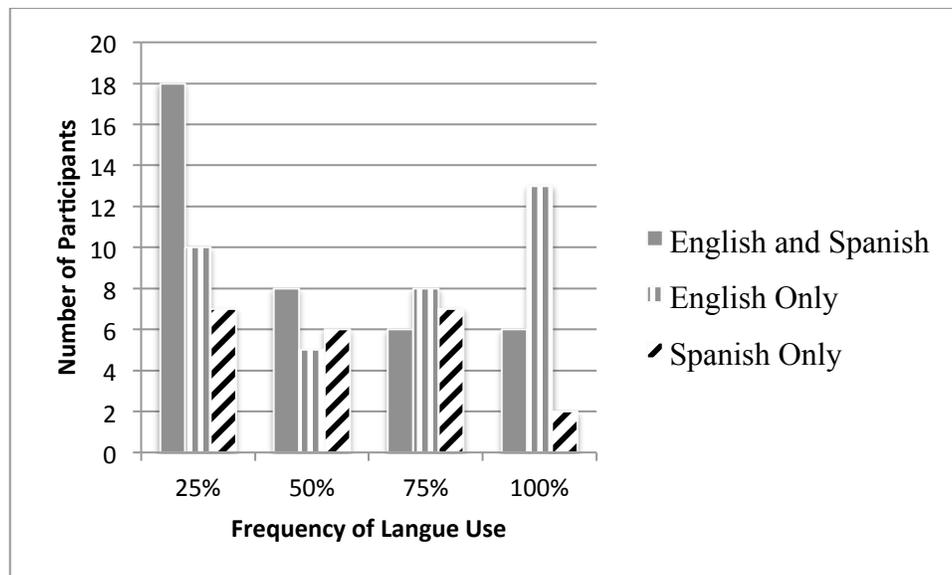


Figure 2: Overall Language Use and Frequency for Intervention

Question 6 was divided into three different sections. Question 6a was asked to all the participants “Do you currently have bilingual children on your caseload?” and were given only two choices “Yes” and “No”. Figure 3 shows the data in the form of percentages. The overwhelming majority of the participants (92%, n=44) answered “Yes” indicating that they did have bilingual children on their current caseload. While a very small percentage (8%, n=4) reported that they did not have bilingual children on their caseload.

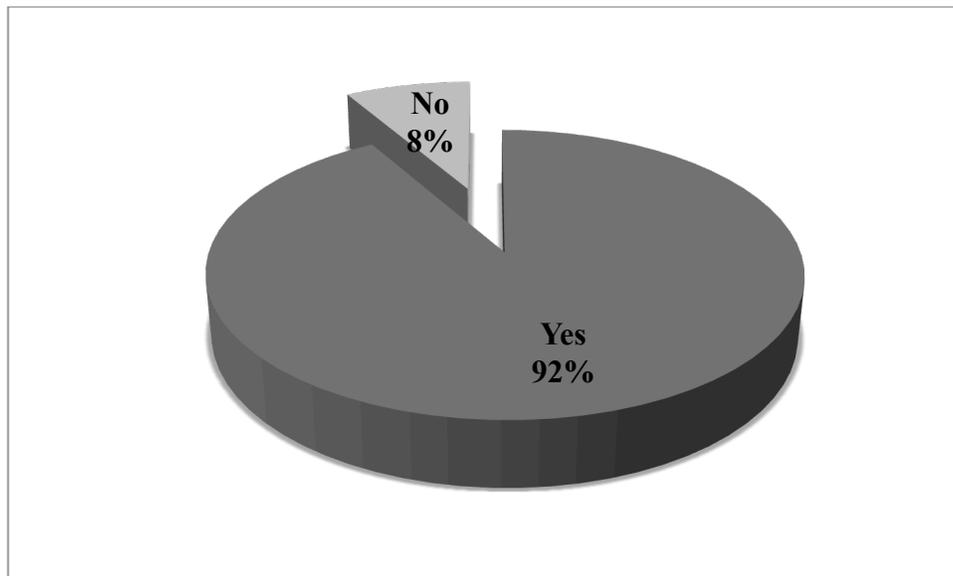


Figure 3: *Percentages of Participants with and Without Bilingual Caseloads*

Question 6b was asked for those 44 individuals whom reported having bilingual children on their caseload. The question asked the participants to specify the number of bilingual children currently on their caseload, “If so how many”. The participants were allowed to write in a response. This question generated a total of 41 responses. Indicating that 3 participants skipped this question. The responses for this question ranged from 2 to 50, and the mean was 14. Standard deviations were also calculated at 11.6, indicating great variance in the number of bilingual children on the participants’ caseloads. The same 44 participants who indicated that they currently had bilingual children on their caseloads were asked to specify the languages spoken by their bilingual clients. Question 6c asked, “Which languages do they speak? (Check

all that apply)". Three choices were provided "English", "Spanish", and "Other". Almost all of the 41 participants (97.6%, n=40) indicated that their bilingual clients were Spanish speakers. Meanwhile 92.7%(n=38) of the participants indicated that their bilingual clients were English speakers, and 9.8% (n=4) selected "other" option. These four individuals were asked to specify their "other" selection. Among the written responses: Japanese, Arabic (2), American Sign Language (2), Mexican Sign Language, and Korean. It should be noted that 6 participants indicated having clients who did not speak English.

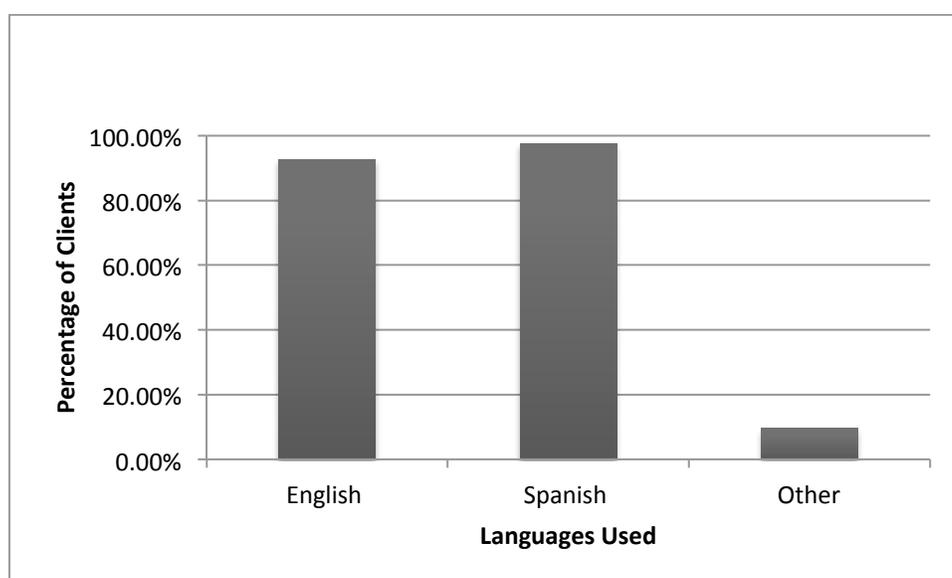


Figure 4: *Participant Reported Language(s) Used by Bilingual Clients*

The survey's remaining 45 participants (3 participants did not complete the survey) were all asked "Do you currently have children with Autism Spectrum Disorder on your caseload?" (Question 7). The majority 89%(n=40) reported currently treating children with ASD, and 11.1% (n=5) indicated that they currently did not have any clients with ASD. Figure 5 displays these results as percentages.

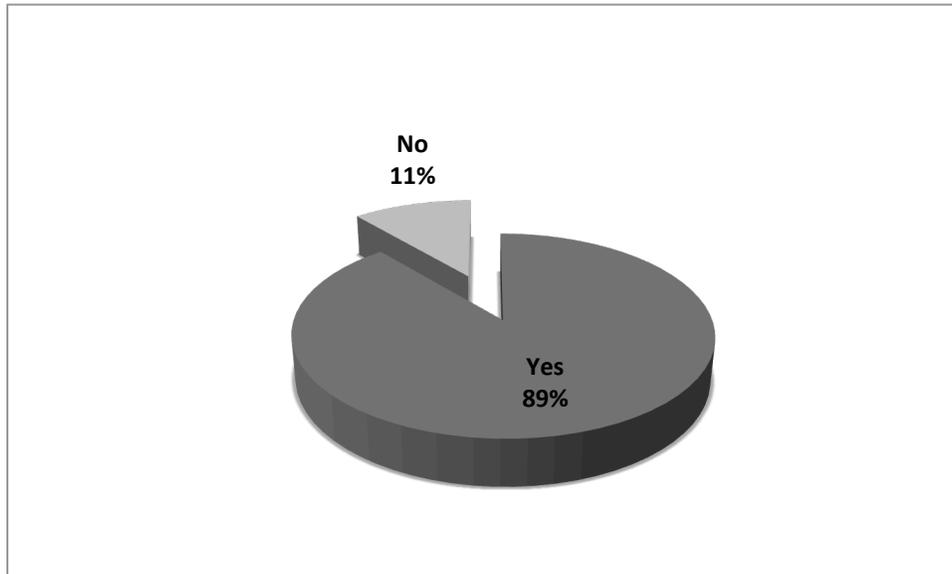


Figure 5: *Participants with Children with ASD on their Caseload*

The 40 individuals who reported having children with ASD on their caseload were asked “If so how many?” (Question 7b). Responses from this question ranged between 1 and 15, with a mean of 6. The standard deviation for these results was calculated at 4.3. Therefore suggesting variance among caseload sizes with children with ASD.

Those participants (n=40) were asked to estimate what percentages of their clients with ASD were nonverbal. Question 8a asked, “What percentage of your clients with Autism Spectrum Disorder are nonverbal?” Participants were given 5 choices “0%, 25%, 50%, 75%, and 100%”. This question generated 40 responses. The majority (45%, n=18) of these participants reported that only 25% of their children with ASD were nonverbal. Meanwhile, 27% (n=11) reported not having any nonverbal children with ASD, 12% (n=5) revealed that approximately half (50%) of their clients with ASD were nonverbal, 8% (n=3) reported 75% of their clients with ASD to be nonverbal, and 8% (n=3) reported that all of their clients with ASD were non verbal. Table 6 indicates the number of responses for each option.

Table 6: *Participant Reported ASD Caseload Percentage of Non Verbal Clients*

Percentage of Non Verbal Clients	Number of Responses
0%	11
25%	8
50%	5
75%	3
100%	3

To examine additional treatment practice trends, the participants who reported having nonverbal clients (n=29), were asked further questions. First, they were asked to report the language(s) used during treatment and its frequency. This question was asked in a “matrix” format and read: “Which language(s) do you use during therapy with the nonverbal children with ASD? With what frequency?” These responses are displayed on Table 7 and Figure 6. Of the data gathered from this question the most notable is 37.9% (n=11) of the 29 participants with nonverbal children revealed that they were only using English during treatment. One participant selected “other” with a frequency of 50%, but did not specify what the “other” language was.

Table 7: *Language(s) and Frequency of Use During Therapy Per Participant with Non Verbal Children with ASD*

Language	Number of Participants				
	Never	25%	50%	75%	100%
Both	3	5	2	3	3
English	1	4	2	4	11
Spanish	2	1	2	4	1
Other	0	0	1	0	0

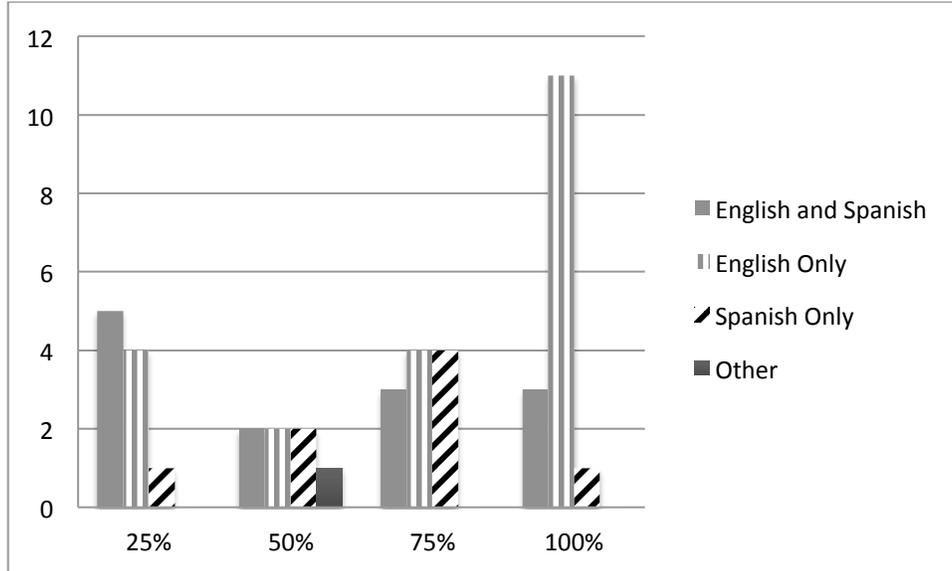


Figure 6: *Language Frequency Use with Nonverbal Children with ASD*

As indicated previously 40 out of the surveyed 48 participants reported having children with ASD on their caseload. For those 40 participants Question 9a was asked, “Do you currently have children with Autism Spectrum Disorder on your caseload who are bilingual?” More than half of the participants (62%, n=25) of the participants selected “yes” and only 38% (n=15) revealed not having bilingual children with ASD. Figure 7 projects the percentages for each response.

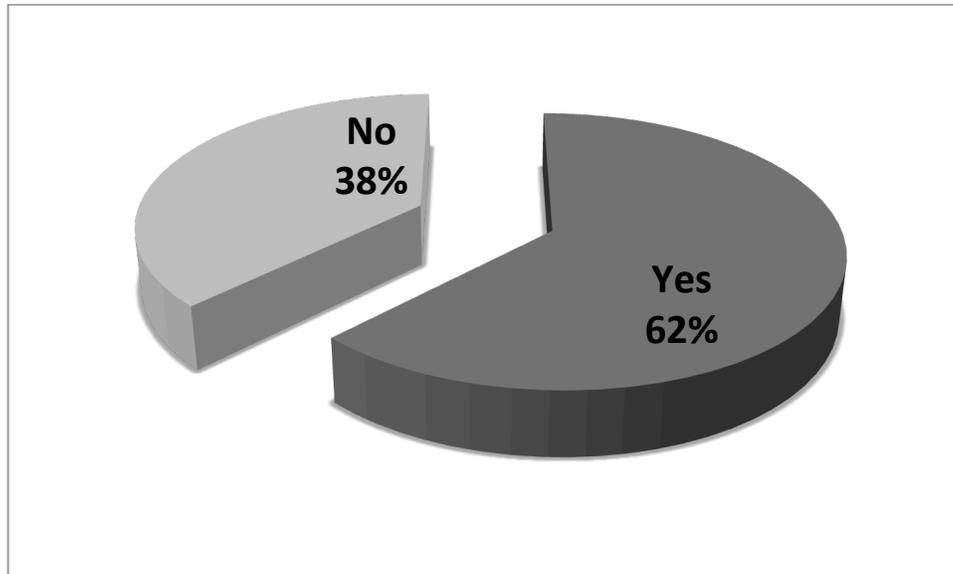


Figure 7: *Percentage of clinicians with Bilingual Children with ASD*

The 25 SLPs who indicated having bilingual clients with ASD were presented with Question 9b, “If so, how many?” The participants were able to write in their responses. Responses ranged between 1 and 8, with an average 3 bilingual clients per caseload. A standard deviation was calculated for this group at 2, indicating little variance in caseload size for bilingual children with ASD.

As a follow up Question 9c read “Which language(s) do you use during therapy with the bilingual children with Autism Spectrum Disorder? With what frequency?” This question was asked in a “matrix” format and participants were asked to check all that applied. The question read as follows: “Which language(s) do you use during therapy? With what frequency?” This question revealed that bilingual treatment (English and Spanish) was the most common treatment trend with bilingual children with ASD. Both languages were reportedly utilized by 6 clinicians (24%) for each of the following frequencies: 25%, 50%, and 100%. English and Spanish was reportedly utilized 75% of the time by 3 clinicians (12%). English was the second most commonly language used for this group (13 selections).

English only services are reportedly provided by 2 clinicians (8%) 25% of the time, 4 (16%) clinicians report using English only services for both 50% and 75% of the times, and 3 clinicians (12%) utilize English only services 100% of the time. Meanwhile, Spanish only services were only used by 7 clinicians, 2 (8%) selected Spanish only for 25% of the time and 50% of the time, and 3 (12%) used only Spanish 75% of the time. It should be noted that Spanish only intervention with 100% frequency was not selected by any of the clinicians. Therefore, indicating that Spanish only intervention 100% of the time is currently not being practiced with any of the bilingual clients with ASD. “Other” was selected 25% of the time by one clinician (4%). This clinician was asked to specify what the “other” language in a follow up write in question. This clinician identified this other language to be Arabic. These responses are displayed on Table 8. Figure 8 also displays the number of responses and its frequency. When the results from question 9c were compared across employment settings (ECI, schools, clinics), it revealed that school based clinicians (70%) are more frequently implementing English only services. Meanwhile clinicians working in ECI (33%) were the least likely to implement English only intervention. Spanish only interventions were only used by ECI (33%) and clinics (53%) but never by school based clinicians (0%).

Table 8: *Language(s) and Frequency of Use During Therapy Per Participant with Bilingual Children with ASD*

Language	Number of Participants					
	Frequency of Language Use					
	Never	25%	50%	75%	100%	
Both	1	6	6	3	6	
English	0	2	4	4	3	
Spanish	1	2	2	3	0	

Other

0

1

0

0

0

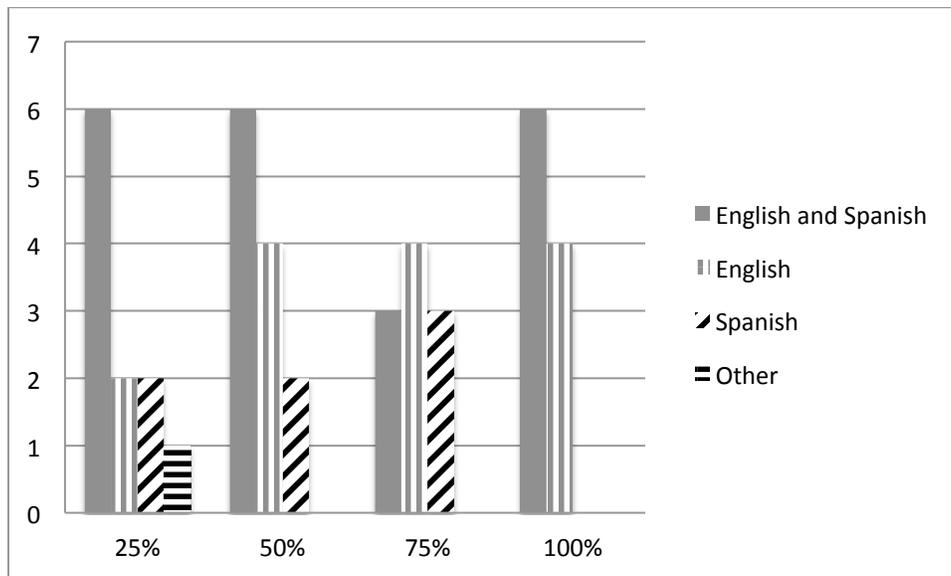


Figure 8: *Language of intervention with bilingual children with ASD and its frequency.*

The 25 participants who identified themselves as clinicians with bilingual children with ASD were asked to rationalize their decision for selecting the language of intervention (Question 10) “What is your rationale for determining the language(s) of intervention?” This was presented as an open-ended question. Common responses included language dominance, home language, parental preference, and teacher preference. These responses are all listed in *Appendix C*. Lastly, the same group of participating clinicians (with bilingual children with ASD) were asked to identify who was providing the services for their clients. Question 11 asked “Who is providing the bilingual services to the bilingual children with Autism Spectrum Disorder? (check all that apply)”. The options for this question included “myself”, “SLPA”, and “Paraprofessional”. Almost all (92%, n=23) of the clinicians selected “myself”, while 32% (n=8) selected “SLPA” and 8% (n=2) selected paraprofessional.

Table 9: *Participants indicated who is providing treatment services for their bilingual clients with ASD.*

Service Provider	Number of Responses
Myself	23
SLPA	8
Paraprofessional	2

Chapter 4: Discussion

The study aimed to collect clinical data regarding the current practice trends of Speech-Language clinicians currently working with bilingual children with ASD. Presently there is little information available regarding the treatment practices with this population. Although a much larger participation sample would have been preferred the data obtained should be considered clinically significant. The data collected provides new information in an area that has just begun to be addressed. Not only did the data collected reveal current intervention trends with bilingual individuals with ASD but it also generated information regarding their service providers. In addition to the language(s) of intervention information the participants provided the rationale behind their language of intervention selections. Once the language of intervention data was compiled and analyzed it revealed that the surveyed sample is most commonly utilizing a bilingual treatment approach with their bilingual client with ASD.

The initial questions helped obtain general information about the participants themselves. This general information reveals that a large majority (75, n=48) of the sampled clinicians consider themselves bilingual (Question 4, Which language(s) do you speak?). While these figures appear to be incredibly significant, they were very much anticipated. These figures correlate with the highly bilingual population of El Paso and its surrounding areas. It is also acknowledged that this could also be attributed to the survey itself seizing the attention of those clinicians who are bilingual. These clinicians also identified themselves as English-Spanish bilinguals, once again in conjunction with the language use in El Paso area.

The information compiled from Question 5 (Which language(s) do you use during therapy? With what frequency?) revealed that a 27% (n=13) of the clinicians currently use English only intervention 100% of the time. English only intervention 100% of the time was

selected by 10 out of the 22 school based clinicians (45%), 2 out of the 13 (15%) clinicians employed by a private clinic, and by none of the ECI clinicians. The notion that school based clinicians are the most likely to use English only intervention in their everyday intervention is not surprising as English is the language of instruction (Morales & Aldana, 2010). Overall, English only intervention (all frequencies) was selected by 2 out of 5 ECI clinicians, 19 out 22 school based clinicians, and 10 of the 13 clinicians practicing in private clinics. These figures indicate that 86% of the sampled school based use English only intervention in their practice. Once again these high figures are anticipated since English is the language of education (Morales & Aldana, 2010).

Almost all the surveyed clinicians (92%, n=44) reported having bilingual caseloads (Question 5, Do you currently have bilingual children on your caseload?). Once again these staggering numbers were expected not only because of the increase of bilingualism in the United States but also because of the high percentage of bilingual populations in El Paso and its surrounding areas. Also the survey was also more likely to be completed by a clinician with a bilingual caseload than one without bilingual clients. As previously stated the El Paso area is exceedingly bilingual consequently these figures further supports that concept. Also in accordance with El Paso's demographics is the data gathered from Question 6c (Which languages do they speak?), which reveals that 97.6% of the bilingual caseloads are indeed English and Spanish bilingual caseloads.

In concurrence with the spike in incidences of ASD almost all of the surveyed clinicians revealed that they currently had children with ASD disorders on their current caseload (Question 7, "Do you currently have children with Autism Spectrum Disorder on your caseload?"). It is recognized that such high figures could be due to greater interest in the survey from clinicians

servicing children with ASD. Due to the limited research regarding bilingual children with ASD, the responses from Question 9 (a, b, & c) are valuable. Data from this question is preliminary in establishing evidence about bilingual children with ASD. Question 9a (Do you currently have children with Autism Spectrum Disorder on your caseload who are bilingual) revealed, the majority (62% and 52%) of both the overall sample (n=48) and sample of clinicians with ASD caseloads (n=40) report that they do have bilingual children with ASD. This data is crucial since it indicates that a majority of clinicians have bilingual children with ASD on their caseloads.

As previously mentioned the caseload mean for clients with ASD was 6, meanwhile the caseload mean for bilingual clients with ASD is. Thus indicating that an estimated half of ASD caseloads include children who are bilingual. It is important to consider that there is currently no research available in which these figures may be compared to. As previously mentioned English and Spanish intervention was most commonly practiced over all with the majority of the surveyed participants with bilingual clients with ASD. Once again this information currently cannot be compared to any other information, as it is not available.

When the results from Question 9c (“Which language(s) do you use during therapy with bilingual children with ASD? With what frequency?”) were compared across employment settings (ECI, schools, clinics), it revealed that school based clinicians (70%) are more frequently implementing English only services. As expected English only intervention is more common practice with the school-based clinicians than any other employment setting. Meanwhile clinicians working in ECI (33%) were the least likely to implement English only intervention, this is also anticipated as the research supports utilizing the native language in the initial stages of intervention (Cummins, 1996). Spanish only interventions were only used by ECI (33%) and clinics (53%) but never by school based clinicians (0%). This is not surprising knowing what we

know about the educational system and its transition away from the native language. As this data is preliminary data it too was unable to be compared to any other figures since it is not available.

In question 8a (What percentage of your clients with ASD are nonverbal?) data indicates that 25% of the ASD caseloads were commonly (n=18) nonverbal children. It is estimated that 25% of children with ASD are nonverbal, (Koegel, 2000; Turner, Stone, Pozdol & Lord, 2007) thus the data collected from El Paso and its surrounding areas mirrors statewide reports. It should be noted that the term “nonverbal” was not operationally defined in the survey, and thus leading the clinicians to make their own interpretation of what being “nonverbal” entails. The follow up question (8b, Which language(s) do you use during therapy with the nonverbal children ASD? With what frequency?) also revealed that English only intervention was most commonly utilized with non-verbal children in El Paso. It should be noted that the questionnaire failed to ask the participants to determine if any of these nonverbal children were bilingual.

The responses obtained from Question 10 (What is your rationale for determining the language(s) of intervention?) revealed several common threads. As the majority of our participants were school based clinicians (42%, n=22) the responses are somewhat reflective of that as educational, academic, or language of instruction were commonly mentioned (29%, n=7). Meanwhile, in conjunction with the literature the majority of the participants who provided a rationale (62%, n=15) described that supporting the native or home language was part of their rationale when determining a language of intervention.

Limitations for this study include a very small population sample, with limitations based on the notion that all the participants currently reside in the City of El Paso. Although the response rate at 12% is consistent with national trends (10%) for a survey with no incentives and only one follow up (Knapton, 2012) a larger response rate would have been preferred regardless.

Since El Paso is such a highly bicultural and bilingual area due to its geographical location it is very unlikely that these results will be consistent if a national comparison was to be made. However, if more national sample was collected, the data from this study is valuable since a comparison between bilingual communities and monolingual communities can be made. More thorough information regarding the participants' clients would be extremely beneficial. Including more client specific information regarding language use, language fluency, native language, language instruction, and home language could be advantageous. Further information regarding the language use, language fluency, native language, language instruction, and home language of the participating SLP (A) s could also be significant. Information regarding a clear and concise number of individuals with Autism Spectrum Disorder currently residing in El Paso and how many of them are bilingual would be incredibly advantageous. As previously mentioned the term "bilingualism" is difficult to define operationally. Thus, the study's greatest limitation is the fact that it did not operationally define bilingualism. Since the research in this area is lacking, the data obtained from the survey itself was not compared to any other data, as it is currently unavailable.

In the future it is recommended that similar studies continue to be conducted so the public and professionals can become aware of the lack of evidence for bilingual children with ASD. It would be very interesting to see a similar study conducted on a larger more nationwide scale. Further research may also aim to determine how many children with ASD are bilingual. Ultimately, it is anticipated that future researchers will conduct intervention studies, and determine which language(s) is the most beneficial for bilingual children with ASD.

References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: American Psychiatric Association. 2000.
- American Speech-Language-Hearing Association (ASHA). (1985). *Clinical management of communicatively handicapped minority language populations [Position Statement]* Available from www.asha.org/policy.
- American Speech-Language-Hearing Association. (2004). *Knowledge and Skills Needed by Speech-Language Pathologists and Audiologists to Provide Culturally and Linguistically Appropriate Services [Knowledge and Skills]*. Available from www.asha.org/policy/KS2004-00215.htm.
- American Speech-Language-Hearing Association. (2005). Cultural competence [Issues in Ethics]. Available from www.asha.org/policy/ET2005-00174.htm
- American Speech-Language-Hearing Association. (2010). Membership profile: Highlights and trends. Retrieved from www.asha.org/research/memberdata
- American Speech-Language-Hearing Association. (2011). Cultural competence in professional service delivery [Position statement]. Available from www.asha.org/policy/PS201100325.htm
- Autism speaks. (2013). Retrieved from <http://www.autismspeaks.org/what-autism>
- Bartak, L., Rutter, M., & Cox, A. (1975). A comparative study of infantile autism and

- specific developmental receptive language disorder I. The children. *The British journal of psychiatry*, 126(2), 127-145.
- Batalova, J. (2006). Spotlight on limited English proficient students in the United States. *Washington, DC: Migration Policy Institute*. Retrieved September, 30, 2012.
<http://www.migrationinformation.org/USfocus/display.cfm?id=373#8>
- Blumberg, S. J., Bramlett, M. D., Kogan, M. D., Schieve, L. A., Jones, J. R., & Lu, M. C. (n.d.). Changes in prevalence of parent-reported autism spectrum disorder in school-aged u.s. children: 2007 to 2001-2012. (2013). *National Health Statistics Report*, 65,
- Capps, R., Fix, M., J., Ost, J., J., Passel, J. S. & Herwantoro, S. (2005). The new demography of America's schools: Immigration and the No Child Left Behind act. Washington, DC: Urban Institute. Retrieved on March 11, 2013, from
<http://www.urban.org/publications/311230.html>
- Carter, A.S., Black, D.O., Tewani, S., Connolly, C. E., Kadlec, M.B., Tager-Flusberg, H. (2007). Sex differences in toddlers with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 37 (1), 86-97.
- Charman, T., Drew, A., Baird, C., & Baird, G. (2003). Measuring early language development in preschool children with autism spectrum disorder using the macarthur communicative development inventory (infant form). *Journal of Child Language*, 30(1), 213-236.
- Crawford, J. (2004). Educating English learners. *Language Diversity in the Classroom*. (5th ed.). Los Angeles : Bilingual Educational Services.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49, 222–251.

- Cummins, J. (1981). Empirical and theoretical underpinnings of bilingual education. *Journal of Education*, 163, 16–29.
- Cummins, J. (1996). *Negotiating identities: Education for empowerment in a diverse society* (pp. 1-368). Ontario, CA: California Association for Bilingual Education.
- De Houwer, A. (1995). Bilingual language acquisition. In Fletcher & MacWhinney (Eds.), *Handbook of Child Language* (pp. 219-250). London: Blackwell.
- Feltmate, K., & Kay-Raining Bird, E. (2008). Language learning in four bilingual children with Down Syndrome: A detailed analysis of vocabulary and morphosyntax. *Canadian Journal of Speech-Language Pathology and Audiology*, 32, 6–20
- García, O. (2009). *Bilingual education in the 21st century*. Wiley-Blackwell.
- Genesee, F., Paradis, J., & Crago, M. (2004). *Dual language development and disorders: A handbook of bilingualism and second language learning*. Baltimore, MD: Brookes.
- Gutierrez-Clellen, V. (1999). Language choice in intervention with bilingual children. *American Journal of Speech-Language Pathology*, 8, 291 – 302.
- Gutierrez-Clellen, V. F., Simon-Cerejido, G., & Wagner, C. (2008). Bilingual children with language impairment: A comparison with monolinguals and second language learners. *Applied Psycholinguistics*, 29, 3–19.
- Hambly, C., & Fombonne, E. (2012). The impact of bilingual environments on language development in children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42, 1342–1352.
- Hammer, C. S., & Rodriguez, B. (2012). Bilingual language acquisition and the child

- socialization process. In B. Goldstein (Ed.), *Bilingual Language Development & Disorders in Spanish-English Speakers* (2nd ed., pp. 31-46). Chelsea, MI: Paul H. Brookes Publishing Co.
- Jegatheesan, B. (2011). Multilingual Development in Children with Autism: Perspectives of South Asian Muslim Immigrant Parents on Raising a Child with a Communicative Disorder in Multilingual Contexts. *Bilingual Research Journal*, 34(2), 185-200.
- Johnson, C. P., & Myers, S. M. (2007). Identification and evaluation of children with autism spectrum disorders. *Pediatrics*, 120(5), 1183-1215.
- Jordaan, H. (2008). Clinical intervention for bilingual children: An international survey. *Folia Phoniatica et Logopaedica*, 60(2), 97-105.
- Kay-Raining Bird, E., Cleave, P., Trudeau, N., Thordardottir, E., Sutton, A., & Thorpe, A. (2005). The language abilities of bilingual children with Down Syndrome. *American Journal of Speech-Language Pathology*, 14, 187-199.
- Kay-Raining Bird, E., (2006) The case for bilingualism in children with Down syndrome, In R. PAUL (ed.), *Language Disorders from a Developmental Perspective: Essays in Honor of Robin S. Chapman* (Mahwah, NJ: Lawrence Erlbaum Associates), pp. 249-275.
- Kjelgaard, M. M., & Tager-Flusberg, H. (2001). An investigation of language impairment in autism: Implications for genetic subgroups. *Language and cognitive processes*, 16(2-3), 287-308.
- Knapton, K. (2012). *Survey response rates*. Retrieved from <http://www.peoplepulse.com.au/Survey-Response-Rates.htm>
- Koegel, L. K. (2000). Interventions to facilitate communication in autism. *Journal of*

- Autism and Developmental Disorders*, 30(5), 383-391.
- Kohnert, K., Yim, D., Nett, K., Kan, P. F., & Duran, L. (2005). Intervention with linguistically diverse preschool children: A focus on developing home language(s). *Language, Speech, and Hearing Services in Schools*, 36, 163–251.
- Kohnert, K. (2008) *Language disorders in bilingual children and adults*. San Diego: Plural.
- Kohnert, K. (2010). Bilingual children with primary language impairment Issues, evidence and implications for clinical actions. *Journal of Communication Disorders*, 43,456-473.
- Kohnert, K. A., & Derr, A. (2012). Language intervention with bilingual children. In B. Goldstein (Ed.), *Bilingual Language Development & Disorders in Spanish-English Speakers* (pp. 337-356). Chelsea, MI: Paul H. Brookes Publishing Co.
- Kohnert, K., & Medina, A. (2009) Bilingual children and communication disorders: A 30 year research retrospective. *Seminars in Speech and Language*, 30, 219 – 233.
- Kohnert, K., Yim, D., Nett, K., Kan, P. F. & Duran, L., 2005, Intervention with linguistically diverse preschool children: a focus on developing home language(s). *Language, Speech and Hearing Services in the Schools*, 36, 251–263.
- Kremer-Sadlik, T. (2004). To be or not to be bilingual: Autistic children from multilingual families. *Proceedings of the Fourth International Symposium on Bilingualism* (pp.1225–1234) Somerville, MA: Cascadilla Press.
- Landa, R. (2007). Early communication development and intervention with children with autism. *Mental Retardation & Developmental Disabilities Research Reviews*, 13 (1), 16-25.

- Landa, R. (2000). Social language use in Asperger syndrome and high-functioning autism. In A. Klin, F. Volkmar, & S. Sparrow (Eds.), *Asperger syndrome* (pp. 125–158). New York, NY: Guilford Press.
- Lord, C., & Paul, R. (1997). Language and communication in autism. *Handbook of autism and pervasive developmental disorders, 2*, 195-225.
- Lord, C., Rutter, M., & Le Couteur, A. (1994). Autism Diagnostic Interview-Revised: a revised version of a diagnostic interview for caregivers of individuals with possible pervasive developmental disorders. *Journal of autism and developmental disorders, 24*(5), 659-685.
- McLaughlin, B. (1984). Early bilingualism: Methodological and theoretical issues. In M. Paradis & Y. Lebrun (Eds.), *Early bilingualism and child development* (pp.19-45). Lisse, The Netherlands: Swets & Zeitlinger.
- Meisel, J. (1994). Code-switching in young bilingual children. *Studies in second language acquisition, 16*(4), 413-39.
- Morales, Z. P., & Aldana, U. S. (2010). Learning in two languages: Programs with political promise In P. Gandara & M. Hopkins (Eds.), *Forbidden Language* (pp. 159-174). New York, NY: Teachers College Press
- National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.
- Nordin, V., & Gillberg, C. (1998). The long-term course of autistic disorders: Update on follow-up studies. *Acta Psychiatrica Scandinavica, 97*, 99-108.
- Ortiz, A. A. (1984). Choosing the language of instruction for exceptional bilingual children. *Teaching Exceptional Children, 16*, 208–212.

- Paradis, J., Crago, M., Genesee, F., & Rice, M. (2003). Bilingual children with specific language impairment: How do they compare with their monolingual peers? *Journal of Speech, Language and Hearing Research*, 46, 113–127.
- Petersen, J. M., Marinova-Todd, S. H., & Mirenda, P. (2012). Brief report: An exploratory study of lexical skills in bilingual children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42, 1499–1503
- Paul, R., & Cascella, P.W. (Eds.). (2007). *Introduction to clinical methods in communication disorders*. (2nd ed.). Baltimore: Paul H. Brookes Publishing Co.
- Paradis, J., 2007, Bilingual children with specific language impairment: theoretical and applied issues. *Applied Psycholinguistics*, 28, 551–564.
- Rau, J.D. (2003, April). Is it autism? *Contemporary Pediatrics*, 20 (4), 54-82.
- Rolstad, K. Mahoney, K., & Glass, G. (2005). The big picture A meta-analysis of program effectiveness research on English language learners. *Educational Policy*, 19, 572 – 594.
- Rutter, M., Mawhood, L., & Howlin, P. (1992). Language delay and social development. *Specific speech and language disorders in children*, 63-78.
- Schechtman, M. A. (2007). Autism Spectrum Disorders. *Pediatric annals*, 36(8), 497.
- Szatmari, P. (2003). The causes of autism spectrum disorders. *BMJ*, 326(7382), 173-174.
- Tager-Flusberg, H., Calkins, S., Nolin, T., Baumberger, T., Anderson, M., & Chadwick-Dias, A. (1990). A longitudinal study of language acquisition in autistic and Down syndrome children. *Journal of Autism and Developmental Disorders*, 20(1), 1-21.
- Tager-Flusberg, H., Paul, R., & Lord, C. (2005). Language and communication in autism. In F. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), *Handbook of autism and pervasive*

- developmental disorders (3rd ed., pp. 335–364). Hoboken, NJ: Wiley.
- Tager-Flusberg, H., & Sullivan, K. (2000). A componential view of theory of mind: Evidence from Williams syndrome. *Cognition*, 76(1), 59-90.
- Thordardottir, E. (2002). Parents' views on language impairment and bilingualism. Paper presented at the American Speech and Hearing Association Conference, Atlanta, GA, November 2002.
- Turner, L. M., Stone, W. L., Pozdol, S. L., & Coonrod, E. E. (2006). Follow-up of children with autism spectrum disorders from age 2 to age 9. *Autism*, 10(3), 243-265.
- U. S. Census Bureau. (2010). *State & County QuickFacts: El Paso, TX*. Retrieved November 20, 2011, from <http://quickfacts.census.gov/qfd/states/48/48141.html>.
- U.S. Department of Education. (2000). *The condition of education 2000*. Washington, DC: National Center for Education Statistics.
- Utey, C. A., & Obiakor, F. E. (2001). *Special education, multicultural education, and school reform: Components of quality forearners with mild disabilities*. Springfield, IL: Charles C. Thomas.
- Von Vacano, M. (1994). Using the home language in the education of language minority children. *NABE News*, 17(6), 27–29.
- Wharton, R. H., Levine, K., Miller, E., Breslau, J., & Greenspan, S. I. (2000). Children with special needs in bilingual families: A developmental approach to language recommendations. In S. I. Greenspan & S. Wieder (Eds.), *The Interdisciplinary Council on Developmental and Learning Disorders clinical practice guidelines* (pp141–151). Bethesda, MD: *The Interdisciplinary Council on Developmental and Learning Disorders*.
- Wilkinson, K. M. (1998). Profiles of language and communication skills in autism.

Mental Retardation and Developmental Disabilities Research Reviews, 4(2), 73-79.

Young, E., Diehl, J., Morris, D., Hyman, S., & Bennetto, L. (2005). The use of two language tests to identify pragmatic language problems in children with autism spectrum disorders. *Language, Speech, and Hearing Services in Schools*, 36, 62–72.

Yu, B. (2013). Issues in bilingualism and heritage language maintenance: Perspectives of minority-language mothers of children with Autism Spectrum Disorders. *American Journal of Speech-Language Pathology*, 22(1), 10.

Zwaigenbaum, L., Bryson, S., Rogers, T., Roberts, W., Brian, J., & Szatmari, P. (2005). Behavioral manifestations of autism in the first year of life. *International Journal of Developmental Neuroscience*, 23(2), 143-152.

Appendix A

You are invited to participate in a survey, entitled “Language of Intervention in Bilingual Children with Autism” The study is being conducted by Alejandra Carrillo and Drs. Connie Summers and Vannesa Mueller and from the University of Texas at El Paso.

This study aims to determine which language (English or Spanish) is most commonly utilized with bilingual children with Autism Spectrum Disorder in the El Paso region. Your participation in the survey will contribute to a better understanding of the current practices with bilingual children with ASD. This survey includes a series of general questions (such as your position, employment location, caseload) as well as information of your intervention methods (language(s) of intervention, AAC).

The survey is intended for practicing clinicians who are working with pediatric populations. We estimate that this survey will take approximately 10 minutes of your time to complete. To complete the survey, click on the link below:

<https://www.surveymonkey.com/s/5QFRVFK>

Your participation in this survey is voluntary and anonymous. There will be no response information linked to your email address. You have the right to withdraw from participation at any time without penalty by not completing the survey.

This study has been reviewed and approved by The University of Texas at El Paso Institutional Review Board. If you have questions about your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Institutional Review Board email at irb.orsp@utep.edu.

If you have any questions, please contact Connie Summers, Ph.D., CCC-SLP at (915) 747-8226 or bilinguallab.utep@gmail.com. A copy of this letter is attached to this email for your records.

If you agree to participate please click on this link:

<https://www.surveymonkey.com/s/5QFRVFK>. You may also copy and paste the address into your web browser.

Thank you,

Connie Summers, Ph.D., CCC-SLP
Vannesa Mueller, Ph.D., CCC-SLP
Alejandra Carrillo, B.A.

Appendix B

1. What is your employment setting? (Check all that apply)

- ECI
- School District
- Clinic
- Hospital
- Other
- Please specify _____

2. If you are employed by a school district, which one?

- Canutillo
- Clint
- El Paso
- Fabens
- Gadsden
- Las Cruces
- Socorro
- Ysleta
- None
- Other
- Please specify _____

3. What is your current position? (Check all that apply)

- SLP
- SLPA
- Other
- Please specify _____

4. Which language(s) do you speak? (Check all that apply)

- English
- Spanish
- Other

5. Which language(s) do you use during therapy? With what frequency?

	Never	25%	50%	75%
	100%			

Both English & Spanish

English Only

Spanish Only

Other

Please specify _____

6. A. Do you currently have bilingual children on your caseload?

- Yes
- No

- B. If so how many? ___
- C. Which languages do they speak? (Check all that apply)
- English
- Spanish
- Other
- Please specify _____

7. A. Do you currently have children with Autism Spectrum Disorder on your caseload?
- B. If So how many? ___

8. A. What percentage of your clients with ASD are nonverbal?
- 0%
- 25%
- 50%
- 75%
- 100%

- B. Which language(s) do you use during therapy with the nonverbal children ASD? With what frequency?

	Never	25%	50%	75%	100%
Both English & Spanish					
English Only					
Spanish Only					
Other					

Please specify _____

9. A. Do you currently have children with ASD on your caseload who are bilingual?
- Yes
- No

- B. If so how many? ___

- C. Which language(s) do you use during therapy with bilingual children with ASD? With what frequency?

	Never	25%	50%	75%	100%
Both English & Spanish					
English Only					
Spanish Only					
Other					

Please specify _____

10. What is your rationale for determining the language(s) of intervention?

11. Who is providing the bilingual service to the bilingual children with Autism Spectrum Disorders? (check all that apply)

Myself

SLPA

Paraprofessional

Appendix C

1. Languages spoken by parents and daycare teacher.
2. I first determine what is the pt. dominant language L1 or L2 via Standardized Assessments and then have a conference with the parent to determine what language is mainly used while at home.
3. Go with their primary language or the language spoken in the home by parents.
4. I use whichever language in which the child is exposed to, understands better, or expresses himself/herself in. It has been my experience that a bilingual child with Autism can speak English, although Spanish is the only language spoken in the home. So, receptively he/she is stronger in Spanish, but expressively, English is the dominant language. I often use the language that the child responds more to, and often, that is both languages.
5. Past present and future language needs
6. This is based on language of instruction, parent denial of Spanish as an instructional language, and the availability of services
7. Intervention is usually begins in the child's home language and initially targets functional communication with the caregiver. Our goal is to get the child to communicate needs and wants in a manner that others can understand.
8. Students receive academic instruction in English. Some students speak both languages, but their dominant language appears to be English.

9. Utilize the language that is spoken by their primary caregivers (parents/teachers), however in this city is usually Spanish at home and English at school, so a combination of both languages is usually implemented during therapy. Some of my clients speak some words in English and some in Spanish. I have noticed that the syllabic constructions as well as the number of syllables of commonly used words in English are easier than in Spanish, and bilingual children who are exposed to both languages tend to prefer most English words.

10. CLIENT RESPONSES

11. Home language or PLS-5 in both languages

12. Parent feedback regarding what they believe to be the dominant language.

13. Parent determines language dominance/instruction-- some parents consider SLP and ARD committee recommendations about language choice and some choose not too. At pre-k level most programs are monolingual and bilingual, for special ed bilingual students most often teachers have to use Spanish and English with students as a way to bridge languages. Information from parent about language spoken in the home, by caregivers, and by the child are considered during evaluation and when determining intervention.

14. Review Home Language Survey for language spoken in the home and by student. 2. Observe how student is responding to instructional language; which language is teacher using? Is she using both English and Spanish? How often? Is student responding to English instruction? 3. Make recommendation based on student progress in speech therapy and teacher input. 4. Parents are informed that recommendation is for language of instruction and they are encouraged to speak to their child in their native language.
15. Dominant language - understood and spoken (if applicable) - language in the home and language used in the school -
16. Language spoken at home. However because all students are exposed to English at school, I frequently use both languages. In my experience English vocabulary becomes more dominate than Spanish.
17. Dominance
18. Home Language
19. Language of the home and language of instruction if they have been getting services in the past. Most children will transition into schools that offer only English services but they still need support at home.
20. At this point these students language skills are the same in both languages
21. I base it on Parent/ Home language, what language the school is providing educational vocabulary, and which language the student appears to attend to better. However, we typically provide English therapy with Spanish support as needed.

22. Language dominance is my primary rationale but I also provide more intervention in both Spanish and English once the child starts school to help the child transition to English instruction at school.
23. Assessment and Intervention are typically in the child's native/home language to ensure it is a true language disorder and not a language difference.
- a. Student's dominant language. At first only in their dominant language, then in both and then to English as their vocabulary language dominance changes. 2) When students are in a self contained setting they generally are taught by teachers who only speak English. When both primary and secondary language of the child are equal, many times education is in English only and therapy is in both languages or sometimes only in English. English tends to be the language they develop their vocabulary in when in a self contained setting
24. I take into account all of the following data: (1) intake referral information concerning home language; (2) unstructured conversation with parent(s), any sibling(s), and the child; (3) results of formal and informal evaluation, utilizing both criterion- and norm-referenced measurements, as conducted in either Spanish or English (or both when needed); (4) careful analysis and ruling-out of dialectal differences; and (5) consideration of the child's current and future sociolinguistic, interpersonal communicative needs.

Curriculum Vita

Alejandra Carrillo was born in El Paso, Texas. The oldest of six siblings, she graduated from Austin High School in El Paso, Texas June 2006. Alejandra enrolled in the University of Texas at El Paso in the fall of 2006 and graduated with a Bachelor of Arts degree in Spanish with a Minor in Speech-Language Pathology in May 2011. Alejandra began pursuit of a Master of Science degree in Speech-Language Pathology immediately after graduation and enrolled in the Speech-Language Pathology program in the Fall 2011. During this time Alejandra completed academic course work, clinical practicum rotations, an independent study, volunteer work in the community, and her own research. She presented her research at the 57th Annual Texas Speech-Language Hearing Association Convention in March of 2013. As of May 18th 2013, Alejandra will be awarded a Master of Science degree in Speech-Language Pathology with a Bilingual Certification (English/ Spanish). Alejandra looks forward to continuing research in the areas of bilingualism and Autism Spectrum Disorder.

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This thesis/dissertation was typed by Alejandra Carrillo.