2015

A CLINICAL CASE STUDY EXPLORING THE IMPACT OF BILINGUAL SUPPORT IN SPEECH-LANGUAGE INTERVENTION FOR A CHILD WITH AUTISM

Zaynab Taei
University of Kentucky, zaynab.taei@uky.edu

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine) which will be submitted to UKnowledge as Additional File.

I hereby grant to The University of Kentucky and its agents the irrevocable, non-exclusive, and royalty-free license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless an embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's thesis including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Zaynab Taei, Student

Dr. Jodelle Deem, Major Professor

Dr. Jodelle Deem, Director of Graduate Studies

A CLINICAL CASE STUDY EXPLORING THE IMPACT OF BILINGUAL SUPPORT IN SPEECH-LANGUAGE INTERVENTION FOR A CHILD WITH AUTISM

THESIS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in the College of Health Sciences at the University of Kentucky

By
Zaynab Kaylee Taei

Lexington, Kentucky

Director: Dr. Jodelle Deem, Professor of Communication Sciences and Disorders

Lexington, Kentucky

2015

ABSTRACT OF THESIS

A CLINICAL CASE STUDY EXPLORING THE IMPACT OF BILINGUAL SUPPORT IN SPEECH-LANGUAGE INTERVENTION FOR A CHILD WITH AUTISM

Managing language choice in speech-language intervention is increasingly an issue for speech-pathologists treating bilingual children. Frequently L2 approaches only are implemented, resulting in negative effects on L1 acquisition, familial ties, and cultural transmission. This study examined the impact of a bilingual intervention on a school-aged child and her family. Providing intervention and therapy activities in the L1 resulted in increased parental engagement, increased L1 use by the child, and increased awareness of strategies for treating bilingual children among SLPs at the study site.

KEYWORDS: bilingualism, cultural transmission, cultural competency, autism, parental engagement

Zaynab K. Taei

Author's signature

April 10 2015

Date

A CLINICAL CASE STUDY EXPLORING THE IMPACT OF BILINGUAL SUPPORT IN SPEECH-LANGUAGE INTERVENTION FOR A CHILD WITH AUTISM

By
Zaynab Kaylee Taei

Jodelle Deem
Director of Thesis

Jodelle Deem
Director of Graduate Studies

April 10 2015
Date

Acknowledgements

The following thesis, while an individual work, was completed with direction and assistance from several individuals. I would like to thank my Thesis Chair, Dr. Jodelle Deem, who provided guidance and encouragement throughout the course of this endeavor. I would also like to thank Dr. Jane Kleinert and Dr. Judith Page for providing feedback that directed the structure of this thesis.

Additionally, I would like to thank Corie Sexton, who provided clinical supervision and direction for this project, and who allowed me to take an active role in therapy sessions in order to complete this thesis, as well as offering her time to participate in my data collection and verification process. I would also like to thank Corie for her encouragement in presenting information from this thesis to her fellow clinicians. I would like to thank Meg Shake, Melissa Liechty, and Ellen Hagerman for the opportunity to share the information from this thesis, and for their consistent support in providing opportunities for me to implement my research in the clinic.

Thanks also goes to my classmate Amy Utz, for her time spent determining inter-rater reliability.

Enfin, je voudrais remercier la participant de cette étude et sa mère pour me permettre participer dans sa therapie, et pour la patience et la générosité de temps qu'elles ont montré pendant leur participation dans cette étude.

In addition to the research assistance above, I also want to thank my classmates Erin Salmons and Heather Iwinski for their continuous emotional support over the course of the completion of this thesis. Without their camaraderie and encouragement, this project would not have been completed. I am also grateful to my partner, Caitlyn Patton, for her patience and support during times of stress. Lastly, thanks goes to my cat, Turnbull, for his loyal companionship through long hours of typing.

TABLE OF CONTENTS

Acknowledgements ……..iii

List of Tables……..v

Chapter One: Introduction and Review of Literature……..1

Chapter Two: Methodology……..9

Chapter Three: Results……..12

Chapter Four: Discussion…….....20

Appendices……...26

APPENDIX A: Handouts provided to on-site clinicians for use in therapy……26

APPENDIX B: Interview questionnaire in original French with English translation……28

References……29

Vita……32

LIST OF TABLES

Table 1, Inter-rater reliability……..11

Table 2, List of identified themes……..12

CHAPTER ONE: INTRODUCTION & REVIEW OF THE LITERATURE

Multiculturalism and Bilingualism in the United States

As discussed in the American Speech-Language and Hearing Association (ASHA) Scope of Practice document (2007), the objective of a speech language pathologist (SLP) providing services "is to optimize individuals' ability to communicate and swallow, thereby improving quality of life." As the diversity of the US population increases, SLPs should be aware of the ways in which this increasing diversity affects their service delivery and clinical practice, in order to provide the most beneficial services. The ASHA Scope of Practice document (2007) mandates that SLPs should be "committed to the provision of culturally and linguistically appropriate services and to the consideration of diversity in scientific investigations of human communication and swallowing." For SLPs whose caseloads include culturally and linguistically diverse pediatric clients with language disorders (including autism), an aspect of providing culturally and linguistically appropriate services is addressing the role of bilingualism in the child's communication, and providing services that best facilitate the child's communication in all of their languages and contexts.

Recent data suggests that approximately seven percent of the membership of ASHA identify as being from a minority racial or ethnic background, and less than six percent report being bilingual. Given this lack of diversity within the profession, and the impossibility of matching the culture and background of every client with a similar clinician, it is critical that SLPs have an awareness of the cultural and linguistic diversity among their caseloads, and how best to provide culturally competent services to their clients (American Speech-Language-Hearing Association, 2004).

As of 2007, 20% of the US population over the age of five was reported to speak a language other than English at home (Shin & Kominski, 2010). Between 2000 and 2006, school enrollment of culturally and linguistically diverse students increased from 28% to 37% (Peña, Summers, and Resendiz, 2007).

Issues of Cultural Diversity and Accompanying Language Disorder

The incidence of specific language impairment (SLI) among mainstream US children is 7.4% (Peña & Bedore, 2009). Data is lacking for the incidence of SLI among culturally diverse children, however, based on the increasing diversity of school-aged populations, it can be assumed that the percentage of culturally and linguistically diverse children and families on the typical SLP's caseload will also continue to increase. This assumed increase in the numbers of culturally and linguistically diverse children being served by SLPs requires a profession-wide increase in understanding of cultural competency as it intersects with the underlying theories of bilingualism and language disorders, and improved diagnostic and intervention protocols for speech-language service provision.

Language Choice Decisions in Intervention

One of the primary issues that arises when speech-language services are provided to minority populations is that of managing language choice in intervention for bilingual clients, particularly in children. The general public assumes that because a child with a language disorder is already disadvantaged in language learning, adding in a second language will further complicate the process and cause greater delays and confusion, resulting in net lower language performance. This line of reasoning is also found amongst speech pathologists, who often "advise parents of bilingual children with communication deficits to 'pick a language,'" (Kohnert & Stoeckel, n.d.). One study of mothers of bilingual children with autism spectrum disorder (ASD) found that the most frequent recommendation made by speech-language pathologists was to begin speaking English with their children immediately, sometimes to the exclusion of the home language (Yu, 2013). Parents are generally encouraged to pick English, as the primary language of their child's school and therapy environment, and it is therefore the language assumed to have the most positive effect on their educational outcomes (Kohnert, 2010). The goal of this recommendation is to promote the development of the second language (L2) only, to the gradual exclusion of the first language (L1), resulting ultimately in monolingual language development, following the subtractive bilingualism model (Gutierrez-Clellen, 1999). Findings in surveys of service deliveries in schools suggested that limited English proficiency students with special needs are likely to receive instruction only in English. If these students with limited English proficiency receive language support services, they are typically separate from their special education support services (Zehler et al., 2003).

There are several potential explanations for English-only recommendations and intervention practices which place higher importance on the L2. One explanation is the previously mentioned belief that bilingualism slows down a child's language development and results in lower test scores. However, it has typically been the practice to assess bilingual children in each language independently, as though a child is two monolingual children, without taking into account the cumulative scope of their language capabilities, which may be spread over different contexts and skill areas between the two languages (Gutierrez-Clellen, 1999). Another explanation is that it is assumed only a bilingual clinician can adequately provide dual language support for a bilingual child with a language disorder (Kohnert, 2010). Given the critical shortage of bilingual speech-language pathologists, it is assumed that this is an impossible standard to meet. Whatever the reasoning behind the recommendation, the current body of literature does not support an English-only subtractive bilingualism model as a method of intervention with culturally and linguistically diverse children with language disorders (Paradis, Crago, Genesee, & Rice, 2003; Ohashi, et al., 2012; Yu, 2013).

One of the primary problems with recommending an English-only approach for bilingual children with language disorders is that it is not in keeping with the standards laid out by ASHA in the Code of Ethics, which obligates SLPs to provide culturally and linguistically appropriate services for patients (American Speech-Language-Hearing Association,

2010r). This includes considering how "communication disorders or differences might be manifested, identified, or described in the client's/patient's cultural and linguistic community," and incorporating these considerations into every aspect of service delivery (American Speech-Language-Hearing Association, 2010r).

Even with typically developing bilingual children, there is concern that their home language might gradually be lost in favor of the L2 used in other social settings. This can be combated by systematic instruction and interaction in their home language in an educational setting; casual exposure is not enough to prevent language loss (Tabors, 2008). That is, a therapist cannot consider the issue of treating a bilingual child addressed simply by not recommending an English-only approach and assuming that the child will make adequate progress in both languages through parental exposure to their L1. It is important to provide culturally sensitive intervention by providing a foundation for the child in their home language as early as possible (Seung, Siddiqi, & Elder, 2006).

Parents of bilingual children express concern over their children's ability to speak the home language. "We feel we communicate better that way...We feel that we will be closer be closer [if they spoke the home language,]" Tabors (2008, p. 131) reports one parent saying. She also reports the difficulty that parents face in passing down their values, beliefs, and traditions when they can't communicate with their children in their native language. This type of situation can lead to a breakdown of the relationships between parents and children and cause problems with discipline, respect, and familial intimacy (Gutierrez-Clellen, 1999; Tabors, 2008). Language is one of the primary means of accessing and transmitting culture, and parents express concern for their children's ability to participate if they are unable to speak the home language. Heritage languages--those brought to the US by immigrant families--also have a high attrition rate, and promoting the use of these languages is beneficial both to individuals, families and to the wider community (Yu, 2013).

Having parents speak English-only to children when it is their second language also has impacts on their cognitive development and academic progress (Tabors, 2008). Parents who are constrained by speaking only their L2 to their children often are not able to be good language models. Their communication with their children may lack complexity and detail. Because parents are the primary language models for young children, this puts the children at a language-learning disadvantage, which takes a toll on development and later academic achievement.

By contrast, children who build a strong foundation in their L1 are better able to learn the structures and concepts of their L2, and a solid basis in literacy concepts in L1 is vital to fully developing literacy in L2. These children are also more successful academically, as they acquire their L2, because they are able to apply the concepts and cognitive framework they have developed in L1 (Tabors, 2008). More positive language gains are reported in additive bilingual environments (those in which the child's L1 is maintained)

than in subtractive bilingual environments (those in which the child's L2 is encouraged to replace their L1). Subtractive (English-only) bilingualism has negative impacts on children's social and academic development (Genesee, Paradis, and Crago, 2004).

In a study of Chinese immigrant mothers of children with autism, Yu (2013) found that parents who prioritize English-only for their children report being given very little support or guidance in the process, regardless of whether or not they were following English-only advice by a professional. These mothers also reported concerns about being able to effectively communicate with their children, as well as concerns that their children would acquire "fragmented" English because of their own limited proficiency. These concerns reportedly negatively impacted their feelings of connection with their children and their self-esteem. It is important to note that the mothers in Yu's study were all highly educated and from upper-socioeconomic classes; it is possible that families with less education or from lower socioeconomic classes might experience these and possibly other issues to greater degrees. This assumption is supported by Nicoladis and Genesee's study (1997) in which typically developing (TD) middle-class English speaking children in French immersion programs were found to acquire the same level of English-proficiency as their monolingual peers. In a comparison, TD lower-class Spanish-speaking children in English classrooms failed to reach full proficiency in both languages.

In a study of Mexican immigrant mothers' perceptions of their children's communication disabilities, Kummerer, Lopez-Reyna, & Hughes, (2007) reported that mothers suggested that, in addition to speaking Spanish or using an interpreter in therapy, clinicians should give them clear explanations and ways to participate in therapy. Mothers in this study expressed frustration at their frequent inability to understand their children's difficulties and the proposed plans of action in other healthcare venues, such as doctors' offices. These parents also requested additional strategies and recommendations to work on their child's language development at home, further supporting the recommendation for additional structured support in the home language.

Kay-Raining Bird, Lamond, & Holden (2012) also found evidence that corroborated Yu's findings, indicating that bilingual families need increased, systematic support in order to carry out appropriate language-choice decisions for their children with autism. This study also reports that bilingualism is "not a choice but a necessity, (p. 52)" for multicultural children who need to learn two languages in order to participate fully in their various social and familial contexts.

A Bilingual Child is Not Just a Monolingual Child in Two Languages

In addition to the compelling cultural and social reasons to maintain a language-disordered child's home language, the literature does not support the common assumption that learning two languages causes further linguistic delays or complications, either in typically developing children or in children with cognitive and/or

linguistic disorders. The assumption is likely derived from the lack of assessments designed to accurately evaluate the language capabilities of both TD and language-delayed bilingual children (Bedore & Peña, 2008). If assessed as a monolingual child in each language, a bilingual child's true language abilities will be missed. This can be because of the fluid nature of language dominance, which can change depending on which language the child has the most exposure to in a given time, or because of language distribution across contexts due to life experiences (Bedore & Peña, 2008). It is also important to remember that because of frequent fluctuations in language dominance, test results may have only short-term validity (Peña & Jackson, 2011).

A child may have a well-developed language base for home words and concepts in the L1, but be unable to describe them in L2, the primary language at school. Another factor in the difficulty of accurately assessing bilingual children is the impossibility of comparing languages unilaterally. For example, children who speak French have smaller vocabularies than English speaking children, but their grammar is more complex (Bedore & Peña, 2008). The lack of normative data for bilingual children is also a factor in the difficulty of accurate language assessment for this population (Bedore & Peña, 2008). Test materials cannot be translated from English into the target language; doing so may change the difficulty or familiarity of a given item and invalidate the score (Peña et al., 2007). Typically developing bilingual children demonstrate a more pronounced gap between receptive and expressive vocabulary than monolingual children, but their vocabulary sizes are approximately the same (Yan & Nicoladis, 2009). They occasionally demonstrate word finding difficulties, similar to those found in adult bilinguals (tip of the tongue phenomenon), but the effects of these differences in overall daily communication are likely minimal (Yan & Nicoladis, 2009). TD bilingual children differentiate their languages in the areas of semantics, syntax, morphology, and pragmatics as young as the age of two (Nicoladis & Genesee, 1997). Bilingual children also use cues of both languages simultaneously to facilitate production (Peña & Jackson, 2011).

Code-mixing, which is often taken for a sign of confusion, is a typical developmental marker in bilingual children, and TD bilingual children meet other markers such as development of syntactic structures at similar ages to monolingual children. Additionally, there is evidence to suggest that bilingual children may have cognitive advantages over monolingual children, such as enhanced metalinguistic awareness (Nicoladis & Genesee, 1997). Nicoladis and Marchak's study (2011) of bilingual French children found that their acquisition of feminine adjective agreement was delayed, when compared to monolingual peers. However, differences were slight, and could be attributed to the unpredictability and difficulty of feminine adjective agreement in French.

Language Learning is Not Negatively Impacted by Bilingualism

Among the general public, as well as among clinicians, it is generally accepted that bilingualism is beneficial to TD children's social, linguistic, and cognitive development. However, widespread concern still remains for the effects of learning two languages for

children with language disorders. Studies involving children with autism (ASD), specific language impairment (SLI), and Down's Syndrome indicate that children with these diagnoses do not suffer any negative effects from being exposed to two languages (Paradis et al., 2003; Kay-Raining Bird, Trudeau, Thordardottir, Sutton, & Thorpe, 2005). Peña and Bedore (2009) report that cognitive limitations do not restrict bilingual language learning. Bilingual children with language impairment appear to have the same features underlying their disorder as monolingual children with language impairment (Peña & Bedore, 2009).

Ohashi et al. (2012) found that bilingual 2-5 year olds with ASD did not demonstrate any additional receptive, expressive, or functional language difficulties when compared to monolingual peers with ASD. In addition, this study found that when parents were advised to use English-only with their children with ASD, children had reduced language models because parents tended to use their native language in conversation, and spoke less with the child. When they do speak with the child, they may provide inaccurate language models. This can negatively impact the child's language development. As discussed in Tabors (2008), an inadequate foundation in the home language can negatively impact second language learning. Peterson, Marinova-Todd, & Mirenda (2012) found similar results, determining that children with ASD were able to successfully function as bilingual speakers. In a case study of a 3 year old bilingual child with autism, Seung, Siddiqi, and Elder (2006) found that a two year bilingual vocabulary building intervention, beginning in the home language and transitioning into English resulted in an increased vocabulary size and the new use of two-word combinations in the home language, as well as noted improvement in English, the L2.

Valicenti-McDermott et al. (2013) found that bilingual Spanish-English children with ASD were more likely to use communicative gesture (as are typical bilingual children) than monolingual peers, and also scored higher on the Vineland Adaptive Behavior Composite assessment, which assesses an individual's daily function and living skills. This suggests that, rather than hindering communication and cognitive development, bilingualism enhances these abilities in children with autism, as it can in TD children.

Peña et al. (2007) stress that, in general, bilingual children with language disorders should be provided with bilingual intervention. Intervention in the child's primary language is most effective, and transfers most readily. In order to maintain language gains, children must be exposed to language-rich environments that support the progress made in intervention. For bilingual children, this must include the home environment and daily routines in L1, as well as L2 school environments (Peña et al., 2007). Peña and Bedore (2009) emphasize that children should have the opportunity to use both languages, and that intervention should focus on language-learning and meaningful use, rather than production of correct surface forms. Hambly and Fombonne (2012), in a study of bilingual preschoolers with ASD, found that timing of bilingual exposure (sequential vs. simultaneous) had no effect on the child's language development, and that bilingual children with ASD did not demonstrate additional

language delays when compared to their monolingual peers, as measured by the Vineland Adaptive Behavior Scales assessment. Based on the results of this study, it was recommended that parents of children with ASD not be discouraged from introducing additional languages or speaking their home language with their children.

By the time they start school, bilingual children know which language to use in a variety of contexts and with various conversation partners. This represents complex pragmatic awareness (Brice & Anderson, 1999). Code-mixing allows a child to maximize communication efficiency by combining the pragmatic, syntactic, and morphological dimensions of both languages. Code-mixing is also universal in both pediatric and adult bilingual populations, and is an important method of conveying cultural, linguistic, and social information that is an important component of a child's identity (Genesee et al., 2004).

None of the included studies, except for Seung, Siddiqi, and Elder's case study (2006), described a systematic intervention in both of the child's languages. These results indicate that speaking one language at home and another at school and in therapy do not hinder the progress of a bilingual child with a language delay in response to intervention, but suggest that progress might be better facilitated by including both languages whenever possible. In the absence of a bilingual therapist, this can be done through interpreters, as suggested by Ohashi et al. (2012), by including the family in intervention, and by using certain key elements of the child's L1 in intervention by the monolingual therapist. Tabors (2008) recommends the use of word lists and key high-frequency social and classroom routine phrases in L1 to ease bilingual children into an environment that operates using their L2. This strategy, when done by enlisting parental help to generate L1 words and phrases, has the additional benefit of making parents feel engaged in their child's intervention and validating their linguistic and cultural backgrounds (Tabors, 2008). Brice and Anderson (1999) recommend similar strategies, in which caregivers provide important phrases and cue words in the L1 to be used in therapy delivered primarily in L2, which facilitates a child's responses and language use by activating their L1. Peña (2014) recommends that parents continue to use the L1 in a structured way at home, and to reinforce in L1 concepts learned in L2. Additional suggestions include using cognates between the two languages, modeling with noun phrase elaboration, and using stories for narrative structure carryover. Genesee et al. (2004) suggest the use of metalinguistic comparisons between L1 and L2, to promote progress and correct usage across languages in bilingual children with the cognitive abilities for such strategies. A related strategy, modeling comparable forms (such as the plural -s in Spanish and English), can be used to promote language transfer (Peña & Bedore, 2009). Peña et al. (2007) report success with the use of Mediated Learning Experiences in bilingual intervention. This technique helps children understand linguistic goals they are working on, the reasons underlying the goals, and contexts in which they can be used, in both home and school languages.

The importance of providing services that are sensitive to the child and family's cultural and linguistic background, and that fulfill those areas of needed identified by the family, is stressed in all cases.

Purpose of the Study

A growing body of research supports the use of a bilingual approach in speech-language services for pediatric clients with language delays from bilingual backgrounds (Peña et al., 2007; Genesee et al., 2004; Gutierrez-Clellen, 1999), including children with autism (Ohashi et al., 2012; Peterson et al., 2012). The purpose of this exploratory case study was to explore the use of bilingual support in language intervention with a six year-old French-English bilingual child with autism spectrum disorder. Specifically, the case study investigated the subjective impact on her communication as reported by the child, her clinicians, and her family, as well as the effect on the family's perception of and engagement with therapy when their primary language was employed in intervention.

CHAPTER TWO: METHODOLOGY

Participant

There was one participant in this study. She was a six year-old French-English bilingual girl diagnosed with autism spectrum disorder (ASD). The study was conducted during the course of speech-language intervention with a supervising SLP at the University of Kentucky Communication Disorders Clinic (UKCDC). The child attended a local public school, where she received special education services and speech-language services in English. The study followed her from the fall of her kindergarten year through the fall of her first-grade year. She also received behavioral therapy during this time, and was provided with early intervention services prior to enrolling in UKCDC.

The participant's family members were immigrants from Francophone African countries (Côte D'Ivoire and Republic of the Congo) and spoke French as their home language. The child's mother also spoke her native language, a regional dialect reportedly called Kilare, which she used in the home. The child had a local extended family, including cousins her age, who also spoke French.

Intervention at UKCDC was targeted towards improving overall expressive and receptive language skills, with specific goals for naming objects in categories, using present progressive verbs, responding to wh-questions, increasing utterance length, describing object functions, using possessives, and understanding and using spatial and qualitative concepts. The participant received a diagnosis of autism through her school system after approximately six months of outpatient treatment, and goals addressing social functions and pragmatics were added to her intervention.

The child and her family were made aware of the purposes of the study and were in agreement with the bilingual intervention. The child's parent signed a treatment consent form prior to any treatment, analysis, or publication of the study's results or release of video material from the study. Neither the child nor her family members were compensated in any way for their participation.

Materials

Materials for this study included standard English-language assessments, such as the Preschool Language Scale 4th Edition (PLS-4), and a variety of age-appropriate books, manipulatives, and games, such as *Buddy Bear* books, play-doh, and flashcards. Published intervention materials such as *Webber* Pronoun Cards were also used. All therapy materials originated in English; French translations were done informally by the student clinician, who was a conversant French/English speaker. A music therapist was consulted for additional strategies for use in intervention. The participant's UKCDC assessment and all reported school assessments were conducted in English. Progress evaluations were conducted in English, with French supplementation, however, formal score reporting and evaluation was based solely on the English portions of the

evaluation. The French supplementation was evaluated informally and used to guide intervention.

Design

The study was constructed as an exploratory case study, with qualitative data collection and analysis components. The independent variable was the use of a bilingual intervention, and the dependent variables were the participant's, her family's, and the supervising clinician's reported impressions of her progress before and during the bilingual intervention, as well as reports from her family and the supervising clinician regarding family attitudes and engagement before and during the intervention.

Procedure

The child was seen for outpatient therapy at UKCDC for one hour once a week, with additional therapy provided at school. She experienced some inconsistent attendance during the spring and summer of the intervention, missing approximately 8 scheduled sessions during this period. The child's parents were not involved in therapy, but the clinician provided a summary of each session. Treatment was conducted by a supervising certified, licensed SLP with a student clinician conversant in French and English present for each session. The student clinician provided information in French as requested. Additional information regarding translation resources (such as the ClearLink Blue Phone) and information for families of children with ASD were provided to the family in French. Parents were encouraged to ask questions in French with the student clinician if there was a communication breakdown in English with the clinician. It should be noted that although a significant dialect difference existed between the French spoken by the student clinician and that of the child and family, the parents reported overall mutual intelligibility of French conversations.

Descriptive data in the form of comments was collected throughout the intervention. Structured interviews were conducted during the intervention with the child's mother, addressing the parents' reaction to and engagement with therapy and their perception of the child's progress before and during the intervention. A similar interview was conducted with the child’s supervising clinician.

Additional information was collected by the researcher in a daily journal, recording information obtained during therapy with the child and conversations with her parents and supervising clinician. All entries were dated and organized by point of view (e.g., the child's, her mother's, the supervising clinician's, etc.). The data were analyzed in a quasi-qualitative fashion by extracting themes from the interviews and journals and triangulating them across sources for validity. The reliability of the identified themes was further examined using feedback from other researchers and by employing a second Francophone clinician to ensure the accuracy of translations. 33 French comments from a parent interview (22% of total data) were reviewed by the second clinician, with 30 comments found to be in agreement (91% agreement). Additionally, the identified themes were presented to the supervising clinician for verification.

Table 1

Inter-rater reliability	
Data comments re-examined by second Francophone clinician	22% of total comments
Inter-rater reliability	91% of examined comments showed agreement

CHAPTER THREE: RESULTS

Based upon the process of extracting themes, five themes were identified which characterized the outcomes of the bilingual intervention on the participant and her family. These were: (1) changes in the participant's mother's opinion of treatment, as well as her engagement with and opinion of therapy; (2) pragmatic skills exhibited by the participant during the course of the intervention; including her use of codeswitching/codemixing and improvements in her social behavior; (3) language as a vital component of culture; (4) the participant's overall progress in both her L1 and L2; and (5) metalinguistic skills exhibited by the patient, including spontaneous learning strategies used in therapy. A sixth unintended outcome of the study was also identified: SLPs practicing at the study site became interested in the study, and as a result solicited education and clinical suggestions from the author which shaped their opinions about providing services to the substantial number of bilingual clients on their respective caseloads.

Table 2

List of identified themes	
Theme	# comments
Changes in the participant's mother's opinion of treatment, as well as her engagement with and opinion of therapy	30
Pragmatic skills exhibited by the participant during the course of the intervention; including her use of codeswitching/codemixing and improvements in her social behavior	42
Language as a vital component of culture	19
The participant's overall progress in both her L1 and L2	33
Metalinguistic skills exhibited by the patient, including spontaneous learning strategies used in therapy	11
SLPs practicing at the study site became interested in the study, and as a result solicited education and clinical suggestions from the author which shaped their opinions about providing services to the substantial number of bilingual clients on their respective caseloads	14

Theme 1: Parent response to bilingual intervention

The participant's mother reported that, prior to the bilingual intervention, she considered speech therapy to be beneficial, however, she considered it to be more beneficial when treatment was provided in the participant's L1 and L2. She described her daughter's progress during the intervention as "an evolution," and said that she felt like the intervention had helped to "open a window in [her daughter's] spirit," which allowed her to learn. The participant's mother frequently referred to the use of the family's L1 in treatment as "a good initiative" and a "good idea", and reported that she was very pleased with her daughter's progress in both languages, including her increased use of the L1. The participant's mother frequently expressed approval of bilingual therapy activities, such as using songs in the L1 to practice vocabulary and mirroring school activities in the L1, such as Halloween themed language activities.

Additionally, the participant's mother reported that she was less worried about her daughter's language and behavior issues as the intervention progressed, and she frequently expressed pride in her daughter's accomplishments both in speech therapy and at school. The participant's father also reported that he was proud of his daughter's academic accomplishments during the intervention.

After the initiation of the bilingual intervention, the participant's mother reported that she had a better understanding of the purpose and methods of therapy and was more comfortable asking questions. She expressed that the intervention enabled her to obtain more information about her daughter's autism diagnosis and the role of SLPs and other professionals who provided services for her.

In addition to reports of positive opinions of speech therapy and the bilingual intervention, it was observed that the participant's mother became more engaged in therapy, both by contributing to her child's therapy plan and seeking information and education for herself. During the intervention, the participant's mother identified goals that she would like to see targeted by therapy, such as turn-taking, elaboration, and increased verb vocabulary. These goals were incorporated into the participant's treatment plan to supplement goals derived from assessment. The participant's mother also increased efforts at home to encourage her daughter's language progress and use of L1. She agreed to incorporate suggested strategies such as noun-phrase elaboration at home, and also increased reports of her daughter's progress at home.

Throughout the intervention, the participant's mother requested resources on autism in her L1 and frequently asked questions related to her daughter's diagnosis, seeking information about observed behaviors, about the long-term implications of the diagnosis, and the role of speech therapy over time. According to the supervising clinician, this was a significant change from her pre-intervention behavior. The participant's mother also expressed concerns that her daughter would regress or develop new deficits, and appeared reassured by the education provided in response to these concerns. Shortly after her daughter's diagnosis through the school system, the participant's mother brought an assessment report to the clinicians, requesting a translation of the document in order to more fully understand the school's diagnosis and treatment plan. This was unable to be completed, however the participant's mother was provided with information to pursue translation services through the school.

The participant's mother reported that, according to her preferences, bilingual intervention is best carried out by using interactive material that makes use of both languages, such as music, games, and narratives. She also recommended that successful bilingual intervention should continually use the L1 in therapy and that SLPs should have someone available who can communicate with the patient and their family in the L1.

The supervising clinician corroborated many of the parental observations. The supervising clinician reported that prior to the intervention, the participant's parents expressed that they wanted "autism specific therapy" instead of speech therapy. She also reported an increased sense of confidence in the family's ability to seek resources regarding autism and speech therapy, and felt that the parents' engagement in their daughter's therapy increased during the intervention. The supervising clinician reported that she felt more able to provide information to the child's family during the intervention, and also that additional cultural and family background information obtained during the intervention allowed her to provide more beneficial services. Parents asked more questions than pre-intervention, and volunteered more information. They presented issues, and engaged in problem solving with both clinicians. The supervising clinician also reported increased confidence that strategies presented to the parents to use at home were being followed more consistently.

Despite positive opinions of the intervention and significant increases in parental engagement and participation, the goal of involving the participant's mother directly in therapy was not achieved. The supervising clinician suggested that this was perhaps due to therapy sessions providing a respite period from work and parenting obligations. However, the participant's mother reported that she intended to continue to work with her daughter at home in her L1, mirroring school and therapy curricula, and she encouraged the supervising clinician to continue using bilingual materials in therapy sessions.

Theme 2: Pragmatic skills

It was noted early in the intervention that the participant had particular areas of pragmatic strength, such as being able to indicate which conversation partner spoke which language(s) (e.g., English and French with the author, but only English with the supervising clinician) and which settings required which language (e.g., French at home, but English at school). During the course of the intervention an increase in the participant's pragmatic skills was noted. She was observed to increasingly use spontaneous greetings in the appropriate language (progressing from inconsistent performance with maximum cues to frequent performance with minimal cues) and to spontaneously make requests using appropriate forms. The participant's mother reported that family and friends commented on an increase in the participant's willingness to engage in conversation and respond appropriately, as well as making statements such as, "She speaks so much more now," and "She speaks very well now." Her ability to interact with strangers and friends increased during the intervention; her mother reported general positive change, as well as a reduction in fear of novel social interactions. Reportedly, the participant began greeting new conversation partners, introducing known partners to novel partners (such as introducing her cousin to people at church), and engaging in conversation with her friends in social settings, such as at the bus stop. Additionally, the participant's mother reported that she began using appropriate cultural markers (e.g., Mama Rita) to refer to Francophone family members. At home and in therapy, she began responding to questions more frequently, particularly

in her L1. She began responding to indirect requests in play during the intervention, however this behavior was only noted in her L1. The supervising clinician reported that the participant appeared much more confident in her language use during the intervention, as well as appearing more motivated to communicate.

Pragmatic skills: Codeswitching and Codemixing

Before the intervention, the participant's mother reported that she frequently used a mixture of English and French in her home conversation. This decreased during the course of the intervention; the participant's mother reported that she encouraged her daughter to pick a language for each conversation, and, in the later stages of the intervention, was following suggestions provided by Peña (2014) to encourage times when French was the expected language of conversation at home.

As noted above, the participant had a strong pragmatic knowledge of when it was appropriate to use French. During the intervention, the participant was observed to have no difficulty code switching during an activity, speaking French with the author and English with the supervising clinician. The supervising clinician noted that during an activity in which she attempted to elicit a French response using English, the participant demonstrated reduced performance (40% accuracy, down from 80%). Despite her strong pragmatic knowledge of when to appropriately use L1 vs. L2, the participant frequently answered French questions in English during the intervention, although this decreased as the intervention progressed.

The participant's codemixing was characterized by primarily English syntax and a mixture of English and French vocabulary. Examples include: "It's not a poisson," "There are two canards," "Il est pleure." She was also noted to frequently produce utterances using an incorrect gendered pronoun in English, with the correct grammatical gendered article in French (e.g., "She's knocking." "[Who?]" "Le monsieur," to describe a picture of a man knocking on a door).

Pragmatic skills: Expressing language preference

Initially, the participant indicated that French was her preferred language (associating French with a happy face, and English with a sad face). However, during the intervention the participant went through a period of reluctance to speak French, using protests such as, "I'm not speak Français anymore," "I don't like French," and "Can I have English?" These requests were acknowledged and met with compromise, performing some tasks in English and some in French. The participant's mother encouraged her to speak French during intervention sessions. Gradually over the course of four to five sessions requests for English faded, and the participant willingly completed tasks in French.

Pragmatic skills: Behavior improvements

Towards the end of intervention, the participant's mother relayed reports from teachers that the participant’s school behavior had improved significantly. She began using

words with classmates rather than pushing and aggression, and was noted to follow directions better. At this time, the participant's behavioral therapist also noted improvement, and was able to reduce her services by 50%. The participant's mother noted marked behavioral improvement over the course of the intervention. The author and supervising clinician concurred, noting increased ability to wait for directions, to participate in tasks, and to transition between tasks and settings. Prior to the intervention, the participant was inattentive and gross-motor oriented, responding to unwanted tasks or transitions by throwing objects or tantruming. These behaviors were no longer observed by the last three months of the intervention. The supervising clinician attributed these improvements to increasingly more effective language skills in both L1 and L2, and increasingly consistent parental language use following speech-language intervention and an autism diagnosis.

Theme 3: Language as connected to culture

Both of the participant's parents thought that it was important to use French at home and that it was important for children to speak the language of their parents. The participant's mother considered language to be the most important aspect of her culture that she wanted her daughter to appreciate.

"[At home] I speak my language, it's part of my culture and I want [my daughter] to hear it. She understands it." That sentiment applied to French, but also to her native language, which she spoke with her daughter and a few other family members. The participant's mother reported that she talked with her daughter about her home country and her culture there. "I tell her about Mama's country, Papa's country," the participant's mother said. "It's very important that the child knows her culture. Because when she goes to school and she speaks English, there's a different culture. But at home, there's the family language that is different. It's important to learning the culture of the family." The participant had several Francophones in her local community, including children her own age.

At one point during the intervention, the participant requested that she be called by a different name, saying, "Don't call me [French pronunciation], call me [Americanized name]," and indicating a preference for the latter. She and her mother indicated that this was how her name was pronounced at school. The participant's mother considered this an issue of American pronunciation, and was not concerned by it, however, she reinforced that her daughter's name was French, and that French speakers would use the French pronunciation. After this session, the participant did not mention her name again, and referred to herself using the French pronunciation.

The participant's mother wanted her to be able to use both her L1 and L2 fluently, in order to be successful in school as well as to maintain her cultural ties. Their social community was supportive of bilingualism; friends and family thought that it was important for the participant to speak both languages, and they were impressed with her progress during the intervention. The participant's aunt expressed concern that French

would replace the participant's English skills, but was relieved that the participant made gains in both languages during the intervention. Professionals, such as therapists, did not discourage bilingualism. The participant's classroom teacher stressed the importance of the participant learning her parental culture, characterizing it as "better than American culture," although she did not mention the role of language in this process.

Theme 4: Overall progress in both languages

The participant made significant gains in expressive and receptive skills in both her L1 and L2 during the course of the intervention. At the beginning of the intervention, the participant demonstrated higher receptive skills in her L1, such as responding more frequently to instructions in her L1, focusing for longer periods of time on identical social stories when presented in L1, and responding more frequently to questions asked in L1, at a higher level than her abilities in L2. Through the course of the intervention, the participant's utterance length increased (meeting her goal of combining 4-5 words in phrases to answer questions and comment), she began constructing if/then sentences (per her mother's report), asking more complex questions, gained proficiency in using spatial concepts (improving from 40% in L1 and 60% in L2 to 80-90% accuracy in L1 and L2), and began to use more verb tenses and conjugations (moving from infinitive in her L1 and present tense in her L2 to include simple past and "going to" future form). These gains occurred in both languages. Additionally, she achieved progress with subject pronouns (improving to 80% in L1 and 60% in L2, using written metalinguistic cues), answering simple "what" questions (approximately 65% accuracy in L1 and L2), and spatial concepts (approximately 80% in L1 and 90% in L2). The supervising clinician considered instruction in L1 to be instrumental to the participant's language gains.

In her L1, the participant demonstrated high carryover of new concepts and persistently higher performance using gendered pronouns when compared to L2. Her spontaneous use of L1 increased, and, as has been noted elsewhere, her participation in L1 activities increased after a period of resistance. She was observed to frequently echo instructions and script activities in her L1, a behavior she exhibited only sporadically in her L2. When the supervising clinician used carrier phrases ("Comment tu dis _____ en français?") the participant responded with 70% accuracy. She struggled to learn "I don't know" as an appropriate response in L1, despite using it successfully in L2. She also struggled with the concept of negation in her L1; her use of negation in L2 was intermittent.

In her L2, the participant demonstrated greater increases in utterance length. The supervising clinician suggested that the participant's preference for using her L2 reflected increasing expressive skills in that language, but agreed with the author that the participant's receptive skills continued to appear higher in her L1. The participant appeared to have difficulty discriminating between concepts with phonemic similarity in her L2 (such as *behind* and *between*) but demonstrated less difficulty with this task in L1 (such as *en haut* and *en bas*).

Theme 5: Metalinguistics

The participant demonstrated several metalinguistic skills over the course of the intervention. As her reading improved, she was able to use written metalinguistic cues comparing pronouns in her L1 to her L2 to complete tasks. However, using these written cues resulted in mispronunciations of L1 words (fille), as the participant applied English pronunciation rules to French orthography, an error that was unable to be corrected by the end of the intervention. The participant also used scripting to talk herself through tasks ("Is it a boy or a girl? Il ou elle?") and rehearsal to teach herself concepts across languages ("Ça c'est behind, ça c'est derrière,").

The participant was able to compare and discuss vocabulary across languages ("In English, it's red, en Français it's rouge, en Espagnol, it's rojo"), and to discuss which synonym she uses for an object in L1. At home, her mother reported that the participant would sometimes insist that her mother speak English when she didn't understand a given concept in French. Her mother also reported that the participant would request to be taught words that she didn't know in both English and French. The participant would also spontaneously tell her mother the English and French words for a concept, as though teaching her. The participant was able to generate her own examples to apply concepts she learned in therapy; for example, when learning gendered pronouns, she asked, "[Own name], elle?" and used her father as an example of a person who used masculine pronouns.

Theme 6: Additional unplanned outcomes

The site where the study was conducted employed four full time SLPs, all of whom either had bilingual patients on their caseloads or conducted assessments with bilingual patients. During the course of the intervention, these SLPs demonstrated an increased interest in providing services to their bilingual clients that addressed the clients' L1. The clinician who demonstrated the most interest was the clinician supervising the intervention, who sought out information about the participant's L1 and incorporated strategies such as cognate lists, simple L1 stimulus phrases, and L1 materials such as songs and videos into her treatment sessions.

She also initiated the creation of handouts offering suggestions for encouraging L1 use at home for all bilingual families served by the clinic. Another SLP requested suggestions to incorporate in therapy with bilingual children, which led to the creation of a handout designed for the SLPs at the site, which included treatment suggestions and rationale for encouraging L1 derived from the literature review of this document.

These two handouts were presented to the SLPs in a brief in-service. Prior to exposure to the intervention, all four clinicians were unaware of the research indicating that targeting a child's L1 and L2 in speech therapy is not detrimental to language development. They were also unaware of the pragmatic importance of bilingualism and of the cultural importance of L1 for bilingual families. The clinicians responded positively

to the education and asked questions applying the education to their current caseloads. The majority of them mentioned tentative plans to implement the strategies discussed in their therapy sessions.

The supervising clinician reported that participating in the bilingual intervention changed her attitude towards working with bilingual clients. She noted that her interaction with the participant's family changed significantly during the intervention. Due to the language barrier, she initially had limited information regarding the background and education level of the participant's parents, which affected the way she communicated information to them. With more information about the family, the supervising clinician developed a better rapport with the family, which encouraged them to share more with her and to provide feedback. She began to be able to share more complex information. Initially, the supervising clinician felt intimidated and concerned that she was not providing the type of therapy the participant's family wanted, but during the intervention, she gained confidence as she received feedback and was able to incorporate the family's concerns and expectations in to treatment.

In regards to her bilingual clients outside of the intervention, the supervising clinician found it easier to manage a diverse caseload with access to prepared resources, such as the education handouts. She reported that she felt parent education in their L1 should receive more emphasis as part of intervention for multilingual clients, as the families on her caseload (including the participants in this study) frequently did not have a good frame of reference for the rationale behind therapy or what type of services an SLP would provide. In her opinion, providing parents with more education regarding the purpose of speech therapy following an evaluation of a bilingual child would reassure parents and encourage them to participate in therapy. Although she doesn't plan to engage in further in-depth pursuit of strategies for providing services to bilingual clients, the supervising clinician reports that she does feel that there is a need for providing services to clients with autism and other disorders from diverse backgrounds that SLPs have to be prepared to accommodate.

CHAPTER FOUR: DISCUSSION

It is clear that parental opinion of speech language therapy was somewhat positive before the intervention began. However, it should be noted that this opinion was unable to be communicated to the supervising clinician prior to the intervention, due to the language barrier. Additionally, it appears that the intervention strengthened this positive opinion. This is evident both in statements made by the participant's mother and by changes in her behavior, such as more consistent attendance.

Parent Response to Bilingual Intervention

Related to this increase in positive opinions regarding therapy, the intervention also appeared to make the participant's mother more comfortable in the therapy environment. Because the intervention created opportunities for facile information exchange without forcing the participant's mother to feel disempowered by her language difference, she was able to increase her participation by requesting educational resources, receiving details about the treatment plan, and providing input into therapy goals. She was also more able to ask questions for clarification without the increased risk of feeling ignorant or being misunderstood. This resulted in a significant increase in parental education and counseling from the clinicians, and allowed for more at-home carryover of therapy strategies. As discussed in Tabors (2008), creating these opportunities indicated to the participant's mother that her home language was important and valuable, and that her input and participation were vital to her child's success. This is in contrast to other known therapy provided to the participant, in which her mother was given a technical diagnostic report in her second language without any translation aids, and provided with no resources to assist with education or home management.

These positive changes to the participant's mother's engagement with therapy also affected the supervising clinician's ability to provide appropriate therapy. Rather than treating the child based strictly on assessment in the clinical setting, she was able to gain more information about language use at home and design her therapy plan to meet specific goals that would be most functionally beneficial to the participant and her family. This in turn provided her with a greater sense of confidence in the efficacy and beneficial nature of her clinical services.

These outcomes support the critical need for consistent use of trained interpreters in clinical service provision to bilingual patients and their families. In this case, there was a significant increase in parental engagement, which is a contributing factor to the efficacy of speech-language intervention. It also allowed for the clinicians to provide more culturally and linguistically appropriate and relevant therapy to the participant.

Pragmatic Skills

Pragmatics are a critical component of being functionally bilingual, and pragmatics are an area of special clinical focus with children with autism. As well as gaining new pragmatic skills, the participant's extant pragmatic skills improved throughout the course of the intervention. The participant's ability to communicate preferences and needs verbally rather than through behaviors also improved. These gains and improvements resulted in increased opportunities for her to participate socially both with her family in her L1 and peers and other adults in her L2. These opportunities in turn afforded her more communication exchange and exposure to language models for both her L1 and L2, which would then encourage her bilingual language use and development.

Improvements in behavior also resulted in positive academic results, with increased ability to participate in academic activities.

The participant's knowledge of pragmatics was strong enough by the end of the intervention that she appeared to be reluctant to violate pragmatic rules, even when encouraged to do so by the supervising clinician. When asked to provide French responses in a pragmatically awkward way to English queries, her accuracy dropped significantly when compared to her accuracy on the same activity when it was conducted entirely in French. During the intervention, the participant demonstrated certain pragmatic skills only in her L1, such as responding to indirect requests during play. It is likely that with further intervention designed to strengthen both her L1 and L2, this skill would generalize to the L2.

Despite her significant pragmatic gains, the participant was still noted to have some inappropriate pragmatic responses during intervention, such as responding to French comments and questions in English. However, when considered with her knowledge of the clinician's bilingualism, her requests for use of English, her efforts to respond, and the decrease of requests for English and also pragmatically inappropriate responses in English, these incidences support the need for further intervention in her L1, in order to encourage her development in that language, thus allowing her to continue to expand her communication opportunities in settings where use of her L1 is the appropriate pragmatic choice.

The results of this study are in keeping with Yu's report (2013; citing Li 1999, Wong-Fillmore 1991, and Worthy & Rodriguez-Galindo 2006) that heritage language speakers make rapid gains in English, but typically show a decline in their heritage language over time. In order to avoid this pattern, the importance of the heritage language must be conveyed, in addition to equipping a child to appropriately participate in all the contexts where that language is used. This was begun but not completed during the intervention, as it is a process that should persist throughout the course of speech-language intervention.

Language as connected to culture

Kay-Raining Bird, Lamond, and Holden's statement (2012) that for multicultural children, bilingualism is "not a choice but a necessity, (p. 52)" is embodied in the participant and her family in this study. The participant's mother identified language as the most important component of her culture that she wanted to share with her daughter; both of the participant's parents felt that it was important that their daughter spoke French at home, and that children should speak the language of their parents. However, prior to the intervention, she did not report receiving any professional guidance in how to foster her daughter's use of French at home, and she did not pursue any intervention in French. Providing L1 resources to parents of language-impaired children whose first language is not English is critical to empowering them to make informed choices regarding their children's language intervention and development. As discussed above, conveying the importance and value of the heritage language is key to preventing heritage language loss. A vital component to this process lies in expressing to families the value and importance of the family culture as well, to counteract the influence of the mainstream culture and language, which often actively work to erase and dismiss the family cultural and linguistic influence (evident in mispronunciations of the participant's name, and the anecdote related by the supervising clinician, in which the participant's school therapist described her utterances in French as "jargon"). Culture and language,

particularly in this instance, where language is the single largest cultural component shared between the participant and her mother, are inextricably intertwined.

In her efforts to teach her daughter about her language and culture, the participant's mother was effectively trying to combat the homogenizing efforts of the school environment, in order to maintain a cultural and linguistic connection. In order to provide truly appropriate and beneficial services to multicultural clients, resources that facilitate and validate these efforts should be provided by SLPs. This is particularly important in a situation like the one discussed in this case study, where the participant's familial and social circle included not only her parents but other adults as well as children her own age who shared cultural and/or linguistic ties with her. In order to be able to fully participate in these social contexts, the participant needed to be able to access her L1 and, through it, the cultural norms and values learned from her parents.

In this case, the participant's parents reported positive views of bilingualism from both their peers and professionals providing services to the participant. This is in contrast to the experiences of many multicultural families of children with autism, such as those discussed in Yu (2013). However, it should be noted that despite positive views on bilingualism, no formal or structured effort was made to encourage the participant's L1 learning, nor was anything reported on a professional level to encourage the process of enculturation, beyond one classroom teacher's emphasis on the importance of parental culture as superior to the mainstream culture. This places the participant at risk of following the model of a decline in the heritage language (and thus also the culture) over time.

Overall progress in both languages

The participant's language gains throughout the course of the intervention are in keeping with the expected outcomes based on previous literature regarding positive outcomes for L1 language intervention with bilingual children. It is difficult to determine whether the intervention directly contributed to her language gains in L2, as she was also receiving therapy in her L2 at school. However, it is more likely that L1 progress can be attributed to the intervention, and it is possible that the gains made in L1 contributed to the speed and advancement of gains made in L2. The participant did not regress on any of her language goals. By the end of the intervention, the participant appeared to have a moderate gap between her expressive language skills, which were slightly higher in L2, and her receptive language skills, which were appeared higher in L1, which could be attributed to the greater amount of language intervention time and day-to-day speaking opportunities provided in L2 overall when compared to L1.

Metalinguistics

The participant's metalinguistic skills developed significantly over the course of the intervention. Initially, she required picture cues (happy and sad faces) to indicate a language preference. By the end of the intervention, she was able to verbally request her preferred language, both in therapy and at home. She was also able to request explanation and education regarding unfamiliar words. These behaviors demonstrated an awareness of strategies for coping with situations in which she did not have the language skills to fully participate. She also demonstrated several metalinguistic learning strategies, such as discussing synonyms across languages (e.g., colors), and rehearsing in both languages in order to learn new vocabulary and concepts (e.g., spatial concepts). These were entirely new learning strategies that the participant appeared to develop spontaneously. These gains in metalinguistic skills and strategies

appear to be directly correlated to the L1 intervention, which provided the necessary semantic and syntactic framework to facilitate the development of these strategies. This is an outcome that, in addition to corroborating information in the literature regarding building foundations in L1, provides insight into the specific ways an individual child might demonstrate the advantages of that linguistic development, rather than just demonstrating quantitative improvement. With further studies of wider sample sizes, it may be possible to develop specific intervention plans based around these observed strategies in order to maximize the potential for generalization in language development across L1 and L2.

The participant's skills at abstract thinking increased during the intervention. She was able to generate her own examples for concepts she learned in therapy and discuss synonyms for objects. These skills were only exhibited with her L1, suggesting that targeted intervention in that language enabled her to develop more complex cognitive-linguistic skills by building on her developing cognitive framework in her L1, and priming her to make similar gains in her L2, given additional intervention. Additionally, the strategy of using metalinguistics to talk about concepts across L1 and L2 (using the carrier phrase, "Comment tu dis _____ en français?"/"How do you say _____ in French?") proved to be a successful intervention strategy to incorporate L1 into therapy by a monolingual therapist. This and similar strategies would benefit from further study, to assess the viability of monolingual therapists providing appropriate speech-languages services designed to encourage the use of L1.

Reading gains, resulting from intervention and education in the participant's L2 at school, enabled her to use written metalinguistic strategies to compare pronouns across languages in order to increase her accuracy of use and understanding of those concepts. However, her ability to use these cues also lead to confusion, as she applied English orthographic and pronunciation rules to French words in the cues. While this error did not appear to impact her pronunciation of these words in spontaneous speech, it still posed a potential hindrance to her L1 progress long-term. However, this error is one that would be easily corrected with structured literacy intervention in the participant's L1, mirroring her interventions in L2, similar to how the language intervention in this study was constructed. It is no less important to provide structured literary intervention in the L1 than it is to provide L1 language intervention.

Unplanned effect of intervention on uninvolved monolingual SLPs

The sixth outcome, the effects of the intervention on the attitudes and therapy practices of the monolingual SLPs practicing at the site of the study, was unintended, but arguably one of the most important. As a result of the intervention, these clinicians sought out more education on providing culturally and linguistically appropriate services to their bilingual clients. This led to the creation of handouts for clinicians including suggestions for providing therapy to bilingual clients and their families, as well as handouts designed for families to encourage the use of L1 and carryover from therapy activities in the home. These provided information and resources previously unfamiliar to the clinicians, and they were receptive to the potential of implementing them in their practices. However, the education and resources did not appear to fundamentally change the way these clinicians addressed bilingual clients.

Although clinicians made an effort to make the handouts available to parents and to involve the author in new speech language evaluations in French, as well as to educate new clients and families on the benefits of L1, it was still observed that bilingual families

were not consistently provided with a translator for evaluations and that in general minimal effort was made to include families' L1 in therapy by means of technology, parental involvement, or translated key phrases. Resources were generally provided in English or (when appropriate) Spanish. Although the supervising clinician demonstrated the most interest in bilingual strategies, and was observed to implement them with the participant after the end of the intervention as well as to a lesser degree with other clients, she stated that she did not plan to pursue further strategies for providing services to bilingual clients. By the end of the intervention, changes in overall clinician behavior at the site with regards to bilingual clients appeared to be minimal. This is indicative of a pressing need for further education, research, and resources for SLPs regarding culturally and linguistically appropriate services, and the ethical considerations involved in treating a bilingual client as though they were monolingual in their L2, particularly when the client's families are less comfortable when communicating in the L2. This places both the child and family at a significant disadvantage; the child is not provided with resources to succeed in contexts requiring their L1, and parents are distanced from involvement with and understanding of their child's language intervention plan. This also has a destructive effect on the preservation of the heritage language and the home culture, as discussed previously, as well as negatively impacting the relationship between child and family.

A corollary of this outcome is the need for increased parental education, in a way that is accessible (that is, in their L1). The supervising clinician felt that increasing parental education would reassure parents regarding concerns with their child's therapy and would encourage them to become more involved. Parents often don't receive sufficient explanation from other medical practitioners (such as doctors) when speech therapy is recommended for their child (observed in the participant's mother's misconceptions regarding SLPs, as well as among other multicultural families in this setting). Providing accessible education early in the intervention process reassures parents and allows them to engage more in their child's therapy. Because parents are likely to be the primary avenue for L1 development in cases where bilingual SLPs or translators are not available for therapy in L1 and L2, it is critical that they be engaged in order to promote therapy carryover at home in L1. An additional component of parental education that is currently lacking in services provided by SLPs, as observed in this study, is informing parents of the benefits of nurturing their child's L1 language development, allowing them to make informed decisions about their child's speech-language goals. The importance of increasing awareness and education among SLPs of the benefits of encouraging a child's L1 as well as the ethical and practical considerations of providing speech-languages services to bilingual populations is the most critical outcome of this study, and one that would benefit from further exploration with larger sample sizes including more diverse populations, and with varying types of interventions, especially those provided by monolingual therapists with the intent of encouraging L1 development.

Limitations

There are several limitations to this study. First, the case study format limits the degree to which results can be generalized to wider populations. Additionally, due to the exploratory nature of the study, certain outcomes that might have been observed in a more formalized study might have been overshadowed. Second, the data collection relied heavily on interviews involving one parent, which may have offered an incomplete picture of the participant's developments outside of therapy. However, parental opinion and engagement were the primary focuses of the study, and parent interviews were cross-compared with clinician journals and interviews in order to determine the most

accurate information. Third, the length of the intervention was comparatively short, and due to time constraints, post-intervention follow-up was unable to be completed, in order to determine whether the effects of the intervention continued when speech-language services were provided by a monolingual clinician.

Implications for future research

The conclusions of this study would be further supported and more widely applicable if they were verified by a similar study that involved a larger number of participants, not necessarily restricted to bilingual children with ASD. Such a study might benefit from a longer duration of intervention and a follow-up period after the end of the intervention to determine the lasting effects of the intervention. Related to this, a study concerning the effects of providing SLPs with structured education and resources regarding speech-language services to bilingual clients would be beneficial. It would be ideal for this type of study to also include some qualitative element, to allow researchers to identify the most effective and accessible means of equipping monolingual SLPs with the skills to appropriately provide intervention to bilingual clients. This study could also probe why SLPs don't incorporate documented successful interventions into their treatment plans, and address ways to meet those specific needs. Lastly, a detailed study of the types of bilingual intervention (such as initiating in L1, mirroring L1 and L2, or alternating L1 and L2) and their effectiveness would be beneficial for providing speech language services to bilingual children.

Potential clinical applications

Of the multiple findings of this study, several are supported by previous research. As such, these findings could be proposed as simple, immediate guidelines for practicing SLPs. They include:

- Using interactive materials (games, videos, stories) that use both L1 and L2
- Incorporating cognate lists, stimulus phrases in therapy
- Ensuring parents are educated in their L1 about the purpose and benefits of therapy
- Metalinguistic carrier phrases such as "How do you say _____ in [L1]?", to be used both in L1 and L2.

APPENDIX A: Handouts provided to on-site clinicians for use in therapy

Suggestions for Providing Speech-Language Services to Bilingual Children & Families
compiled by Zaynab Taei

Reasons to Encourage L1 Use

- Children who build a strong foundation in their L1 are better able to learn the structures and concepts of their L2.
- Parents are able to be better language models for children in their L1.
- It is difficult for parents to pass down their values, beliefs, and traditions when they can't communicate with their children in their native language. This can lead to a breakdown of the relationships between parents and children and cause problems with discipline, respect, and familial intimacy as children age.
- Bilingualism is a necessity for multicultural children who need to learn two languages in order to participate fully in their various social and familial contexts.
- There is evidence to suggest that bilingual children may have cognitive advantages over monolingual children, such as enhanced metalinguistic awareness.

Strategies for Intervention

- Include parents in therapy and encourage them to use the L1.
- Encourage families to use their L1 at home, and to encourage the child to use it during family time, such as meals, playtime, bathtime, etc.
- Encourage families to do carryover activities in the L1. For example, if a child is learning colours in English (L2) at school, parents can teach the child colours in L1.
- Try to use as many cognates (words that are the same or similar in L1 and L2) as possible. Create a list to share with parents, and encourage them to add to it and use it at home.
- Teach parents how to use noun phrase elaboration during conversations with the child in the L1.
- Monolingual therapists can use carrier phrases and key high-frequency phrases (provided by caregivers) in the L1 during intervention to show the child and family that the L1 is valid, and to encourage the child to respond and engage with therapy.
- Metalinguistic comparisons between L1 and L2 can be used for higher level children to promote correct usage.

References

Kay-Raining Bird, E., 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.

Genesee, F., Paradis, J., & Crago, M. B. (2004). *Dual language development & disorders: A handbook on bilingualism & second language learning, vol 11*. Baltimore, MD, US: Paul H Brookes Publishing.

Gutierrez-Clellen, V. (1999). Language choice in intervention with bilingual children. *American Journal of Speech-Language Pathology, 8,* 291-302.

Nicoladis, E., & Genesee, F. (1997). Language development in preschool bilingual children. *Journal Of Speech-Language Pathology And Audiology*, *21*(4), 258-270.

Tabors, P. O. (2008). *One child, two languages: a guide for preschool educators of children learning English as a second language.* Baltimore: Paul H. Brookes Pub.

Suggestions for encouraging _____ at home
compiled by Zaynab Taei

- Use words that are similar between English and _____. In English, these are called "cognates." Examples:

- When _____ says something (a request, a question, a sentence) repeat it with correct grammar and more words (adjectives, adverbs, etc). The goal is to encourage the use of correct grammar and increase the length of _____ 's sentences.

- Create a time (1-2 hours per day, perhaps during meals) when _____ knows that S/he has to speak _____. Encourage _____ to speak to you in _____ and speak _____ with him/her.

- Practice _____ with _____'s homework. If _____ learns something in English at school, teach the same thing in _____ at home. Use books and stories in _____ and in English to help your child transfer information between the two languages (the same story in English and _____) for example).

(created with the input of Dr. Elizabeth Peña at the University of Texas at Austin)

APPENDIX B: Interview questionnaire in original French with English translation

Décrivez-moi les differences en [participant] et son usage de langage (français et anglais) après therapie a commencé avec [supervising clinician]. Décrivez-moi comment elle est changée après j'ai commencé utiliser français en therapie (en Septembre).
Describe the differences in [participant] and her use of language (French and English) after starting therapy with [supervising clinician]. Describe how she's changed after I started using French in therapy (in September).

Comment avez-vous senti quand [participant] a commencé therapie avec Corie? Décrivez-moi comment ça a changé quand j'ai commencé utiliser français en therapie. Considerez votre avis de [supervising clinician], de l'orthophonie en générale, de votre rôle en therapie, de votre communication avec [supervising clinician], de vos rélations avec [participant], etc.
How did you feel when [participant] started therapy with [supervising clinician]. Describe how that changed when I started using French in therapy. Consider your opinion of [supervising clinician], speech therapy in general, your role in therapy, your communication with supervising clinician, your interactions with [participant] etc.

Décrivez votre avis sur l'importance (ou pas) d'avoir ton enfant parler votre première langue. Qu'est-ce que la consequence sur la culture, pour l'enfant? Pour la famille? Comment est cela important pour vous et votre famille?
Describe your opinion regarding the important (or not) of having your child speak your first language. What is the effect of this on the culture, for the child? For the family? How is this important for you and your family?

Qu'est ce que des gens (famille, amis, therapists, la maîtresse à l'école, etc) ont vous dit au sujet de combien des langues [participant] devrait parler? (exemple: seulement anglais, seulement français, etc)
What have people (family, friends, therapists, school teachers, etc) said to you about how many languages [participant] should speak? (example: only English, only French, etc)

En générale, décrivez vos emotions et avis au sujet de therapie et son effet sur [participant], avant que je suis arrivée, et après nous sommes commencées utiliser le français.
In general, describe your feelings and opinions on the subject of therapy and its effect on {participant], before I came, and after we started using French.

Qu'est-ce que nous pouvons faire pour aider des familles qui parle une autre langue que l'anglais d'être plus confortable quand les enfants sont en therapie ici?
What can we do to help families who speak another language besides English to be more comfortable when their children are in therapy here?

References

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.

American Speech-Language-Hearing Association. (2007). *Scope of practice in speech-language pathology* [Scope of Practice]. Available from www.asha.org/policy.

American Speech-Language-Hearing Association. (2010r). Code of ethics [Ethics]. Available from www.asha.org/policy.

Bedore, L. M., & Peña, E. D. (2008). Assessment of bilingual children for identification of language impairment: Current findings and implications for practice. *International Journal Of Bilingual Education And Bilingualism*, *11*(1), 1-29. doi:10.2167/beb392.0

Kay-Raining Bird, E., Lamond, E., & Holden, J. (2012). Survey of bilingualism in autism spectrum disorders. *International Journal Of Language & Communication Disorders*, *47*(1), 52-64. doi:10.1111/j.1460-6984.2011.00071.x

Brice, A., & Anderson, R. (1999). Code mixing in a young bilingual child. *Communication Disorders Quarterly*, *21*(1), 17-22. doi:10.1177/152574019902100103

Genesee, F., Paradis, J., & Crago, M. B. (2004). *Dual language development & disorders: A handbook on bilingualism & second language learning, vol 11*. Baltimore, MD, US: Paul H Brookes Publishing.

Gutierrez-Clellen, V. (1999). Language choice in intervention with bilingual children. *American Journal of Speech-Language Pathology, 8,* 291-302.

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*(7), 1342-1352. doi:10.1007/s10803-011-1365-z

Kay-Raining Bird, E., Trudeau, N., Thordardottir, E., Sutton, A., and Thorpe, A. (2005). The language abilities of bilingual children with Down syndrome. American Journal of Speech-Language Pathology, 14, 187-199.

Kohnert, K. (2010). Bilingual children with primary language impairment: Issues, evidence and implications for clinical actions. *Journal Of Communication Disorders*, *43*(6), 456-473. doi:10.1016/j.jcomdis.2010.02.002

Kohnert, K. & Stoeckel, R. Intervention for Bilingual Children with CAS. (n.d.) *The Childhood Apraxia of Speech Association of North America.* Retrieved from

https://www.kintera.org/site/apps/nlnet/content2.aspx?c=chKMI0PIIsE&b=701773&ct=464473

Kummerer, S. E., Lopez-Reyna, N. A., & Hughes, M. (2007). Mexican immigrant mothers' perceptions of their children's communication disabilities, emergent literacy development, and speech-language therapy program. *American Journal Of Speech-Language Pathology*, *16*(3), 271-282. doi:10.1044/1058-0360(2007/031)

Nicoladis, E., & Marchak, K. (2011). Le carte blanc or la carte blanche? Bilingual children's acquisition of French adjective agreement. *Language Learning*, *61*(3), 734-758. doi:10.1111/j.1467-9922.2011.00660.x

Nicoladis, E., & Genesee, F. (1997). Language development in preschool bilingual children. *Journal Of Speech-Language Pathology And Audiology*, *21*(4), 258-270.

Ohashi, J., Mirenda, P., Marinova-Todd, S., Hambly, C., Fombonne, E., Szatmari, P., & ... Thompson, A. (2012). Comparing early language development in monolingual- and bilingual- exposed young children with autism spectrum disorders. *Research In Autism Spectrum Disorders*, *6*(2), 890-897. doi:10.1016/j.rasd.2011.12.002

Paradis, J., Crago, M., Genesee, F., & Rice, M. (2003). French-English Bilingual Children With SLI: How Do They Compare With Their Monolingual Peers?. *Journal Of Speech, Language, And Hearing Research*, *46*(1), 113-127. doi:10.1044/1092-4388(2003/009)

Peña, E. D., Summers, C., & Resendiz, M. (2007). Language variation, assessment, and intervention. In A. G. Kamhi, J. J. Masterson, K. Apel (Eds.) , *Clinical decision making in developmental language disorders* (pp. 99-118). Baltimore, MD, US: Paul H Brookes Publishing.

Peña, E. D., & Bedore, L. M. (2009). Bilingualism in child language disorders. In R. G. Schwartz (Ed.) , *Handbook of child language disorders* (pp. 281-307). New York, NY, US: Psychology Press.

Peña, E. D., & Jackson, J. E. (2011). The social and cultural bases of communication. In R. B. Gillam, T. P. Marquardt, F. N. Martin (Eds.) , *Communication sciences and disorders: From science to clinical practice (2nd ed.)* (pp. 51-70). Boston, MA, US: Jones and Bartlett Publishers.

Peña, E. D. "Re: Request regarding use of L1 for a bilingual child with autism." Message to the author. 30 Sep. 2014. Email.

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*(7), 1499-1503. doi:10.1007/s10803-011-1366-y

Seung, H., Siddiqi, S., & Elder, J. H. (2006). Intervention Outcomes of a Bilingual Child with Autism. *Journal Of Medical Speech-Language Pathology*, *14*(1), 53-63.

Shin, H. & Kominski, R. (2010). Language use in the United States: 2007. *American Community Survey Reports*. US Census Bureau. Retrieved from http://www.census.gov/prod/2010pubs/acs-12.pdf

Tabors, P. O. (2008). *One child, two languages: a guide for preschool educators of children learning English as a second language.* Baltimore: Paul H. Brookes Pub.

Valicenti-McDermott, M., Tarshis, N., Schouls, M., Galdston, M., Hottinger, K., Seijo, R., & ... Shinnar, S. (2013). Language differences between monolingual English and bilingual English-Spanish young children with autism spectrum disorders. *Journal Of Child Neurology*, *28*(7), 945-948. doi:10.1177/0883073812453204

Yan, S., & Nicoladis, E. (2009). Finding le mot juste: Differences between bilingual and monolingual children's lexical access in comprehension and production. *Bilingualism: Language And Cognition*, *12*(3), 323-335. doi:10.1017/S1366728909990101

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), 10-24. doi:10.1044/1058-0360(2012/10-0078)

Zehler A., Fleischman H., Hopstock P., Stephenson T., Pendzick M., & Sapru S. (2003). Policy report: Summary of findings related to LEP and SPED-LEP students. US Department of Education, Office of English Language Acquisition. Arlington, VA: Development Associates.

Vita

Educational institutions attended and degrees already awarded:
Georgia Southern University, 2008-2011, Bachelor of Arts in Anthropology

Zaynab K. Taei